Chapter 4

Other Transportation Modes
Other Transportation Modes

In addition to use of the State's extensive road and highway network by privately owned cars and trucks, several other methods of transportation significantly contribute to the overall transportation system. These mode categories include Aviation; Bicycle and Pedestrian; Rail Transportation; Public Transportation; Water Transportation; and Intermodal Transportation. More information can be found on KDOT’s web page, www.ksdot.org, under Other Transportation Modes.

Aviation

Additional information on aviation in Kansas is available on the KDOT web page at http://kdot1.ksdot.org/public/ksdot/divaviation/index.htm

Aviation plays a critical and unique role among the transportation modes in the Kansas economy. Aviation not only is an important mode of transportation, but also a major manufacturing industry with an annual economic impact estimated at over $3 billion. Aside from the aircraft industry, the Kansas Department of Transportation estimates the annual economic impact of the State's airports to be $1.7 billion. Kansas’ airports provide an essential link to our increasingly global economy. Kansas companies rely on airports to serve their customers, deliver products, and obtain inventory. Further, good airports are an enticement to outside firms that may be considering Kansas to take advantage of the State’s high quality, reasonably priced work force. Fractional ownership of corporate jet fleets is a popular option for business firms and makes the smaller airports more accessible.

Airports are important to rural Kansans’ needs. Airports play a key role in agricultural efficiency as bases for aerial applicators. Particularly in the western part of Kansas where the density of residents is low, airports are critical to the delivery of both routine and emergency medical services. Currently no person in Kansas is more than 30 miles from air ambulance services.

Kansas has 150 public-use airports, ranking seventh in the nation in terms of airports per capita. Kansas also ranks high in the number of pilots and aircraft per capita. There were nine airports in Kansas in 2001 that offered scheduled commercial service. Wichita Mid-Continent, Forbes Field in Topeka, Manhattan Municipal, Salina Municipal, and Garden City airports are all considered Primary Commercial Service airports. The other four airports in the State that had scheduled service in 2001, Dodge City, Great Bend, Hays, and Liberal, had commuter and air taxi service. A map illustrating the location of all airports in Kansas appears on page 4-3.

Table 4-1: Kansas Airports - Infrastructure

<table>
<thead>
<tr>
<th>TYPE/FEATURES</th>
<th>NUMBER OF AIRPORTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>FAA Approved Airports/Landing Strips</td>
<td>398</td>
</tr>
<tr>
<td>Airports With More Than One Runway</td>
<td>127</td>
</tr>
<tr>
<td>Total Runways/Landing Areas</td>
<td>568</td>
</tr>
<tr>
<td>Hard-Surfaced Runways</td>
<td>179</td>
</tr>
</tbody>
</table>

Federal Aviation Administration reports, 1992.
Table 4-2: Kansas Airports – Classification

<table>
<thead>
<tr>
<th>TYPE OF AIRPORT</th>
<th>NUMBER IN THIS CATEGORY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public-Use (incl. the 9 commercial airports)</td>
<td>150 *</td>
</tr>
<tr>
<td>Private-Use</td>
<td>246</td>
</tr>
<tr>
<td>Military-Use Only</td>
<td>2 *</td>
</tr>
</tbody>
</table>

Federal Aviation Administration reports, 1992.

* Fort Leavenworth's Sherman Airfield is considered to be both a public-use airport and a military-use airport.

**Air Freight Transportation**

Although the amount of freight moved by air is not significant compared to that moved over highways and rails, the speed at which it can be moved is much greater. In terms of total weight moved, it is estimated that only 1 percent of the freight in the U.S is transported by air. However, air freight comprises 20 percent of the total dollar value of all transported freight in the country.

Air freight is used as a method of transport by many businesses in Kansas to send or receive parts and equipment. Wichita's Mid-Continent Airport ranks 49th in the nation in the amount of total air freight moved.

**Passenger Air**

Kansas City International (KCI) Airport, located in Missouri 15 miles directly north of Kansas City, Kansas, provides air passenger transportation for the residents of eastern Kansas. The proximity of KCI and other international airports in other states is a deterrent to commercial service in Kansas. Higher prices for travel leads to lower passenger numbers, which in turn makes it unprofitable for major airlines to provide direct service in Kansas. Wichita civic leaders succeeded in 2002 in attracting a low-cost airline to Mid-Continent Airport by pledging ridership among the business community. This has resulted in a more competitive fare structure for flights out of Wichita.

