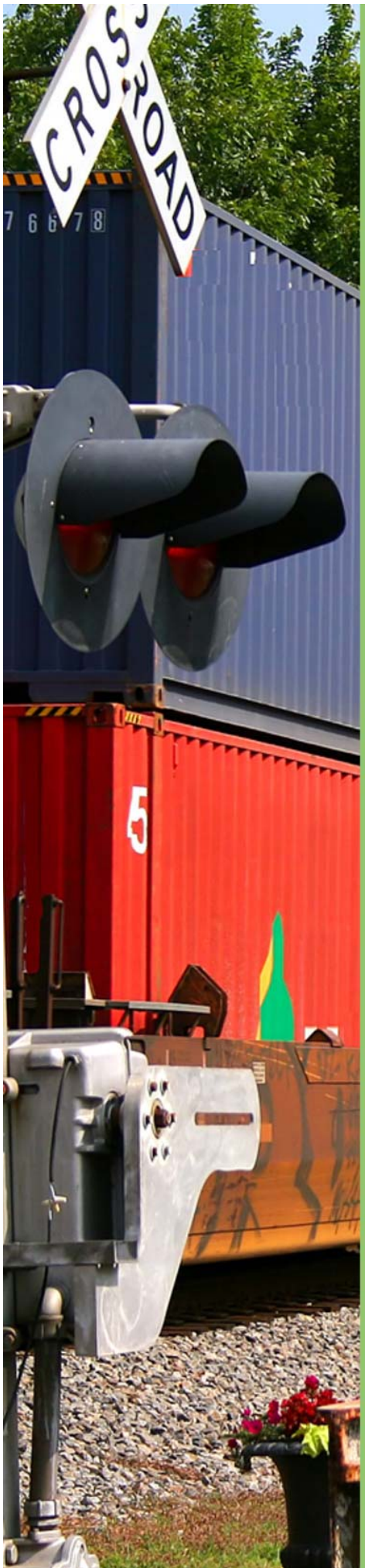

State of Kansas

2010

Kansas Statewide Rail Plan

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Table of Contents

List of Tables

List of Exhibits

Chapter 1 – Introduction

1.1 The Rail System's Role in Kansas

The rail industry has had as great an impact on the establishment and economic success of Kansas than on any other state in the country. Beginning with the first railroad to reach the border of the Kansas Territory in 1859, railroads ran ahead of settlement of the territory. The availability of these rail transportation facilities led settlers to turn land which had previously been valueless into one of the largest agricultural and food generators in the world.

Although the Kansas rail system, like most states, has experienced considerable consolidation, over 342 million tons of freight originates, terminates or moves annually through the state. Kansas ranks sixth nationally in total rail miles, rail tons carried, and rail carloads. Rail freight wages rank ninth nationally.

In addition to the rail system's historic role in moving the state's heavy agricultural commodities to the world's markets and fueling the state's power generation through coal movements, the rail freight system is expected to play a leading role in making Kansas the leader in the generation of green, alternative energy sources such as wind power, ethanol, and bio-fuels. Kansas is also in position to take advantage of the increased interest in expansion and improvement of intercity rail passenger service.

The Kansas State Rail Plan was developed to not only meet the federal mandate for rail capital funding eligibility, but also to establish a long-range vision for rail transportation in the state and set a direction to ensure that rail not only continues to perform its current role, but is capable of providing more efficient and cost-effective movement of people and goods and assisting the state in future economic initiatives.

1.2 Federal Mandate for State Rail Plans

In 2008, the U.S. Congress passed the Passenger Rail Investment and Improvement Act (PRIIA), with the expressed intent of improving passenger rail service in the Unites States. The Act re-authorized Amtrak and appropriated funds for both Amtrak and individual states to improve rail passenger service, operations, and facilities. The Act also required that states applying for rail passenger funding have an approved State Rail Plan and included new Rail Plan requirements. Past Kansas State Rail Plans were developed following federal requirements established in the 1970s, primarily for the purpose of preserving light density freight rail branch lines.

State Rail Plan requirements in the Passenger Rail Investment and Improvement Act include the following:

- An identification of rail infrastructure issues that reflect consultation with the public and relevant stakeholders;
- A review and inventory of all rail lines in the state and an analysis of the role of rail transportation within a multimodal environment;
- A statement of the state's passenger rail service objectives for routes in the state; and,
- A statement of public financing issues for rail projects and service in the state.

This document was developed by the Kansas Department of Transportation. It meets the requirements set forth in the legislation and public law, and is intended to serve as Kansas' State Rail Plan. The Plan represents a compendium of recent rail studies supplemented by additional analysis and investigation as required to meet federal requirements.

In addition to meeting the federal requirements, this Plan is intended to establish a State vision for rail in the future and to identify strategies to achieve that vision. For this purpose, the Plan was developed with extensive public participation and involvement by the State's railroads, rail users, and other rail stakeholders in both the public and private sectors.

Chapter 2 – State Rail Plan Consultation and Vision

Kansas DOT has long been committed to an ongoing stakeholder and public involvement process not only for rail, but for all aspects of its transportation program. For rail transportation, this process has included engaging rail stakeholders and the public in rail planning activities and for policy development and program decision making. In the recent past, rail stakeholder and public outreach activities were undertaken in the 2005 *Review of the Kansas Railroad Rehabilitation Program* study effort, in 2008 with regard to the T-LINK efforts to recommend a new strategic approach to program and fund a new multimodal transportation program, and the development of the Kansas Statewide Freight Study in 2009.

2.1 Rail Plan Outreach Approach

With regard to the Kansas State Rail Plan, KDOT developed two approaches to ensure that stakeholders were provided an opportunity to not only provide comment, but also to guide the Department in the development of the State Rail Plan. These approaches were:

- A Rail Stakeholder Outreach and Involvement Plan that outlined activities and a schedule to engage rail stakeholders and the public in the development of the Plan; and,
- Creation of a State Rail Plan Advisory Committee to review and comment on the findings of the outreach effort and technical information developed by the KDOT Rail Plan consultant team.

These approaches are discussed below.

2.1.1 Stakeholder Outreach and Involvement Plan

The intent of the Rail Stakeholder Outreach and Involvement Plan was to provide for adequate and reasonable notice and opportunity for comment and other input for stakeholders, including rail carriers, rail users, public officials, and the general public. The goals for stakeholder and public involvement for the Kansas State Rail Plan included:

- Understanding the benefits, impacts, and potential opportunities for rail transportation to improve the efficiency and reliability of the overall transportation system, and to contribute to the environmental, energy, and economic sustainability of the State; and,
- Identifying existing rail physical and operational problems and potential rail projects, as well as improvements to rail policies and programs to improve the condition and efficiency of the Kansas rail system.

To obtain input for the State's rail vision, as well as to provide a forum for discussion of specific rail issues regarding Kansas' rail network two mechanisms were utilized – public meetings and focused interviews with railroads, rail users, and public officials.

2.1.2 Public Meetings

KDOT arranged for meetings at the following six locations:

- Wichita – September 28, 2009
- Kansas City – September 29, 2009
- Pittsburg – October 1, 2009
- Topeka – October 5, 2009
- Hays – October 6, 2009
- Dodge City – October 7, 2009

Two meetings were held at each location. The first meeting was comprised of invitation-only rail stakeholders, such as rail carriers, rail users or shippers, transportation planning agencies such as Metropolitan Planning Organizations (MPOs), economic development agencies, and representatives of rail passenger advocacy groups.

The second meeting at each location was an evening meeting open to the general public. KDOT invited the general public to these meetings using its standard public notification procedures such as press releases, twitter updates, etc. Over 100 interested parties attended the outreach meetings.

The consulting firms engaged by KDOT to assist in the development of its State Rail Plan provided poster boards which displayed maps of the Kansas rail system and other statistics such as the number of rail carriers, total rail mileage in the state, and major commodities carried by rail. Following short introductions by KDOT and a presentation outlining the requirements and purpose of rail plans, the consulting teams moderated discussion of both the rail vision and issues.

Discussion points for rail vision development were summarized by consultant staff and utilized to develop preliminary vision statements for consideration by KDOT staff and the Rail Plan Steering Committee.

Specific rail issues were also summarized for follow-up of specific rail system infrastructure or operational problems or for consideration in the development of potential organizational, institutional or policy recommendations.

2.1.3 Stakeholder Interviews

Approximately 40 interviews were conducted with rail stakeholders. Stakeholders interviewed included major manufacturers and shippers, all Class I and short line railroads operating in Kansas, and selected public officials and transportation-related agencies such as Metropolitan Planning Organizations and local economic development agencies. Specific topics raised in the interviews included:

- The role of short line railroads in economic development, and actions, programs or policies that would be beneficial to increased economic development;
- Potential enhancements for the movement of agricultural products by rail;
- Opportunities for rail service to facilitate emerging alternative energy sources such as wind, bio-energy, and ethanol;
- Strategies to enhance rail service to existing or proposed industries;
- The impact of 286,000 pound rail cars on the interviewees business operations;
- Major chokepoints or bottlenecks to efficient rail service;
- Improvements required for more efficient interconnections between Class I and short line railroads;
- Opportunities for enhanced intermodal freight capabilities; and,
- The strengths, weaknesses, opportunities, and threats to the rail system in Kansas

2.1.4 State Rail Plan Advisory Committee

KDOT created a State Rail Plan Advisory Committee for the purpose of guiding development of the Plan. The Advisory Committee held two meetings, on November 19, 2009 and June 23, 2010 during development of the Plan. Advisory Committee members were provided presentation material regarding the results of the public outreach process, stakeholder interviews, the proposed vision for rail, findings and analysis with regard to the rail freight system and freight commodities carried in the State, findings and analysis regarding existing and proposed rail intercity passenger services, and rail funding and financing issues. The Advisory Committee reviewed the findings and analyses provided for accuracy and reasonableness and raised additional issues which should be addressed in the Plan.

The Advisory Committee reviewed and provided comments on the draft State Rail Plan prior to finalization of the report.