**Kansas Airport Improvement Program**

Kansas has made infrastructure investment in our airports a priority by developing the Kansas Airport Improvement Program. This program, under the Comprehensive Transportation Program provides funding for public use airports. Over the 10-year life of the legislation, the program will receive $30 million. It is open to all public-use airports except the five primary airports. Projects require local matching funds between 10 and 50 percent, which will result in $4 to $4.5 million dollars per year in improvements. The maximum State participation in any single project is $500,000. Eligible projects include runway, taxiway, ramps, lighting, and electronic equipment.
Chapter 4 – Other Transportation Modes

Bicycle and Pedestrian

KDOT’s Bicycle and Pedestrian Coordinator prepares the Kansas Bicycle and Pedestrian Transportation Plan, the Bicycle and Pedestrian Transportation Facilities Guide, and State Bicycle Map. This and other information on Bicycle and Pedestrian modes in Kansas is available on the KDOT Bicycle and Pedestrian web page at http://www.ink.org/public/kdot/burrail/bike/bikepage.htm

Biking and Walking

Since the 1980’s, there has been a steady growth in the number of Americans who own and ride a bicycle. Walking has also grown in popularity in the United States as a form of exercise and transportation in urban areas. Surveys conducted in 1990 estimated that 73 percent of adults in the U.S. walked outdoors, especially for exercise. National surveys also suggest that there is a latent demand for bicycling and walking and that more people would walk or bicycle if conditions were better.

Bicycling and walking play important roles in moving people, especially in urban and suburban communities. Increased bicycling and walking offers individuals and the state a host of health, social, environmental and transportation benefits. They also provide an alternative mode for children and households with no car or household member with a motor vehicle driver’s license. Most bicycling occurs on state and local roads, as these offer the most direct connection between destinations. In addition, the design of pedestrian facilities is coming to the forefront on the national level. KDOT considers the needs of bicyclists and pedestrians when roadway improvements are made. This is consistent with national requirements and guidelines and is viewed as a means for integrating bicycling into the current transportation system. On- and off-road transportation improvements to accommodate bicyclists and pedestrians can help enhance safety for motorists and non-motorists alike.

At the national level, the passage of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) and the Transportation Equity Act for the 21st Century (TEA-21), passed in 1998, have set forth a new level of planning and funding for bicycle and pedestrian activity. Every state and Metropolitan Planning Organization (MPO) has developed a bicycle and pedestrian plan, and every state has a Bicycle and Pedestrian Coordinator on staff. At the regional and local levels there is a grassroots organization of bicycle and pedestrian activity. Many regional planning entities have developed bicycle and pedestrian plans and many new community-based organizations have emerged to initiate new pedestrian and bicycle facilities. But because this planning and activity is relatively new, the coordination between the different organizations at the various levels has been slow.

| Table 4-3: Urban Bicycle/Pedestrian Facilities |
| Lawrence, Topeka, Wichita and KC metro areas only |
| **Type of Facility** | **Existing Mileage** |
| Bicycle Routes | 113.5 |
| Bicycle Lanes | 65.7 |
| Bicycle/Pedestrian Paths | 249.6 |
| Rail Trails | |
| **Total** | **428.8** |
Rail-banking (Rails-to-Trails)

Federal laws allow the “rail banking” of corridors no longer being serviced by a railroad in order to promote public use of the corridors and preserve them for potential future rail use. Several corridors in Kansas have been formally rail banked. Rail-banked corridors generally meet federal and state bicycle facility design guidelines for grade and design speed. Because rail-trails typically cross many jurisdictional lines, KDOT has no plans for in-house development of future rail-to-trails. However, KDOT is willing to work with rail banking entities, local governmental units, and the public to develop trails that are safe for all users. Adjacent landowner consultation is important early in the planning process to help streamline rail-to-trail development.

Rails-with-Trails

Rails-with-trails are bicycle and pedestrian paths constructed within the right-of-way of active railroads. Communities interested in improving conditions for bicycling and walking see rail corridors as prime opportunities. Rail corridors often offer scenic, unbroken stretches along rivers or canals. However, development of these coexisting uses must be balanced with recognition of the safety concerns with the public’s proximity to train traffic. KDOT supports any “rail-with-trail” project as long as it has the full support of the railroad whose right-of-way is being used and the trail sponsor has met all concerns of the railroad as well as meeting basic trail guidelines.

Accessible Right-of-Way

Title II of the Americans with Disabilities Act (ADA) requires that newly constructed or altered facilities be readily accessible to and usable by people who have disabilities. The United States Access Board is developing guidelines for the construction and alteration of public rights-of-way to provide access for pedestrians with disabilities to the same degree of convenience, connection, and safety afforded the public generally. It is unknown when the guidelines for public rights-of-way will be adopted.

Transportation Enhancement Program

The Transportation Enhancement (TE) Program funds bicycle and pedestrian facilities as well as other non-traditional transportation projects. Federal legislation requires that a minimum of 10% of the state’s Federal Surface Transportation Program (STP) funds be set aside for TE projects. Kansas TE projects fall into three categories: historic, scenic and environmental, and pedestrian and bicycle facilities. These projects must be directly related to a surface transportation system. Applications are accepted from cities, counties, and other public entities and are evaluated on established criteria. Over the 12-year life of the TE program, KDOT has programmed $41 million in federal funding for construction of 73 bicycle/pedestrian projects for 29 different jurisdictions.
Chapter 4 – Other Transportation Modes

Rail Transportation

KDOT’s Office of Rail Affairs prepares an Annual Rail Plan Update and State Railroad Map. This and other information on railroads and freight transportation in Kansas is available on the KDOT Rail Affairs web page at http://www.ink.org/public/kdot/burrail/railwbpg/railroads/kdotrail.htm

Classification of Rail Carriers in Kansas

The Surface Transportation Board (STB) classifies each railroad company on the basis of its adjusted annual operating revenues for three consecutive years. Class I rail companies are the major, main and branch line carriers that have revenues of $250 million or more per year. Class II carriers average between $20 and $250 million in revenue per year. Class III carriers, also known as short-line railroads, have average revenues of less than $20 million per year. Class I railroads own and operate 2,812 miles of railroad in the state, while Class III railroads own and operate 2,115 miles of railroad. A total of 1,473 miles of railroad are under trackage rights agreements. There are currently no Class II railroads in Kansas. The total of 4,927 miles operated places Kansas sixth among the 50 states, and the state ranks second in Class III mileage. The mileage figure does not include double trackage, spur and business track, sidings and yards nor does it include privately owned “not for hire” railroads.

Kansas railroads own and operate a total of 4,927 miles of rail line. As of September 2002, railroad miles owned by Class I carriers in Kansas totaled 2,802 miles including main, branch line, and lines leased to short-line railroads. The number of short-line railroads and mileage substantially increased in the state during the early 1990’s as Class I carriers sold unprofitable light density lines to short-line railroads.

Short-line carriers are now examining the profitability of lines purchased from Class I carriers that are in need of rehabilitation. In recent years, some of the State’s short-line operators have chosen to pursue abandonment procedures on their least profitable lines. In most instances, short-line abandonments are on lines that show no profit or are operating at a deficit. As of July 2002, Kansas had 17 short-line railroads owning 1,709 miles of track. Of these 17 railroads, 12 are freight-hauling short-line railroads, three are switching and terminal railroads and two are tourist/recreational-based lines.

A map, on page 4-7, shows all railroad lines existing in Kansas as of September 2002.
Rail Line Abandonments

During the early 1900’s, Kansas had more than 9,000 miles of railroad lines covering every county in the state. Railroad mileage in the state was at its maximum in 1917 when 9,363 miles were recorded. Due to the initial over-expansion, subsequent bankruptcies, mergers, other competition, deferred maintenance, and general changes in economic conditions more than 3,300 miles of railroad have been abandoned. In the period between 1991 and 2000, 1,142 track miles were abandoned, reflecting a trend of short-line railroads to abandon marginally profitable and non-profitable lines that had been purchased from major carriers.

In an effort to reduce abandonments and improve rail service, federal and state programs have been initiated to provide funding to the short-line railroads in the state. Unfortunately the funding is not sufficient to address all rehabilitation needs. A brief description of the federal and state funding programs are listed below.