2.2 Stakeholder Outreach Findings and Issues

State Rail Plan public outreach meeting participants were requested to provide their views as to a rail vision for Kansas and to address any specific rail issues to be considered during development of the Plan. Issues could entail beneficial aspects of the physical rail system or services provided, or negative issues such as poor service quality, deficient infrastructure, regulatory or institutional obstacles, or disruption to communities.

The following is a summary of the common themes heard at the six outreach sessions, as well as those areas where some disparity of opinion was heard.

2.2.1 Common Themes

Value of the Kansas Rail System

Based on comments received at outreach sessions, the general public understands and appreciates railroads' operating and cost efficiencies, environmental and energy-related benefits, and especially its importance to Kansas' agricultural economy. The public also understood the diverse roles of Class I and short line carriers, with short line carriers providing direct access to industry, and Class I railroads providing long-haul service.

The value and potential of intercity rail passenger service was also understood, but most attendees also appreciated the need for passenger service to not disrupt freight services.

Infrastructure Needs

Public comments regarding infrastructure needs for short line railroads focused on the need to accommodate 286,000 pound carloads and to increase the speed and efficiency of operations. Infrastructure improvements included rail, tie, and bridge upgrades, as well as improved connections and storage capabilities at interchange points with Class I railroads.

Outreach participants generally deemed the Class I railroad mainlines to be in good condition, but cited the need for additional capacity in the form of passing sidings and signal control improvements to meet future freight requirements. The development of additional freight intermodal facilities in the state was also seen as necessary to reduce the need to backtrack intermodal movements to Kansas City for western destinations, and reducing current dependence on trucks. The need for additional intermodal capacity to address future containerized agricultural needs and to build the foundation for distribution hubs around the state was also discussed.

Shippers and Industry Needs

A consistent theme heard from shippers as well as short line operators was the need to upgrade industrial leads and spurs to improve switching operations, and to expand rail car storage capacity within industrial sites.

Rail Intercity Passenger Needs

There was a significant level of agreement at outreach sessions that rail passenger service could fill an important role in the state. There was also agreement that existing service was unreliable and not of sufficient quantity to fulfill that role. Additional frequencies, operations during daylight hours, and adequately staffed stations with intermodal passenger connections were cited as essential needs to making rail passenger service more competitive with other modes.

Public Capital Assistance for the Rail Industry

The State's role in providing grant and loan assistance for rail infrastructure improvements received a high level of support at the outreach meetings. The existing State Rail Service Improvement Fund was deemed very successful and many attendees cited the need to increase the amount of funding available.

There was also a significant level of agreement that the State expand the State Rail Service Improvement Fund to also include rail infrastructure within private shipper or industrial properties as eligible projects.

Public Agency Coordination and Policy

Although there was significant support of KDOT's rail assistance programs and cooperation with the rail industry, a number of economic development agency representatives cited the need for KDOT to better communicate the availability and details of rail financial assistance programs.

2.2.2 Divergent Themes

The public outreach effort for the State Rail Plan resulted in very few areas of disagreement among participants around the state. The issues having disparate views can largely be traced to regional differences and the levels of existing and potential rail service. The issues identified include:

Public Financial Support for New Intercity Rail Passenger Services

A major topic of discussion at the State Rail Plan outreach meetings was whether Kansas should spend public funds to meet the capital and annual subsidy costs necessary for additional intercity rail passenger services, as will be required under the Passenger Rail Investment and Improvement Act of 2008. Discussions largely centered on proposals to extend Amtrak's Northern Flyer service from Oklahoma City to Kansas City via Wichita and Newton, connecting with the Amtrak Southwest Chief service.

Participants at those meeting locations which were in the proximity of the proposed service extension were highly supportive of the State providing public support to re-establish and support this service. However, attendees at those meetings held in the western portion of the state, who would likely not take advantage of the new service, were in opposition to the use of public funding for this purpose, especially if it had a negative impact on the state's available highway financing.

Public Agency Coordination and Policy

Although most comments received with regard to public assistance for rail transportation and efforts to link rail transportation to economic development were positive, it was suggested that transportation and economic development agencies work more closely together to develop policies and programs that could improve rail access for existing and prospective industries.

2.2.3 Proposed Actions to Address Outreach Recommendations

A number of the recommendations and concerns raised during the State Rail Plan outreach meetings had been discussed in earlier outreach efforts such as the T-LINK Task Force public meetings. In addition, based on information received during the State Rail Plan outreach meetings, a Legislative Brief regarding the State's rail program was provided to the State Legislature in early 2010. The following are actions which have been taken, are underway or are under consideration, which address rail-related recommendations made by stakeholders and the general public.

Public Capital Assistance for the Railroad Industry

T-WORKS, the State's new multimodal transportation program, addressed public support for increasing financial assistance for the State's short line railroads by increasing annual funding for the State Rail Service Improvement Fund from $3 million to $5 million beginning July 1, 2013. In addition, the rail assistance component of T-WORKS will not be subject to a sunset as in the past. This will provide a consistent, dependable source of rail capital assistance into the future.

Public Financial Support for New Intercity Rail Passenger Services

The increased interest in expanded and improved intercity rail passenger service in the State has resulted in a number of actions and activities since completion of the State Rail Plan outreach effort.

In January, 2010, Kansas and Oklahoma jointly received a $250,000 federal High-Speed Intercity Passenger Rail (HSIPR) planning grant, which will be matched with $125,000 by each state, to prepare a Service Development Plan (SDP) for potential expanded passenger service in Kansas and Oklahoma. The SDP will build upon a feasibility study for the expanded service completed by Amtrak in March, 2010 and analyze two alternatives – nighttime service between Newton and Oklahoma City, connecting with the Southwest Chief and Heartland Flyer and daytime service between Kansas City and Ft. Worth. KDOT conducted a series of meetings with local elected officials and the public in May and June of 2010 to review the results of the Amtrak study and gather input on the four service alternatives analyzed in the Study.

In order to enhance the State's ability to meet financial and contractual requirements associated with current and future State-supported rail passenger initiatives, and to provide KDOT the ability to participate in multi-state rail passenger planning and development initiatives, the Kansas Legislature approved two measures to accommodate these needs.

The "Kansas Passenger Development Act" allows KDOT to contract with Amtrak and other states to provide state funded passenger service. It also creates a passenger rail revolving fund for capital and operating funds. This fund would be used to hold and disburse federal rail passenger capital grants and state contributions.

The "Midwest Interstate Passenger Rail Commission Membership Act" authorizes Kansas to join the Commission which advocates for passenger rail improvements in the region. Member states currently include Indiana, Illinois, Iowa, Michigan, Missouri, Minnesota, Nebraska, North Dakota, Ohio and Wisconsin. In August, 2010 KDOT also joined the States for Passenger Rail Coalition.

Public Agency Coordination and Policy

Prior to the State Rail Plan outreach effort, the Kansas T-LINK Task Force recommended the creation of a Freight Advisory Committee to serve as a sounding board for the Secretary of Transportation regarding rail issues throughout the state and emerging industry and transportation needs. Upon completion of the State Rail Plan, KDOT intends to create a Freight or Rail Advisory Committee to advise and guide KDOT in implementing the State Rail Plan and work toward continued improvement of its rail planning and project development programs.

The Freight or Rail Advisory Committee will include representation from the economic development organizations, shippers, manufacturers, industry organizations, MPOs and railroads. KDOT will work to increase coordination between transportation and economic development planning, project development programming and funding, and to increase the level of public education regarding rail and program information to industries and local governments.

2.3 Rail Vision

A portion of each outreach meeting was dedicated to the establishment of a State rail vision. Meeting participants were requested to describe the future role of rail in Kansas, envision what the rail system will look like in the future, and identify future challenges and opportunities. The following are emphasis areas identified by stakeholders and the public during the outreach for consideration in the development of a vision and associated goals and objectives.

- The importance of having a level playing field among transportation modes in the State and the need for rail to divert truck traffic from the state highway system, thus reducing highway congestion, damage and spending on highway infrastructure;
- The need for rail system improvements that increase velocity, capacity, reliability, safety, and modernization. Additional needs include rail system preservation, volume, and intermodal capability;
- A rail system which benefits the environment, conserves energy, and assists in the development and transportation of alternative energy sources;
- A rail system which contributes to overall economic growth, facilitates the State's agricultural economy, and provides efficient connections to domestic and international economies; and,
- A rail system which provides efficient intermodal connections for people and goods, allowing improved connectivity within the State and to other regions of the U.S.

Based on these vision components collected from the public outreach efforts and the State Rail Plan Advisory Committee's review and comment of draft vision statements, KDOT has developed the following vision statement for rail transportation in the State.

The future Kansas rail system will provide safe, reliable mobility for people and goods. In addition, it will contribute to a more balanced transportation system, economic growth, a better environment and energy conservation. The State's rail infrastructure and levels of service will expand to provide increased transportation efficiency, cost effectiveness, accessibility, capacity, and intermodal connectivity to meet freight and passenger market demands through an investment plan which includes public-private partnerships.

2.4 Integration with the National Rail Plan

The Passenger Rail Investment and Improvement Act of 2008 (PRIIA) directed the Administrator of the Federal Railroad Association (FRA) to develop a Preliminary National Rail Plan to address the rail needs of the nation. It also directed FRA to provide assistance to states in developing their rail plans in order to ensure that the federal long-range National Rail Plan is consistent with approved state rail plans. In October, 2009, FRA published a Preliminary Plan that provided objectives for rail as a means of improving the performance of the National Transportation System. These are:

- Increase passenger and freight rail performance;
- Integrate all transportation modes to form a more complementary transportation system;
- Identify projects of national significance; and,
- Provide increased public awareness

These objectives are consistent with the views of KDOT and its rail stakeholders as evidenced by the State's increased focus on improving rail transportation in the State, integrating rail planning efforts with those of other transportation modes, and coordinating with other states to identify regional freight and passenger corridor needs. Kansas will work closely with FRA and other states to develop a Final National Rail Plan that it is consistent with the State Rail Plan and rail policies.

Chapter 3 – Public Rail Program Activities in Kansas

Public sector rail activities in Kansas entail the organizational aspects of rail planning as well as the planning and programming processes which are conducted by both state and local agencies. In addition to describing rail planning in Kansas, this section will also address the systems that are in place to support decision making and project implementation.

Multimodal planning requires close coordination within a State Department of Transportation itself as well as with other federal and state agencies, local transportation agencies, railroads operating within the state, and the general public. The role of each of these entities and their interactions are described below.

3.1 Kansas' Legislative Rail Authority

Kansas state law provides the Kansas Secretary of Transportation the authority to qualify and disburse federal rail funding, and to establish a state program from which it can make rail loans and grants to qualified entities within the State.

K.S.A. 75-8025[1], enacted in 1976, authorized the Kansas Secretary of Transportation to exercise those powers necessary for the state to qualify for rail service continuation subsidies pursuant to the provisions of the Railroad Revitalization and Regulatory Reform Act of 1976. This included authority to: 1) establish a state plan for rail transportation and local rail services; 2) administer and coordinate the State plan; 3) provide in the plan for equitable distribution of federal rail service continuation subsidies; 4) maintain adequate programs of investigation, research, promotion, and development in connection with such purposes and to provide for public participation; 5) provide satisfactory assurance on behalf of the State that such fiscal control of accounting procedures will be adopted by the state as may be necessary to assure proper disbursement of federal funds; and, 6) comply with the regulations of the Secretary of Transportation and the U.S. Department of Transportation affecting federal rail assistance to the State under Title VIII of Public Law 94-210.

Subsequently, K.S.A. 75-5048[2], enacted in 1991, authorized the Kansas Secretary of Transportation to make loans or grants to qualified entities for the purpose of facilitating the financing, acquisition or rehabilitation of railroads and rolling stock in the State of Kansas. The Act also established a rail service improvement fund, which consisted of funding made available through the federal Local Rail Freight Assistance Program (LRFA). The KDOT Office of Rail Affairs was charged with overseeing this assistance program as well as carrying out planning, providing information, and coordinating efforts to encourage an efficient transportation system to meet the needs of Kansas.

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[1] Kansas Legislature, Statutes, available online at http://www.kslegislature.org/legsrv-statutes/getStatuteInfo.do.

[2] Kansas Legislature, Statutes, available online at http://www.kslegislature.org/legsrv-statutes/getStatuteInfo.do.

The Kansas Passenger Rail Development Act (S.B. 409), signed into legislation in March, 2010, allows KDOT to contract with Amtrak and other states to provide supplemental passenger rail service. It also creates a passenger rail revolving fund to hold and disburse federal rail passenger capital grants and future state contributions. S.B. 409 became law on July 1, 2010.

3.2 Kansas DOT's Rail Organization and Roles

The *Kansas Long Range Transportation Plan*[3], published in 2008, recognized the importance of the rail mode in Kansas. The Plan includes key recommendations to KDOT with regard to intermodal and rail planning including:

- Integrate all modes of transportation into the planning process;
- Develop a statewide freight plan;
- Expand efforts to mitigate railroad crossing problems; and,
- Improve communication between rail lines and government entities

KDOT has initiated a number of these recommendations, including the establishment of a multimodal planning group in 2008, the completion of a Statewide Multimodal Freight Study in 2009, continued emphasis on grade crossing improvements and separations, and increased communications with the railroad industry through the State's T-LINK Task Force and stakeholder outreach undertaken as part of the State Rail Plan development.

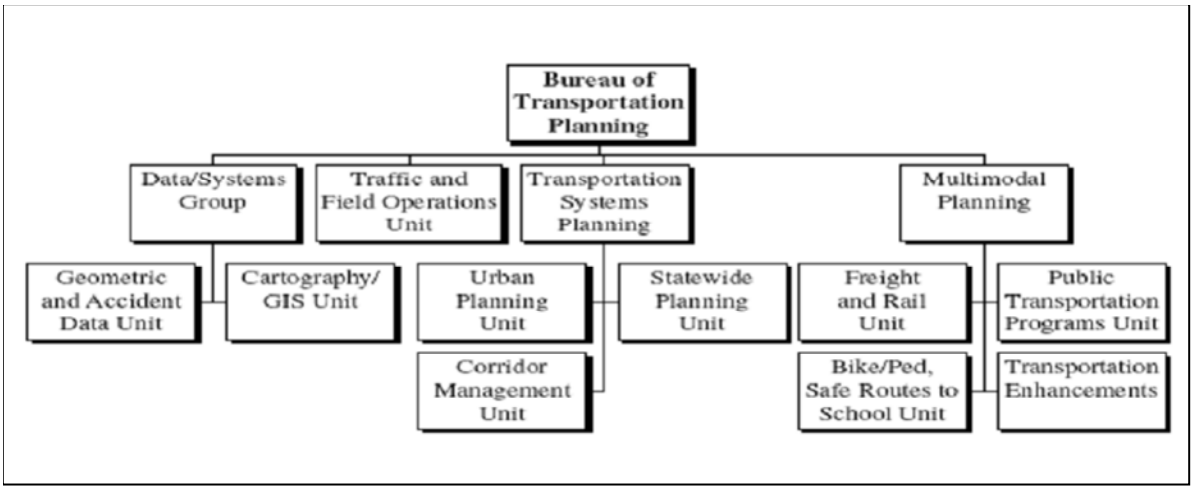
Rail-related responsibilities within the Kansas Department of Transportation are assigned to the Freight and Rail Unit in the Bureau of Transportation Planning. Rail safety responsibilities, including the Department's Grade Crossing Improvement Program, is assigned to the Design-Coordinating Section in the Bureau of Design. A description of these organizations and the rail functions carried out within them follow.

3.2.1 KDOT Freight and Rail Unit

Freight and rail planning and policy, oversight of rail grants and loans, and other technical assistance activities are carried out within KDOT's Freight and Rail Unit. This unit is organized under the multimodal planning group, which is part of the Bureau of Transportation Planning, and also includes the Public Transportation, Bike/Pedestrian-Safe Routes to School, and Transportation Enhancement Units.

[3] Kansas Long Range Transportation Plan, June 2008

Exhibit 1: Bureau of Transportation Planning



Source: KDOT

The Bureau of Transportation Planning also encompasses the Data/Systems Group which is responsible for collecting, analyzing, and reporting information for the statewide transportation system. The Bureau is also involved in metropolitan planning, public transportation, long-range planning, intelligent transportation systems, and developing and coordinating state policy on rail transportation issues.

The Freight and Rail Unit's responsibilities include:

- Development and coordination of state policy on freight and rail transportation issues;
- Involvement with the development of state policy on passenger rail transportation issues;
- Preparation of the State Rail Plan and administration of the state-funded Rail Service Improvement Program;
- Providing project oversight for various multimodal freight, rail freight and passenger rail projects and studies;
- Participating in various KDOT and multi-state agency committees dealing with rail and motor carrier freight issues and projects;
- Administration of any federal rail improvement grants;
- Coordination of state freight and rail activities with the Office of the Governor and other state agencies;
- Representing KDOT in the American Association of State Highway and Transportation Officials (AASHTO) Standing Committee on Rail Transportation (SCORT) freight and rail activities;
- Representing KDOT in the Mississippi Valley Freight Coalition (MVFC);
- Representing KDOT on the Mid-America Regional Council (MARC) Goods Movement Committee;
- Representing KDOT at KC SmartPort
- Providing technical assistance for the development of the Statewide Long-Range Transportation Plan;
- Updating and filing annual oversize and overweight motor carrier reports with the Federal Highway Administration (FHWA); and,
- Providing motor-carrier statutory and legislation expertise pertaining to oversize and overweight motor carrier issues, and serving as liaison between KDOT and the Kansas Trucking Connection as well as other organizations.

3.2.2 KDOT Design-Coordinating Section

Rail safety-related activities, which include all grade crossing and other highway-related activities involving railroads, are conducted within the Design-Coordinating Section of the Bureau of Design. This bureau is within the KDOT Division of Engineering and Design.

The Design-Coordinating Section oversees rail/highway projects which are implemented through Federal and State Crossing Program Safety funds. Individual crossing programs include: Highway/Railroad Crossing; Railroad Grade Separation; Railroad Crossing Surfacing; Local Partnership Railroad Grade Separation; and, the State-Funded Highway/Railroad Crossing Programs.

In addition to these programs, the Design-Coordinating Section updates the rail traffic and signal inventory information for all grade crossings in the state. This grade crossing inventory is maintained by the Geometric and Accident Data Unit from field inventory data collected by the Traffic and Field Operations Unit. The inventory includes all operating characteristics of the

roadway and rail line, the type of warning equipment, and photos of the crossing in all four directions. The Section is also responsible for easement and overpass agreements with railroads, and review of rail quiet zone requests.

3.3 Public Sector Rail Planning in Kansas

Although the Kansas Department of Transportation has primary responsibility for rail planning, policy and project development, a number of additional state and local agencies in Kansas also have a vested interest in the viability and efficiency of the state rail system in carrying out their responsibilities. These include:

3.3.1 Kansas Department of Commerce

The Kansas Department of Commerce is the state's lead economic development agency. The Department oversees a variety of programs and services that create jobs, attract new investment, encourage community development and promote the state.

The Department's Business Recruitment, Rural Development and Trade Development Divisions are dependent on a reliable state transportation system to promote the advantages of Kansas to business interests and to enhance community development. The State's goal to be a national leader in alternative fuels is also heavily reliant on transportation. Therefore, coordination with the Department of Transportation and individual transportation modes is required for many of the Department's initiatives.

The Department of Commerce also administers the Community Development Block Grant Program, a financial assistance capital program with limited rail eligibility.

3.3.2 Kansas Department of Agriculture

The Kansas Department of Agriculture, in addition to its primary agricultural regulatory responsibilities, also advocates on behalf of Kansas agriculture. The State's agricultural products accounted for more than $14.4 billion in revenue in 2007. The state typically ranks in the top three nationally for production of wheat, grain sorghum and beef. Agricultural products also provide ingredients for products used in transportation, energy, health care, construction, manufacturing, and personal care. The transportation of these commodities is essential to the state's leadership position.

Although the Department of Agriculture has no regulatory oversight over rail transportation and offers no transportation assistance programs, it does coordinate with the Department of Transportation with regard to long-range plans for all freight modes.