State Rail Service Improvement Funds (RSIF)

The Kansas Comprehensive Transportation Program (CTP) included a Rail Service Improvement Fund (RSIF) component to provide short-line railroads with grants or low-interest, 10-year loans to be used primarily for track rehabilitation. The guidelines were modeled closely after the federal Local Rail Freight Assistance (LRFA) program. Under this program, 40 percent of the rehabilitation cost is provided as a low-interest loan and 30% is in the form of a grant, and the short-line railroad puts up the remaining 30 percent of the total costs. This new program will provide $3 million in loans/grants per year for eight years through June 2007. The Rail Service Improvement fund will be self-sufficient for years to come through the payment of principal and interest by the railroads. This will allow ongoing opportunities for railroads to improve their systems and service to their customers.

Federal Local Rail Freight Assistance to States (LRFA)

The Kansas Legislature granted KDOT the authority to loan or grant Federal Railroad Administration (FRA) funds to short-line railroads through the LRFA program. The LRFA program provided a low-interest, revolving loan program at a rate below the prime rate. Although the LRFA program was last funded in 1995, payments on loans (including principal and interest) have been used to generate additional loans since that time. The total number of dollars spent in the LRFA program has been slightly more than $3 million dollars.

Railroad Rehabilitation and Improvement Financing (RRIF)

Railroad financing is also available through the new federal credit program known as the Railroad Rehabilitation and Improvement Financing (RRIF) program. The Transportation Equity Act for the 21st Century (TEA-21) provided this program for the purpose of acquisition, improvement and rehabilitation of intermodal, rail equipment or facilities, including track, components of track, bridges, yards, buildings and shops. Additional purposes include refinancing existing debt and the development of new intermodal or railroad facilities. One disincentive of the RRIF program is the payment of a credit risk premium prior to an appropriation of funds. The credit risk premium is a cash payment, determined by FRA to be provided by a non-federal entity. The repayment of RRIF loans can be up to 25 years. There are no current RRIF loan applications in Kansas.
**Rail Freight Transportation**

The volume of freight transported by Class I carriers in Kansas during 2001 totaled approximately 328 million tons. In terms of equivalency, it would take approximately 18,925,000 trucks to transport the same payload as those 5,407,947 loaded railcars. Principal commodities transported in Kansas by the Class I rail carriers in 2001 were coal, agriculture products, food and kindred products, and chemicals and allied products.

Short-line railroads in Kansas handled approximately 125,000 rail carloads in 2001. It would require approximately 438,000 truckloads to replace these rail carloads hauled by short-line railroads. The predominant commodity hauled by the State’s short-line railroads is grain, with the four major grains being wheat, corn, sorghum, and soybeans. In 2002, Kansas State University completed a study entitled *Impact of Kansas Grain Transportation on Kansas Highway Damage Costs* for western Kansas. The study determined that “the short-line rail system in the study area, which comprises the western two-thirds of Kansas, saves KDOT $49.5 million in pavement damage costs annually, with the average damage cost of incremental truck traffic costing approximately $0.17 per truck mile.”

Short-line railroads face some unique challenges in competition for freight business. The short-line railroads are not designed to accommodate the 286,000-pound rail cars that have been introduced on Class I main-lines. These rail cars are bigger and hold more payload than the 263,000-pound cars and are in demand by shippers for use on short-line track. In addition, competition from trucks is more of a serious problem for small carriers than it is for Class I carriers because of the relatively low freight volume and short-haul distances under which short-line railroads usually operate.

**Rail Passenger Transportation**

*Inter-city Rail Passenger Service*

Rail passenger service in Kansas is provided by the National Railroad Passenger Corporation, commonly known as Amtrak, a quasi-public corporation. Amtrak was established by Congress in 1970 when the major rail carriers chose to discontinue passenger service after first class mail hauling was shifted to air. Despite improvements, Amtrak continues to struggle to reach financial self-sufficiency.

The Amtrak train serving Kansas, the Southwest Chief, operates between Los Angeles and Chicago with daily service in each direction. Boarding/dismounting takes place at six points in the state: Lawrence, Topeka, Newton, Hutchinson, Dodge City, and Garden City. A map showing the Amtrak line in Kansas appears on page 4-15.

The economic impact of Amtrak for goods and services in Kansas totaled just over $17 million in FY 2001. Large portions of those purchases were made in Wichita, where expenditures totaled nearly $15.6 million. Amtrak employs 30 Kansas residents whose FY 2001 total wages totaled approximately $1.3 million.
While Amtrak usage was up nationally in 2001, ridership in Kansas fell 6 percent compared to 2000. Continuation or future expansion of Amtrak service in Kansas will depend on developments at the national level. Table 4-3 listed below demonstrates a comparison of the ridership figures for fiscal years 2000 and 2001 for the six Kansas cities served by Amtrak.

<table>
<thead>
<tr>
<th>Kansas Cities with Amtrak Service</th>
<th>2000 Fiscal Year Ridership</th>
<th>2001 Fiscal Year Ridership</th>
<th>Ridership Change</th>
<th>Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dodge City</td>
<td>4,140</td>
<td>3,056</td>
<td>-1,084</td>
<td>-26%</td>
</tr>
<tr>
<td>Garden City</td>
<td>5,592</td>
<td>5,422</td>
<td>-170</td>
<td>-3%</td>
</tr>
<tr>
<td>Hutchinson</td>
<td>3,466</td>
<td>3,109</td>
<td>-357</td>
<td>-10%</td>
</tr>
<tr>
<td>Lawrence</td>
<td>2,151</td>
<td>2,263</td>
<td>+112</td>
<td>+5%</td>
</tr>
<tr>
<td>Newton</td>
<td>11,209</td>
<td>11,367</td>
<td>+158</td>
<td>+1%</td>
</tr>
<tr>
<td>Topeka</td>
<td>5,683</td>
<td>5,307</td>
<td>-376</td>
<td>-6%</td>
</tr>
<tr>
<td>Total Kansas Ridership</td>
<td>32,241</td>
<td>30,524</td>
<td>-1,717</td>
<td>-5%</td>
</tr>
</tbody>
</table>

Inter-city Passenger Rail Study

In 1999, the Kansas Legislature directed the Kansas Department of Transportation to conduct a feasibility study to look at the potential of expanding passenger rail service in Kansas. The study was completed, and presented to the Legislature, in March 2000. The results of the study indicated that only with a very significant injection of federal or state funds could a case be made for expanding rail passenger service in Kansas. Of six lines studied, only the upgrade and expansion of service on the Kansas City-Lawrence-Topeka-Newton-Wichita route achieved an Operating Ratio of at least 1.0. An Operating Ratio of 1.11 (2000) and 1.39 (2020) was achieved only when this corridor was part of a multi-state integrated system with a cost per train mile of $25 and an operating speed of 110-mph. It was estimated that a total of $219 million (1999 dollars) for infrastructure improvements and rolling stock would be needed to provide this service, plus an additional local investment in stations and connecting transit facilities. Annual ridership in the 2020 scenario was projected at 500,000 annually. For any such expansion to be considered, adequate federal funding will be required.

Commuter Rail

Localized rail passenger service via commuter rail has been under investigation in Johnson County, Kansas since 1992. In November 1994, Johnson County began an I-35 Commuter Rail Feasibility Study. It was completed in September 1995. Following this study, a Major Investment Study (MIS) was begun in early 1996 to review the corridor extending from downtown Kansas City, Missouri, through a portion of Wyandotte County, Kansas, to the Olathe area in Johnson County. The MIS was completed and the commuter rail alternative was selected as the technical recommendation for the Locally Preferred Alternative in August 1998. Preliminary Engineering (PE) was initiated and will include potential ridership forecasting and freight railroad negotiations.

In 2000, the Mid-America Regional Council (MARC) began a commuter rail feasibility study to determine if commuter rail transit, operating on existing local rail lines, could help serve
the Greater Kansas City region's transportation needs. The first phase of the study, which included initial corridor screening, was completed in spring 2001. During this process the corridor from Topeka to Lawrence to Kansas City was identified as a promising line. The second phase of the study, which was completed in summer 2001, refined ridership numbers, costs and the opportunities and challenges of implementing a commuter rail system.

The final phase of the study was completed in 2002. The potential routes were pared to three that met the study’s criteria for being the most feasible routes, including the Lawrence to Kansas City route, which has a projected daily ridership of 2,238. Further work towards implementation will depend heavily on local interest and support.

**Railroad Safety-Roadway/Railroad Crossing Accidents**

There were 46 collisions between highway vehicles and trains at roadway/railroad at-grade crossings in Kansas during 2000. This is the lowest accident total in the last 36 years. The second lowest number of accidents occurred in 1998 when there were 51, with the highest number of accidents occurring in 1975 with 275.