3.3.3 Metropolitan Planning Organizations

Metropolitan Planning Organizations (MPOs) are federally mandated and funded transportation policy-making organizations comprised of local government and transportation officials. The formation of an MPO is required for any urbanized area with a population greater than 50,000.

MPOs are required to maintain Long Range Transportation Plans as well as a Transportation Improvement Plan, or TIP, which is a multi-year program of transportation projects to be funded with federal and other transportation funding sources. As MPO planning activities have evolved to address the movement of freight as well as passengers, they have included consideration of multimodal solutions, improved intermodal connections, and more specific rail and rail-related project solutions.

There are five MPOs that have jurisdiction over the urbanized areas of the Kansas transportation system.

Mid-America Regional Council

The Mid-America Regional Council (MARC) encompasses eight counties and 120 cities in the Greater Kansas City Area, both in Kansas and Missouri.

Lawrence-Douglas County Metropolitan Planning Office

The Lawrence-Douglas County MPO study area is comprised of the City of Lawrence and Douglas County located between the Kansas City and Topeka urbanized areas.

Wichita Area Metropolitan Planning Organization

The Wichita Area MPO (WAMPO) study area is comprised of Sedgwick County and parts of Butler County, including the city of Andover and Sumner County, including the city of Mulvane.

Metropolitan Topeka Planning Organization

The Topeka MPO (MTPO) study area is comprised of the urbanized area of Topeka, including a small portion of Shawnee County.

St. Joseph Area Transportation Study Organization

The Greater St. Joseph Area MPO (SJATSO) includes a portion of Doniphan County, Kansas consisting primarily of the cities of Wathena and Elwood.

KDOT Freight and Rail Unit staff regularly attend MPO conferences to make presentations on rail assistance programs and other issues. They also serve on the MARC Goods Movement Committee and have reviewed and provided comment on various MPO rail-related plans. Likewise, MPO representatives are regularly invited by KDOT to participate in public outreach

sessions such as those held for T-LINK and the State Rail Plan, and to provide input to specific plan documents such as the Statewide Transportation and Multimodal Freight Plans.

The Design-Coordinating Section coordinates with MPOs to discuss highway-rail crossing issues and to ensure that grade crossing program projects are included in Transportation Improvement Programs.

3.3.4 Local Economic Development Agencies

The State of Kansas has a number of local economic development agencies which recruit industries and businesses on the basis of their location, labor force, room for growth, and transportation assets. Rail access to existing industrial parks and other business sites are emphasized as an asset to prospective recruits.

The Kansas Economic Development Directory[4] lists 47 entities around the state, including economic development agencies, chambers of commerce, development councils, corporations, and associations at the regional, county or city level of government. Many of these agencies offer incentives such as tax exemptions and credits and other means of assistance to attract business interests.

Although these agencies do not generally work directly with freight railroad operators, they do have a vested interest in the level of rail services and rail assistance programs available to supplement their incentives.

The Department's coordination with local economic development agencies has increased in recent years as selected local economic development agencies are participating in joint funding arrangements for local rail projects with perceived economic development benefits. KDOT also coordinates with Port Authorities (i.e., the City of Pittsburg Port Authority and the Mid-States Port Authority) on rail issues.

3.4 State Rail Funding in Kansas

Historically, the railroad industry has operated and been financed under private ownership. Until the past 10 years consistent public investment in rail has been minimal. Public rail financing, however, has been available when the industry faced economic crises, such as the massive railroad bankruptcies in the 1970s and 1980s, and when industry trends threatened to significantly reduce rail access to shippers who were not located on high density rail lines.

Prior to the Kansas Comprehensive Transportation Program (1999 – 2009) KDOT's role in providing rail capital assistance dates back to the late 1980s with its administration of the federal Local Rail Freight Assistance (LRFA) program. Although federal funding for this program has

[4] Kansas Economic Development Directory website: http://www.ecodevdirectory.com/kansas.htm

not been authorized since the early 1990s, its effectiveness led Kansas, and a number of other states, to establish state funded programs to address their own specific rail needs.

These state assistance programs have generally grown and become more diversified over time. Many state programs have evolved from branch line/short line preservation or improvement programs to address capacity constraints, clearance restrictions, and to enhance intermodal movements. State-supported rail programs have also been established to initiate and/or expand intercity rail passenger service and to participate in economic development initiatives through investments that result in improved rail access or efficiency.

The following is a description of existing state and federal programs utilized or available to Kansas for rail system improvements.

3.4.1 KDOT Rail Improvement Program

The Kansas State Rail Service Improvement Fund (SRSIF) was originally signed into law in 1999 as a component of the State Comprehensive Transportation Program. The SRSIF provided $3 million annually for ten years for low interest loans and grants to railroads and port authorities operating in the state of Kansas for the purpose of preserving rail service and improving their level of service. The loan program is structured as a 70 percent state loan and a 30 percent railroad/port authority match funding arrangement.

The intent of the program is to assist with the rehabilitation of tracks, bridges, yards, maintenance shops, buildings, and sidings, as well as for rail car purchases. Projects have contributed to the protection and improvement of short line service across the State. The SRSIF program is administered by the KDOT Freight and Rail Unit.

Since the inception of this program in 2000, project approvals have ranged from two to nine annually. This program has resulted in 41 rehabilitation projects to-date, encompassing 1,058 miles of key rail line rehabilitation or acquisition assistance to preserve rail service to key grain producing sectors of the State.

During its 2010 Legislative session, as part of the T-WORKS multimodal transportation program, the Kansas Legislature approved an increase in SRSIF funding to $5 million annually beginning July 1, 2013. Project eligibility criteria for the program was also expanded, through modifications to Program Rules and Regulations, to include making shippers and local units of government, in coordination with the serving railroad, eligible program applicants.

3.4.2 KDOT Rail-Highway Grade Crossing Improvement Program

The Design-Coordinating Section administers Kansas' Highway-Rail Crossing Improvement Program. This program provides state support in an effort to reduce the incidence of accidents, injuries and fatalities at public rail-highway crossings.

The State funded Highway/Railroad Crossing Program is a $300,000 per year program that addresses highway/railroad safety improvements that do not meet federal aid program eligibility requirements. Local jurisdictions must submit crossing candidates for funding through this program. Projects selected for funding are eligible for 80 percent state funding with a required 20 percent rail company funding match. The Railroad Crossing Surfacing Program provides funding for highway/railroad crossing surfaces on the rural state highway system and city connecting links in communities up to 2,500 in population. Project scopes include all necessary materials and activities required for long-term crossing surface and approach improvements. These projects require a 50 percent railroad company match.

The Railroad Grade Separation and Local Partnership Grade Separation Programs were established to address grade crossing separation needs across the state. These funds were recently utilized to match federal funds for the Wichita grade separation project.

3.4.3 KDOT Rail Intercity Passenger Program

The "Kansas Passenger Development Act" allows KDOT to contract with Amtrak and other states to provide state supplemental passenger rail service. It also creates a passenger rail revolving fund for capital and operating funds. This fund will be used to hold and disburse federal rail passenger capital grants and state contributions. No state contributions have been made to the fund to-date.

3.4.4 Kansas Department of Commerce Community Development Block Grant Program

The Kansas Department of Commerce's Community Development Block Grant Program provides economic development funds to eligible small city and county governments. This program provides funding for water, sewer, rail spur, roadway and other infrastructure improvements designed to assist companies in creating jobs through the construction or renovation of facilities. Companies may apply for up to $35,000 per job created with a maximum limit of $750,000. Half of the funding for infrastructure is required to be paid back over a ten year period at an interest rate of two percent.

3.5 Federal Rail Programs and Funding Options

Historically, there have been few dedicated federal programs for rail capital assistance available to states. In 2008, however, the Passenger Rail Improvement and Investment Act (PRIIA) and related appropriation bills provided funds directly to states for rail intercity passenger investments. In early 2009, the American Recovery and Reinvestment Act also provided flexible transportation funding to states for capital projects as well as funding for passenger rail development.

The following describes these and other programs specifically available for rail assistance as well as programs which may be eligible for selected rail-related applications.

3.5.1 Federal Rail Intercity Passenger and High Speed Rail Programs

Over the past two years, the federal government has placed a high priority on the improvement of intercity rail passenger service both as a source of economic stimulus and as an essential future mode of passenger transportation. The following are the legislative and budget initiatives which have been approved to assist states in intercity rail passenger planning and development.

Passenger Rail Improvement and Investment Act (PRIIA) of 2008

This legislation authorized over $13 billion between 2009 and 2013 for Amtrak and promotes the development of new and improved intercity rail passenger services. The Act also establishes an intercity passenger rail capital grant program for states. States are required to identify passenger rail corridor improvement projects in their State Rail Plan.

PRIIA established three new competitive grant programs for funding high-speed intercity passenger rail improvements. Each of the three programs provides 80 percent federal funding with a required 20 percent non-federal match.

Intercity Passenger Rail Service Corridor Capital Assistance Program

This program is intended to create the framework for a new intercity passenger rail service corridor capital assistance program. The program authorizes USDOT to use appropriated funds to make grants to assist in financing the costs of facilities, infrastructure, and equipment necessary to provide or improve intercity passenger rail transportation. States or groups of states, interstate compacts, and public intercity passenger rail agencies established by states are eligible for these grants. In addition, to be eligible for funding under this program, projects must be included in an approved State Rail Plan.

Existing or proposed intercity passenger services in Kansas are eligible under this program.

High Speed Rail Corridor Development Program

PRIIA also authorized $1.5 billion annually to establish and implement a high-speed rail corridor development program. Funding is currently restricted to projects intended to develop the ten federally-designated high-speed corridors for intercity passenger rail services that may reasonably be expected to reach speeds of at least 110 miles per hour.

There are currently no federally-designated high-speed corridors in Kansas.

Congestion Grants

This program authorizes $325 million annually for grants to states, or to Amtrak in cooperation with states, for financing the capital costs of facilities, infrastructure, and equipment for high-priority rail corridor projects necessary to reduce congestion or facilitate intercity passenger rail ridership growth.

As noted, funding for these authorized programs associated with PRIIA must be appropriated annually.

USDOT Budget Appropriations

Federal funding authorized under PRIIA or other authorization programs must be appropriated under annual budget or other legislative bills.