Kansas has 6,376 public roadway/railroad at-grade crossings, of which 1,684 of these have flashing light warning systems, and 1,126 of this 1,684 have automatic gates. The remaining 4,692 crossings have passive signing that includes cross-bucks; advance warning signs, and pavement markings where substantial pavement exists. There are also several passive crossings that are signed with stop signs.

An inventory of all public roadway/railroad at-grade crossings is maintained by the Kansas Department of Transportation. The agency prioritizes these at-grade public roadway/railroad crossings for safety improvements according to a Design Hazard Rating Formula. This formula objectively ranks the crossings based on the amount of public road traffic, the number of trains per day and the present type of warning system.

Federal Highway Administration (FHWA) funds are used for installing active warning systems and other safety improvements. In recent years about $9 million in FHWA Funds have been expended annually for the installation of active warning systems at public at-grade roadway/railroad crossings in Kansas. Technology is available that would enhance enforcement in the form of video equipment to detect crossing-gate violators and to record their license plates.

Operation Lifesaver is an important program that educates the public about the dangers of rail-highway grade crossings. In addition, state and local governments are also evaluating the utility of innovative programs for improving grade crossing safety. One such strategy is the “corridor approach" which targets an entire segment of rail line for a coordinated series of safety improvements rather than focusing only on individual high-exposure crossings. Increasing consideration is being given to reducing the total number of grade crossings in a geographic area by closing some of the lesser-used crossings while simultaneously upgrading others.
Public Transportation

KDOT’s Office of Public Transportation (OPT) prepares an annual Provider Directory. This and other information on public transportation in Kansas is available on the KDOT Office of Public Transportation web page at http://www.ink.org/public/kdot/burtransplan/othermds/pubtrans.html

Public transportation programs are provided in 93 of the 105 counties. One state and three federal public transit programs provide funding for services to the citizens of Kansas who depend upon public transportation. Without these programs, many citizens would have no way to make medical appointments, hold a job, shop, or be self-sufficient.

State Program

Funding for the state program is available from the Elderly & Disabled Coordinated Public Transportation Assistance Fund. Under the CTP, the state program provides $6 million a year for needed transportation in areas of the state lacking service and to expand and enhance existing services. In addition, KDOT has augmented the state program with $9 million in Federal Surface Transportation Program funds to jump-start the much-needed replacement of public transit vehicles in the first three years of the CTP.

The state program provides a total of $3.54 million per year to the urban transit authorities in Topeka, Lawrence, Wichita, Johnson County, and the Unified Government of Wyandotte County/Kansas City, Kansas. Rural transit providers receive $2.46 million per year.

Federal Programs

Federal Transit Administration (FTA) 49 U.S.C. 5311 provides federal monies to support nonurban area (under 50,000 population) transportation programs that serve elderly persons and persons with disabilities while also providing the general public with an equal opportunity to utilize the services. The program augments existing transportation services and enhances access for participants. About $4.0 million is available yearly to Kansas under the program.

FTA 49 U.S.C. 5310 provides federal monies to private nonprofit corporations and associations or public bodies approved by the state to purchase vehicles and related equipment to meet the special transportation needs of elderly persons and persons with disabilities. Urbanized areas and nonurban-areas under 50,000 population are both eligible. About $1 million is available yearly to Kansas under this program.

FTA 49 U.S.C. 5309 is a capital investment discretionary program with annual funding of about $3 to $4 million depending on Congressional earmarks. Assistance is available for the purchase of vehicles and vehicle related equipment and/or facility construction and/or renovation.

Projects Undertaken

The urban transit authorities used the state funds for expanding and enhancing service by adding new routes, longer hours of operation, more service on weekends, and increased
paratransit service. Steps were taken to begin publicly-funded fixed-route transit service in Lawrence for the first time. Some urban agencies chose to carry over a portion of their state funds to save for very large capital expenditures in future years. Rural providers also expanded and enhanced service by extending hours, adding weekend service, and running more routes.

**Coordinated Transit Districts (CTDs)**

In 1992, the Kansas Legislature passed the Coordinated Transit Act. This act authorized the formation of Coordinated Transit Districts (CTDs) in Kansas. The purpose of the Act was to enhance coordination and management of state and federal transit funds. The fifteen CTDs (shown on the map on page 4-14) assist the Office of Public Transportation with several program functions. CTDs are the recipients of funds from the State and the Federal Transit Administration (FTA) sources. CTDs collect and prioritize applications for funds from the transportation providers, contract to provide appropriate service, and monitor provider compliance with applicable state and federal laws and regulations.