USDOT's most recent budget appropriation (FFY 2010) provided $2.5 billion in funding for the high-speed rail state grant program authorized under PRIIA. Funds are provided to states, on a competitive basis, up to 50 percent of the capital cost of improving intercity rail passenger service.

Previous DOT appropriation acts also provided funding that could be utilized for intercity rail passenger improvements under similar terms. The FFY 2009 DOT Appropriations Act provided $90 million to states. The FFY 2008 DOT Appropriations Act provided $30 million to states. Up to ten percent of the funding available under these appropriations is available for rail corridor planning grants.

KDOT will apply for available planning and construction project funds under these programs as specific needs are identified.

American Recovery and Reinvestment Act (ARRA)

As a result of the economic recession of 2008, the federal government approved the American Recovery and Reinvestment Act in February, 2009 to stimulate the economy partly through the funding of infrastructure projects which could be initiated in the short term. Programs which could be utilized for rail-related projects under this Act are described below.

Flexible Highway Program

This program provided states a total of $27.5 billion of flexible highway funding for surface transportation improvements, including rail improvements. Eligibility criteria included projects being "shovel ready" for early implementation.

KDOT received $348 million through this program. Of this amount $2.7 million was allocated for four short line railroad projects.

Intercity Passenger Rail/High Speed Rail Program

This program provided $8 billion of High-Speed Intercity Passenger Rail funding to "jump start" intercity passenger rail improvements authorized under PRIIA. The federal share of costs was 100 percent and proposed projects were not required to be included in a State Rail Plan. Kansas received $250,000 in planning funds from this program to prepare a Service Development Plan, in cooperation with the Oklahoma DOT, to further analyze the proposed expansion of Amtrak's

Heartland Flyer service from Oklahoma City to Newton and new daytime service between Kansas City and Ft. Worth.

Transportation Investment Generating Economic Recovery (TIGER) Discretionary Grants Program

This program allowed local and state governments to apply for $1.5 billion of discretionary funding. Grants were eligible for capital investment in rail, highway, bridge, public transportation, and port projects and awarded by USDOT on a competitive basis. The USDOT later made an additional $600 million under TIGER II, a successor to the original grant program.

KDOT sponsored an application to upgrade the SK&O and Stillwater Central Railroads as well as a $50 million application for the BNSF Kansas City Intermodal Facility as part of the original TIGER program. Neither project was selected for a grant.

However, KDOT sponsored a second application for upgrades on the SK&O as part of the TIGER II grant program. The project was awarded $10.2 million in TIGER II funds. KDOT and SK&O will each be contributing $1.7 million toward the project. Work to be performed includes a renovation of the Cherryvale Yard, a new locomotive shop, improvements to the bridges between Tulsa and Cherryvale, improvements to tracks between Neodesha and Cherryvale and between Cherryvale and Humboldt.

Rail-Related SAFETEA-LU Funding Programs

The Safe, Accountable, Efficient Transportation Equity Act – a Legacy for Users (SAFETEA-LU), the current authorization bill for the nation's surface transportation program, was scheduled to expire on October 1, 2009. The Act has been extended until a new transportation authorization bill is approved by Congress and passed into law.

The SAFETEA-LU bill contains a number of program provisions with specific eligibility for rail. These include:

Section 130 Highway-Rail Grade Crossing Program

This program provides federal support in an effort to reduce the incidence of accidents, injuries and fatalities at public rail-highway crossings. States may utilize funds to improve railroad crossings, including the installation or upgrading of warning devices, the elimination of at-grade crossings through grade separation, or the consolidation or closing of crossings. The federal share for these funds is 90 percent.

KDOT receives an average of $6.2 million in Section 130 funding annually. It supplements this amount with an additional $3.8 million from federal Highway Safety Improvement Program funding for a total federal grade crossing program of approximately $10 million annually.

Rail Line Relocation and Improvement Capital Grant Program

Section 9002 of SAFETEA-LU authorizes $350 million per year for the purpose of providing financial assistance for local rail line and improvement projects. Any construction project that improves the route or structure of a rail line and 1) involves a lateral or vertical relocation of any portion of the rail line, or 2) is carried out for the purpose of mitigating the adverse affects of rail traffic on safety, motor vehicle traffic flow, community quality of life, or economic development, is eligible. The federal share for these funds is 90 percent, not to exceed $20 million.

KDOT's Freight and Rail Unit has applied for funding under this program, but no projects have been approved for funding to-date.

Rail Rehabilitation and Improvement Financing (RRIF)

Section 9003 of SAFETEA-LU provides loans and credit assistance to both public and private sponsors of rail and intermodal projects. Eligible projects include acquisition, development, improvement, or rehabilitation of intermodal or rail equipment and facilities. Direct loans can fund up to 100 percent of a capital project with repayment terms of up to 25 years and interest rates equal to the cost of borrowing to the government. A total of $35 billion was authorized for this program, of which $7 billion was directed to short line and regional railroads.

Eligible borrowers include railroads, state and local governments, government sponsored authorities and corporations, and joint ventures that include at least one railroad.

Other SAFETEA-LU Programs with Selected Rail Applications

In addition to the above programs, a number of additional programs, although primarily intended for highway use, are eligible for rail projects at the discretion of states and with the approval of the administering federal agency. These programs include:

National Highway System (NHS) Program

This program can be utilized to improve designated highway intermodal connectors between the NHS system and intermodal facilities, such as truck-rail transfer facilities. The federal share of NHS funding is 80 percent.

Congestion Mitigation and Air Quality (CMAQ) Improvement Program

This program funds transportation projects and programs that improve air quality by reducing transportation-related emissions in non-attainment and maintenance areas for ozone, carbon monoxide, and particulate matter. Examples of CMAQ-funded rail projects include the construction of intermodal facilities, rail track rehabilitation, diesel engine retrofits and idle-reduction projects in rail yards, and new rail sidings.

State Departments of Transportation and Metropolitan Planning Organizations select and approve projects for funding. The federal matching share for these funds is 80 percent.

Surface Transportation Program (STP)

The Surface Transportation Program is a general grant program available for improvements on any Federal-Aid highway, bridge, or transit capital project. Eligible rail improvements include lengthening or increasing vertical clearance of bridges, crossing eliminations, and improving intermodal connectors.

State Departments of Transportation and Metropolitan Planning Organizations select and approve projects for funding under this program. The federal matching share for these funds is 80 percent.

Transportation Infrastructure Finance and Innovation Act (TIFIA)

This program provides credit assistance to large scale projects (over $50 million or 1/3 of a state's annual federal-aid funds) of regional or national significance that might otherwise be delayed or not constructed because of risk, complexity, or cost. A wide variety of intermodal and rail infrastructure projects are eligible and can include equipment, facilities, track, bridges, yards, buildings and shops. The interest rate for TIFIA loans is the U.S. Treasury rate and the debt must be repaid within 35 years.

High Priority Projects

This program provided designated funding over a five-year period for 5,091 projects identified in SAFETEA-LU. Though primarily highway-related, some projects were rail-related.

Kansas received funding for two rail-related projects through this program - $11.2 million to construct a highway-rail grade separation from Douglas Ave. to 17th St. North in Wichita, and $4.584 million to eliminate highway-rail crossings and to do infrastructure rehabilitation between Salina and Osborne to increase safety and reduce congestion.

Transportation Enhancement Program

These funds are available to strengthen the cultural, aesthetic, and environmental aspects of the Nation's intermodal transportation system. Eligible projects can include the rehabilitation of historic transportation buildings or facilities, and the preservation of abandoned rail corridors.

Projects are usually chosen at the local government level. The federal share of project costs is 80 percent.

Private Activity Bonds

SAFETEA-LU established a new financial assistance program that provides up to $15 billion in private activity bonds for transportation infrastructure projects. States and local governments are allowed to issue tax-exempt bonds to finance projects sponsored by the private sector. Eligible projects include privately owned-or-operated highway and rail-truck transfer facilities.

State Infrastructure Banks (SIB)

This program allows all states to set aside 10 percent of highway formula grants to establish revolving funds which can be used to provide loans and other credit tools to public or private sponsors for eligible transportation projects. Multi-state SIBs may also be utilized to fund projects that cross jurisdictional boundaries. States must provide 20 percent of the capitalization amount and debt must be repaid within 30 years.

Other Federal Programs Available for Rail-Related Funding

In addition to transportation programs available under the Transportation Authorization bill, other programs are administered by federal agencies for which rail-related capital projects are eligible. These programs include:

U.S. Department of Commerce Economic Development Administration (EDA)

The U.S. Department of Commerce provides EDA grants for projects in economically distressed industrial sites that promote job creation or retention. Eligible projects must be located within EDA-designated redevelopment areas or economic development centers. Eligible rail projects include railroad spurs and sidings.

Grant assistance is available for up to 50 percent of the project, although EDA could provide up to 80 percent for projects in severely depressed areas.

An EDA Recovery Act grant of $1.78 million was provided in 2009 to the City of Hutchinson, KS to fund construction of a rail spur at the Salt City Business Park. The spur will service a major manufacturer of wind energy systems.

U.S. Department of Agriculture Programs

The U.S. Department of Agriculture Community Facility Program and Rural Development Program provide grant or loan funding mechanisms to fund construction, enlargement, extension or improvement of community facilities providing essential services in rural areas and towns. Grant assistance is available for up to 75 percent of the project cost.

Eligible rail-related community facilities include transportation infrastructure for industrial parks and municipal docks.

3.6 Rail-Related Legislative Proposals

Legislative proposals with potential to affect the rail industry are offered by federal and state legislative bodies, as well as the rail industry itself. The following are current legislative proposals that could affect the Kansas rail program over the near term.

Prospective Changes to Federal Rail Assistance Programs

As noted above, SAFETEA-LU, the current federal transportation funding authorization legislation, has been extended possibly well into 2010 or early 2011. However, significant discussion over the need to significantly change the objectives and means of funding future transportation programs has been undertaken in recent years.