**Inter-city Bus Transportation**

There are three major private inter-city bus lines serving Kansas: the Greyhound lines, Jefferson lines and the Texas, New Mexico, and Oklahoma lines (TNM&O). In addition, two non-profit agencies operate regularly scheduled inter-city bus services: the CAREvan operated by Developmental Services of North-West Kansas, and the North Central Kansas Express, operated by O.C.C.K., Inc. These lines provide a vital transportation link for Kansans who do not have access to a private automobile. A map displaying these routes can be found on page 4-15.

**Rural Healthcare Access**

Access to healthcare is a mounting issue for Kansas citizens, especially in rural areas. Centralization of healthcare services has had the unintended consequence of more difficult and longer trips for rural residents. This is particularly a problem for elderly, low-income, and disabled residents who often are most dependent on public transit or other people for their transportation needs.

**Transportation Brokering**

In rural areas, the long distances between residential units and services is rarely cost-efficient for full service transit. People instead rely on paratransit and private taxis. Often coordination is lacking resulting in untimely or inconvenient service. One solution, proposed by transit advocates to help address this problem, is transportation brokering. In this forum people needing transportation would contact a broker who in turn would contract with transportation providers to provide the needed services. This arrangement would allow a more coordinated and efficient response to identified needs.
Statewide ITS Architecture on Rural Public Transportation

KDOT recently initiated a project to develop and implement a statewide ITS architecture for rural public transportation. Two rural transportation providers, Developmental Services of Northwest Kansas and Reno County Public Transportation, have been designated pilot projects to receive ITS program support. Additional research, provided for through the contract, will be utilized for future statewide deployment. The scope of the procurement covers: existing systems research and analysis transit technology system design and development, development of specification for equipment procurement, installation and integration of the system and training.

The direction of the project is to use a statewide model with local call centers, central server, statewide data and radio network. After the two projects mentioned above are implemented the future deployment could expand up to 16 additional sites. Technologies that are being considered are Automatic Vehicle Locator, Geographic Information Systems, Computer Aided Dispatch software, Mobile Data Terminals, Advanced Reporting Systems, and Vehicle Diagnostics. This development will increase ridership, revenues, and safety as well as improve service/operations, schedule adherence, customer service and security, and reduce costs.

Rural Agency Coordination and Sharing

There are a number of typical items listed when discussing barriers to rural transit coordination and sharing. Commonly identified barriers include vehicle ownership, insurance coverage, federal regulations prohibiting sharing resources, and provider program administration. Numerous studies have determined that many of the barriers are perceived, and most can be overcome with sufficient effort devoted to putting a plan in place.

Water Transportation

The only water freight movement in Kansas occurs on the Missouri River System. Five Kansas cities (White Cloud, Atchison, Leavenworth, Wolcott and Kansas City) have eight commercial terminals on the Missouri River that handle freight.

Some industries are more dependent on barges than others. Products typically moved by water freight in Kansas include grain (primarily wheat), fertilizer, molasses, vegetable oils, sand and gravel. Barges come up the river from New Orleans and down the river from Omaha to the Kansas terminals. Products, which are unloaded at the terminals, are generally sent on to other locations by rail or by truck. Some terminals re-load barges and ship them up or down stream to terminals in other states. Because of the small percentage of freight that moves by barge, water transportation is of relatively minor importance for the movement of commodities in the Kansas economy. In recent years, less than 2 percent of the four major grains harvested in Kansas have been shipped by barge.

The use of barges on the river for transporting commercial goods is constrained both by the short season that the river is navigable and also because the transit time for barges is considerably more lengthy than that of alternate transportation means. According to the U.S. Corps of Engineers, the agency responsible for virtually all administrative oversight and regulation of the nation's rivers, the commercial navigation season on the Missouri typically is from late March to early December. The length of the water transportation season varies by year. Low water levels and ice blockages prohibit year-round navigation. A minimum navigation channel of 300 feet in
width and 9 feet in depth is maintained along the Missouri River. The river current is relatively fast, averaging a speed of approximately 5 miles per hour. The speed of the current and the narrow channels limit the size of tows, often resulting in barges that are loaded below capacity.

Sufficient water supply for navigation has been a concern for many years. Upstream water demand for recreation, irrigation, residential and commercial use has reduced the flow to the navigable reaches of the Missouri River. In August 1994, the U.S. Army Corps of Engineers proposed changes regarding the regulation of the Missouri River.