Within SAFETEA-LU legislation, Congress established a National Policy and Revenue Commission to review transportation issues and to issue recommendations. The resulting report, *Transportation for Tomorrow,* calls for significant changes in the way national transportation needs are addressed in the future. Specifically, the Commission called for new program areas to better meet the nation's economic reliance on transportation. Suggested new program areas which could be associated with the rail mode include: Asset Management; Freight Transportation; Congestion Relief-Metropolitan Mobility; Safe Mobility; Access to Small Cities and Rural Areas; and, Intercity Passenger Rail.

The report recommends that federal funding of these recommended programs be based on individual plans developed by each state and metropolitan areas, as well as those developed by multi-state coalitions.

Railroad Track Maintenance Credit Program

This program was originally authorized within the Internal Revenue Code in 2005 to provide tax credits to qualified entities for an amount equal to 50 percent of qualified railroad maintenance expenditures on railroad tracks owned or leased by Class II or Class III railroads. The maximum credit amount allowed was $3,500 per mile of track.

Although this program expired at end of 2007, the Emergency Economic Stabilization Act of 2008 extended the tax credits through December 31, 2009 and also qualified railroad track maintenance expenditures made anytime during 2008 eligible for tax credits. A number of short line railroads operating in Kansas have taken advantage of this program.

Legislation has been introduced to extend the tax credit program for an additional three year period and to increase the credit limitation from $3,500 to $4,500 per mile.

Freight Rail Infrastructure Capacity Expansion Legislative Proposal

This legislative proposal, endorsed by the Association of American Railroads (AAR), would provide a 25 percent tax incentive for projects that expand rail capacity. Eligible projects would include new track, intermodal facilities, and other projects that expand freight capacity.

Railroads, as well as any businesses that make capacity-enhancing rail investments, would be eligible for the incentives.

3.7 Kansas Rail Studies

Over the past decade, KDOT has conducted a significant number of studies addressing both freight and passenger rail operations and to determine the needs and benefits related to public investment in the State's rail system. A brief summary of these studies is provided below.

3.7.1 Rail Freight Studies

- "A Review of the Kansas Short Line Loan/Grant Program, 2005" – This study analyzed the State Rail Service Improvement Fund program's expenditures and uses, its impacts on short line railroad operations, and its economic impacts on the State. The study collected and analyzed existing data related to freight trends and forecasts for the State and examined key economic factors and trends that affect short line railroad operations in Kansas.
- "Kansas Statewide Freight Study, 2009" – This study entailed a systems-level overview of the extent and performance of the State's multimodal freight system, the commodities that are moving across the State, the existing and emerging freight transportation industry, and logistics trends that are affecting goods movements in Kansas. The study also identifies key conclusions and challenges regarding freight movement in the State as well as recommended actions to address future needs.

3.7.2 Rail Passenger Studies

- "Kansas Rail Feasibility Study, 2000" – This study addressed the feasibility of extending rail passenger service between Kansas City, MO and Oklahoma City, OK. The study estimated the market share a passenger rail service could capture the capital costs of implementing a service, revenue and operating costs, and economic benefits.
- "Feasibility Report of Proposed Amtrak Service – Kansas City, MO – Oklahoma City, OK - Fort Worth, TX, 2010" – This study, conducted by Amtrak, was focused on establishing what would be needed to provide state-sponsored intercity rail passenger service between Kansas City, MO, Oklahoma City, OK, and Fort Worth, TX. Amtrak examined and provided profiles for four route and schedule alternatives, estimated station and infrastructure capital costs, rolling stock needs and cost estimates, revenue/ridership forecasts, mobilization costs, and projected annual operating expenses.

3.7.3 Studies Addressing Rail Freight and Passenger Issues

- "Kansas Rail Plan Update, 2005-2006" – This plan was prepared in accordance with requirements of the Federal Railroad Administration as set forth in federal regulations governing Local Rail Freight Assistance to states. The Plan describes operating characteristics of the railroads in the State, each of the Class I and Class III carriers, and reviews current and possible future passenger rail service in the State. The report also describes railroad assistance programs and provides an overview of the State's highway-rail grade crossing safety program.
- "New Approaches for Transportation – Final Recommendations of the T-LINK Task Force, 2009" - This study, conducted by an independent task force designated by the Governor of Kansas, focused on the need to use transportation investment to expand the Kansas economy. The report acknowledged the importance of the State's short line railroad system and recommended an increased level of program funding. The Task Force also supported the goals of passenger rail service and issued a 2008 whitepaper outlining the general needs, process, characteristics of state-supported Amtrak services, and the prospects for federal rail passenger funding.

3.8 Kansas' Involvement in Multi-State Planning

In recent years, Kansas has increased its involvement in regional and multi-state planning and coordination. KDOT has worked with Oklahoma DOT to apply for federal planning funds to conduct a Service Development Plan to analyze two potential service expansion scenarios: overnight service between Newton and Oklahoma City, connecting with the Southwest Chief and Heartland Flyer; and, new daytime service between Kansas City and Fort Worth. Increased coordination with the states of Missouri and Texas will likely be necessary as this project initiative progresses. In addition, the recent "Kansas Passenger Rail Development Act" allows the KDOT to contract with Amtrak and other states to provide state-supported passenger service. This provision is essential to enable future interstate rail passenger service.

The Kansas Legislature has also passed legislation which allows the State to participate in a larger rail passenger advocacy and planning organization. The "Midwest Interstate Passenger Rail Commission Membership Act" authorizes Kansas to join the Commission which advocates for rail passenger improvements in the region. Member states currently include Indiana, Illinois, Iowa, Michigan, Missouri, Minnesota, Nebraska, North Dakota, Ohio, and Wisconsin.

KDOT also represents the State in the Mississippi Valley Freight Coalition (MVFC).

At the national level, KDOT has historically participated within the Standing Committee on Rail Transportation of the American Association of State Highway and Transportation Officials (AASHTO). This committee is comprised of rail officials from state departments of transportation whose activities include conferences, technical studies and reports, and advocacy and promotion of various federal rail passenger and freight issues and projects. In August, 2010

KDOT also joined the States for Passenger Rail Coalition, a national passenger rail advocacy group.

Chapter 4 – Rail Inventory

4.1 Summary of the Freight Rail System in Kansas

Kansas is served by a comprehensive rail network comprising a total of 4,721 route miles of trackage. The Class I railroad network is a 2,790 mile spine which provides long haul service for both in- and out-bound products. The major Class I railroads currently operating in Kansas are Burlington Northern Santa Fe (BNSF) Railway and the Union Pacific (UP) Railroad. BNSF operates 1,237 miles of track in Kansas and UP operates 1,535 miles. The Kansas City Southern Railway (KCS) operates 18 miles in Kansas. The Norfolk Southern Railway (NS) also operates track in Kansas via three miles of trackage rights in the Kansas City area, but on a much smaller scale. Short line, or Class III railroad, own or operated over an additional 1,931 miles of track. **Exhibit 2** displays a map of the Kansas railroad network. The state also has 41 miles of rail lines for tourist/excursion railroads.

Most of the Class I rail traffic is through traffic progressing from the west coast to the Midwest or from the coal fields in Wyoming to the South and Southeast. Grain is the major commodity originated in Kansas by the Class I railroads and coal is the major commodity destined to Kansas. Connected to the Class I network are 1,666 miles of short line or Class III rail lines. The Kansas Freight tonnage transported by railroads in Kansas totaled approximately 342 million tons in 2008, a decrease of 9.4 percent from 2005 tonnage levels due to the downturn in the economy. Freight tons include originating, terminating and through traffic. The total 2008 rail carload tonnage would require more than 15 million truckloads to move the equivalent bulk weight over Kansas highways.[5] Coal is the principal commodity hauled by railroads in Kansas with approximately 193 million tons or 56 percent of the total rail tonnage.

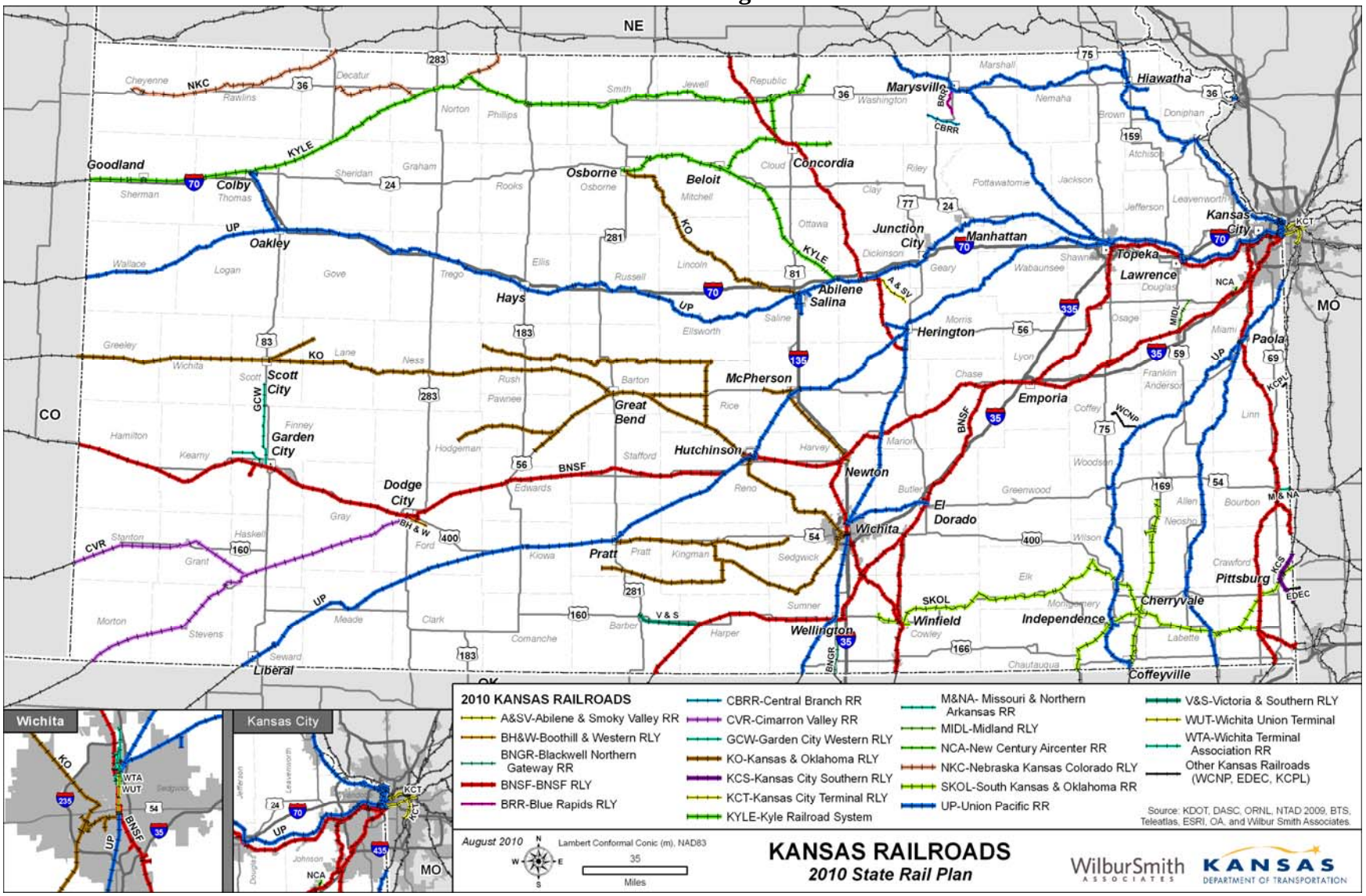
A total of about 420,000 carloads totaling about 24 million tons of freight originated in Kansas in 2008. Farm products comprised 52 percent of originated freight tonnage. Food products and chemicals accounted for 12 percent and 11 percent of the 2008 tonnage, respectively.

A total of about 417,000 carloads totaling about 24 million tons of freight terminated in Kansas in 2008. Coal was the primary commodity delivered with 52 percent of the tonnage. Intermodal shipments accounted for an additional 10 percent of the total in 2008.[6]

[5] Assumed weight capacity of a truckload to be 45,000 pounds

[6] U.S. Freight Railroad Industry Snapshot from Association of American Railroads website at www.aar.org

Exhibit 2: Kansas Freight Rail Network



Source: KDOT, all railroads, HDR, Olsson Associates, Wilbur Smith Associates, mapping

4.2 The Class I Rail Network in Kansas

Table 1 provides the rail mileage owned and operated (via lease or trackage rights) for each of the Class I railroads in Kansas.

Table 1: Kansas Rail Miles Owned and Operated

Class I Carriers	Main Line Owned	Lines Leased to Class III	Miles Operated	Trackage Rights
BNSF Railway	1,237		1,237	449
Kansas City Southern	18		18	
Norfolk Southern				3
Union Pacific System	1,800	265	1,535	837
Class I Total	3,055	265	2,790	1,289

Source: Class I's = Annual Reports R-1

Each of the Class I railroads operating in Kansas are profiled below.

4.3 BNSF Railway

BNSF Railway operates one of the largest railroad networks in North America with a total of approximately 32,000 operated miles of track in 28 states and two Canadian provinces. Approximately 23,000 route miles are owned by BNSF with the remainder operated by the railroad pursuant to trackage rights or leases. Approximately 9,000 route miles of BNSF Railway's system consist of trackage rights that permit BNSF Railway to operate its trains with its crews over other railroads' tracks.

BNSF Railway operates various facilities and equipment to support its transportation system, including its infrastructure, locomotives and freight cars. It also owns or leases other equipment to support rail operations, including containers, chassis' and vehicles. Support facilities for rail operations include yard and terminals throughout its rail network, system locomotive shops to perform locomotive servicing and maintenance, a centralized network operations center for train dispatching and network operations monitoring and management in Fort Worth, Texas, regional dispatching centers, computers, telecommunications equipment, signal systems and other support systems.

BNSF has transfer facilities for rail-to-rail movements as well as intermodal transfer of containers, trailers and other freight traffic. The transfer facilities include 32 major intermodal hubs located across the system. Of BNSF's largest intermodal facilities in terms of 2008 volumes, the Argentine facility in Kansas City, KS was eighth with 332,000 lifts. BNSF owns 22 automotive distribution facilities and serves eight port facilities where automobiles are loaded on or unloaded from multi-level rail cars in the United States and Canada. BNSF Railway's largest freight car classification yard based on the average daily number of cars processed (excluding cars that do not change trains at the terminal, intermodal and coal cars) was Argentine yard with 1,772 average daily cars processed.

Table 2 displays railroad statistics for BNSF from a national and Kansas perspective.

Table 2: BNSF Railway Statistics

Location	Employees	Locomotives	Freight Cars	Passenger Cars
National	38,000	6,510	82,555	163
Location	Miles Operated	Miles Owned	Miles Leased	Miles Leased To Class IIIs
KS	1,237	1,237	-	
National	32,000	23,000	-	-

Source: Data obtained by HDR, online source: www.bnsf.com

4.3.1 BNSF's Main Corridors in Kansas

BNSF Railway has five principal corridors in and through Kansas. Each corridor carries substantial through freight as well as origin and termination service for shippers and receivers in Kansas. The BNSF rail system in Kansas is portrayed in **Exhibit 3**.

The Transcon, comprised of portions of the Emporia and Panhandle subdivisions, connects Chicago to Los Angeles and Oakland, California, entering Kansas at Kansas City and exiting the state near Kiowa. It is a primary route for domestic and international intermodal freight, finished domestic and imported automobiles, and general carload freight. Some unit grain destined for animal feeders in the Texas Panhandle, Arizona, and California is carried on the Transcon, as well as some unit coal trains for utilities, although it is not a primary export grain route nor a primary coal route. Local traffic within Kansas on the Transcon is not substantial as it skirts the primary grain growing areas and population centers. The Transcon is mostly double-track and equipped with a Centralized Traffic Control (CTC) signal system. It is about 305 miles in Kansas. Approximate rail traffic is 75 trains per day.

The Texas Line, comprised of portions of the Arkansas City and Red Rock subdivisions, departs from the Transcon at Mulvane and runs southward to Fort Worth, Dallas, and Houston, Texas, exiting Kansas near Arkansas City. It is a primary route for carload traffic between Texas, Mexico, and Kansas City, Chicago, and the Midwest, for unit grain trains moving to export at Galveston, and to animal feeders in Texas and Mexico. Some finished autos, domestic intermodal, and unit coal and grain movements use this line. The Texas Line within Kansas is single-track and equipped with CTC. It is about 40 miles in Kansas. Approximate rail traffic is 25 trains per day.

The Frisco, comprised of the Ft. Scott and Afton subdivisions, originates at Kansas City and follows the eastern border of Kansas southward, exiting the state near Columbus. It is a primary route for unit coal trains from Wyoming to utilities in Missouri, Texas, Arkansas, and the Southeast. Unit grain trains to animal feeders in Texas, Arkansas, and the Southeast, and general carload traffic also operate over the line. It is single-track and equipped with CTC. It is about 159 miles in Kansas. Approximate rail traffic is 30 trains per day.

The Santa Fe Main, comprised of portions of the Topeka, Emporia, and La Junta subdivisions, originates at Kansas City, and passes through Topeka, Newton, and Dodge City, exiting Kansas at its western border en route to Pueblo, Colorado, and Albuquerque, New Mexico. It is a primary route for originating grain trains that move eastward off of this line to other BNSF lines, and the route of Amtrak's Southwest Chief. Carload traffic moves between Colorado and Kansas City in modest volumes. It is single track and is mostly equipped with Automatic Block Signals (ABS). The line is about 471 miles in Kansas. West of Newton, approximate train traffic is less than 10 trains per day. East of Newton, train traffic is increased by traffic diverted to this line from BNSF's Transcon line.

The Superior Line, comprised of the Strong City subdivision, originates at Peabody, in central Kansas, and runs northward to Superior, Nebraska. It is a primary route for unit grain trains and grain moving in blocks that originate on the line, on connecting BNSF branch lines, and on connecting short line railroads. It is single track and is not signaled, with train movements controlled via Track Warrant Controls. It is about 152 miles in Kansas. Approximate train traffic is less than 10 trains per day.

4.3.2 BNSF's Stations in Kansas

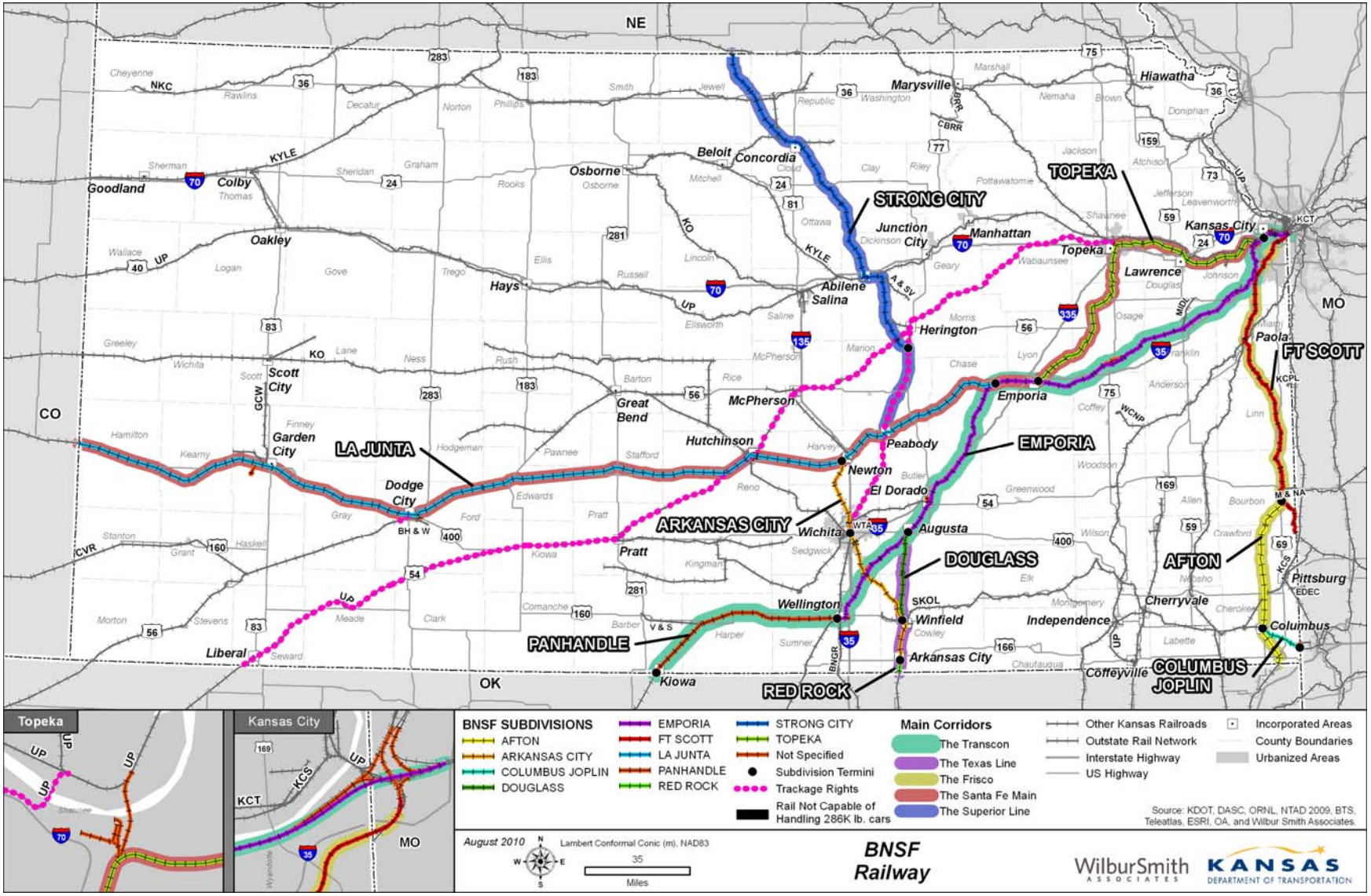
BNSF rail stations and main activities are listed in **Table 3**.