The suggested alterations, proposed by the Corps as part of its update to the *Master Water Control Manual*, proposed cutting barge traffic on the river by a month each year, a plan that would have serious consequences on the future of barges on the Missouri River in this area. Following criticism of the Corps' plan by lawmakers, private shippers, state agencies and others, the Corps announced that it would abandon its work on the master manual and begin work to draft a new river use plan.

**Intermodal Transportation**

**Intermodal Freight Transportation**

Intermodalism is defined as the connection and coordination of two or more methods of travel or freight transport that are chosen to be utilized for a single trip. An example of this would be the shipping of grain that is hauled from a farm to a local elevator using a truck, from the elevator to a dock facility using rail, and from the Midwest to New Orleans using a barge.

There is some difficulty in accurately accounting for intermodal traffic by state of origin and destination. The influence of intermodal hub facilities affects the access to facilities resulting in considerable trucking across state lines. The capacities of trailers, containers, and rail cars also vary.

Intermodal facilities tend to concentrate near large metropolitan areas because of the sizable capital requirements. Table 4-4 lists the two facilities that currently exist in Kansas. The Argentine Railyard in Kansas City, Kansas, owned and operated by Burlington Northern Santa Fe, is the largest single railyard in the Kansas-Missouri-Oklahoma-Nebraska region. Of the 100 trains daily using the 100 tracks in the yard, 54 carry intermodal freight, and 34 stop at the Argentine Railyard to change modes. It additionally accounts for the majority of the intermodal activity in the State, owning a facility that performs 21,000 intermodal lifts per month. Of these 21,000 lifts, half are trailers and half are containers.
Table 4-5: Intermodal Freight Facilities in Kansas

<table>
<thead>
<tr>
<th>FACILITY NAME</th>
<th>LOCATION</th>
<th>OWNER</th>
<th>NUMBER EMPLOYED</th>
<th>SERVICE TYPE</th>
<th>RAILROAD SERVED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Santa Fe Terminal</td>
<td>Kansas City (Argentine Yard)</td>
<td>BNSF</td>
<td>70</td>
<td>COFC TOFC DS</td>
<td>BNSF</td>
</tr>
<tr>
<td>Kansas City Intermodal</td>
<td>Kansas City (Armourdale Yard)</td>
<td>Union Pacific</td>
<td>17</td>
<td>COFC TOFC DS</td>
<td>Union Pacific</td>
</tr>
</tbody>
</table>

TOFC is the term used for "Trailers on Flat Cars,"
COFC denotes "Containers on Flat Cars."
DS denotes the capability for "Double Stacking" containers on Flat Cars.
BNSF – Burlington Northern Santa Fe Railway

Domestic Containerization

With the rapid growth of container traffic, there is some uncertainty as to the future use of trailers on flatcars, or "piggyback trailers", as they are commonly called. At the current time, the greatest use of containers involves international shipments. It is estimated that at least 15 percent of the westbound container traffic involves empty containers, down from 70 percent in 1994. Less time-sensitive domestic traffic that used to be shipped by piggyback trailers has already begun to switch to container traffic.

This creates a potential problem because domestic containers are different from containers used in international service. International shipments consist mostly of 40-foot containers while domestic containers involve 45-foot, 48-foot, and even 53-foot containers. Domestic containers also differ in that they may only be stacked three-high, whereas containers used for international service are stacked five-high.

The advantages and disadvantages of using containers versus trailers in intermodal movements relate mainly to costs. Tariff rates are generally lower for containers while service is reported to be just as good. Less damage is experienced with containers using articulated cars and other specialized equipment. On the other hand, rail carriers are faced with substantial investment requirements for unloading equipment, chassis, transfers and the like. Additionally, there are problems with increased clearance requirements for double-stack rail movements.

Intermodal Passenger Transportation

The amount of intermodal passenger transportation is difficult to assess in a quantitative manner, since the gathering of data for many intermodal passenger actions is next-to-impossible to obtain. However, the magnitude of intermodal transportation can be understood by the simple consideration that intermodal passenger transportation occurs whenever someone walks to the transit stop to catch a bus, is transported by private vehicle to the Amtrak station to hop aboard the train, catches one of the available shuttles that serve airports, or, more commonly, utilizes any type of "park-and-ride" facility for the daily commute to work.