Table 3: BNSF Rail Stations in Kansas

City	Terminal Name	Intermodal	Transload	Auto	Manifest
Dodge City, KS	Manifest				●
Emporia, KS	Manifest				●
Kansas City, KS	Metro Park Fairbanks		●		
Kansas City, KS	Metro Park Swartz		●		
Kansas City, KS	Metro Park 55th		●		
Kansas City, KS	Kansas City Vehicle Facility			●	
Kansas City, KS	Argentine Yard	●			
Newton, KS	Manifest				●
Wellington, KS	Manifest				●
Wichita, KS	Garvey Public Warehouse		●		
Wichita, KS	United Warehouse		●		
Wichita, KS	Manifest				●

Source: BNSF and HDR

Exhibit 3: BNSF Rail Network in Kansas



Source: KDOT, BNSF, Wilbur Smith Associates - mapping

4.4 Kansas City Southern Railway

In total, Kansas City Southern (KCS) is a coordinated rail network comprised of the Kansas City Southern Railroad (KCSR), Kansas City Southern de Mexico (KCSM), the Texas Mexican Railroad (Tex-Mex) and the Panama Canal Railway Company (PCRC). The KCS network comprises approximately 6,000 miles of main and branch lines extending from the Midwest and southeast portions of the United States south into Mexico.

The KCSR operates over a rail network consisting of approximately 3,200 miles of main and branch lines in ten states extending from the Midwest and southeast portions of the United States south into Mexico. Approximately 600 miles of KCSR's system consists of trackage rights that permit KCSR to operate its trains with its crew over other railroads' tracks.

The KCSM, under its Concession from the Mexican government, has the right to operate approximately 2,700 miles of main and branch lines in Mexico. It has approximately 700 miles of trackage rights in Mexico. KCSM connects with other Class I railroads and the Tex-Mex, which is a Class II railroad serving the Laredo, TX boarder area connecting it to Corpus Christi, Houston and Beaumont, Texas.

The PCRC is a joint venture company owned equally by KCS and Mi-Jack Products, Inc. (Mi-Jack). The PCRC was awarded a concession from the Republic of Panama to reconstruct and operate the Panama Canal Railway, a 47-mile railroad located adjacent to the Panama Canal that provides international container shipping companies with an optional railway connection across the Panama Isthmus in lieu of using the Panama Canal.

KCS operates numerous facilities, including terminals for intermodal and other freight; rail yards of train-building, switching, storage-in-transit and other activities; offices to administer and manage operations; dispatch centers to direct traffic on the rail network; crew quarters to house train crews along the rail line; and, shops and other facilities for fueling, maintenance, and repair of locomotives and maintenance of freight cars and other equipment. The major yard in KCS's system is in Kansas City, MO, processing an average of 1,923 cars per day. **Table 4** shows KCS statistics from both the national and Kansas perspectives.

Table 4: KCS Railway Statistics

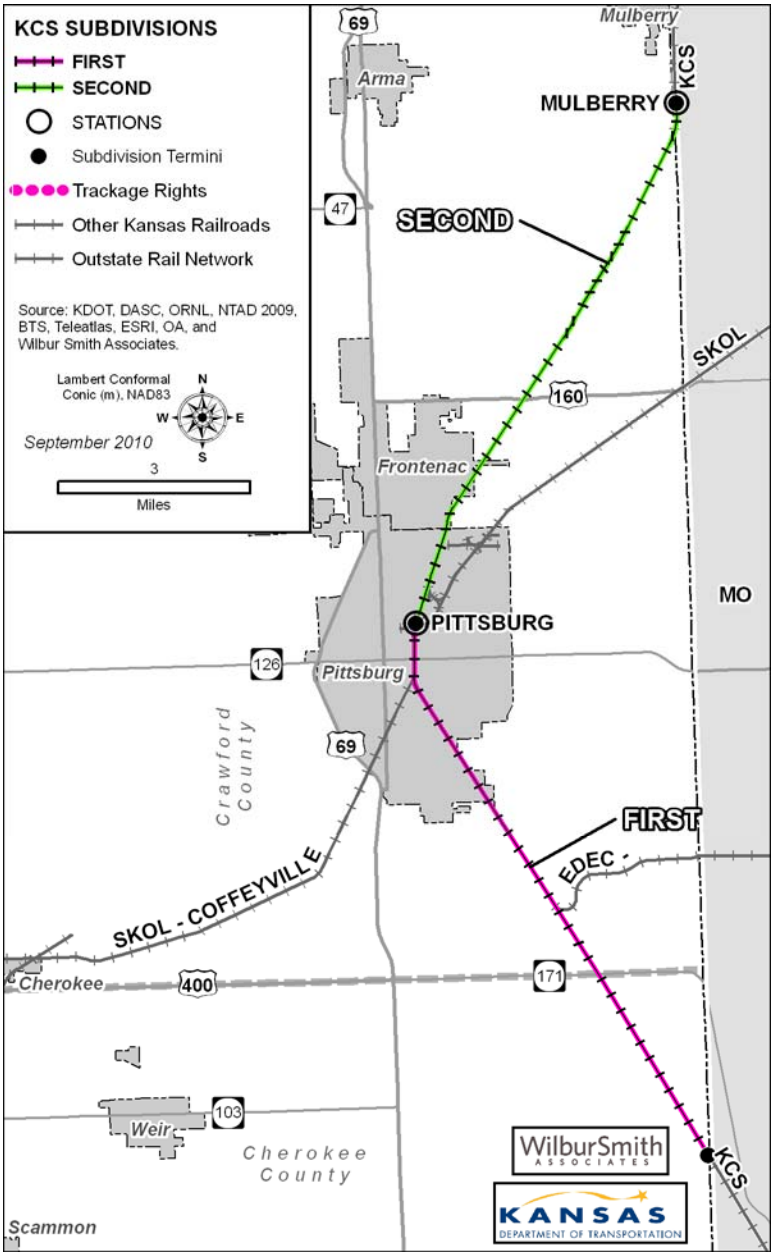
Location	Employees	Locomotives	Freight Cars	Passenger Cars
National	6100	536 owned 382 leased	4081 owned 17,627 leased	0
Location	**Miles Operated**	**Miles Owned**	**Miles Leased**	**Miles Leased To Class IIIs**
KS	18	18	0	0
National	3226	2800	-	-

Source: Data obtained by HDR, online source: www.kcsouthern.com

4.4.1 KSCR's Main Corridor in Kansas

Kansas City Southern (KCS) Railway has one principal rail route in Kansas, as portrayed in **Exhibit 4** below. The line follows the Kansas and Missouri border southward from Kansas City (mostly in Missouri) and crosses into Kansas northeast of Pittsburg, KS. The line exits Kansas southeast of Pittsburg continuing into Missouri. The KCSR's primary freight rail traffic on this line is unit coal trains received at interchange from UP and BNSF en route to utilities in Missouri, Arkansas, Oklahoma, Texas, and Louisiana; unit grain trains received at interchange from DM&E en route to animal feeders in Arkansas, Texas, and Oklahoma; and, general carload freight – mostly forest products and chemicals originating in Mississippi and Louisiana. The line is single-track and equipped with CTC. This line handles approximately 25 trains per day.

Exhibit 4: KCS Rail Network in Kansas



Source: KDOT, KCS, Wilbur Smith Associates - mapping

4.5 Norfolk Southern Railroad Company

Norfolk Southern Railway (NS) operates approximately 21,000 route miles in 22 states and the District of Columbia but has minimal operations in Kansas. NS lines serve many individual industries, electric generating facilities, mines (western Virginia, eastern Kentucky, southern and northern West Virginia, and western Pennsylvania), distribution centers, transload facilities, and other businesses located in smaller communities in its service area. One of NS' heaviest freight volume corridors is Cleveland to Kansas City. NS has trackage rights on two miles of track in the Kansas City area. The NS intermodal facility for the metropolitan Kansas City area is located in Kansas City, MO.

Triple Crown Services Company (Triple Crown) is a subsidiary of NS that provides bimodal, truckload service utilizing RoadRailer® trailers. RoadRailer® is a hybrid on-the-rail and over-the-road technology in which the trailers can be pulled on-the-rails by locomotives as intermodal units or over-the-highway by truck. Triple Crown provides service in the eastern two-thirds of the United States as well as Ontario and Quebec through a network of terminals strategically located in 13 cities. The NS facility in Kansas City, MO enables RoadRailer® service to reach these markets.

NS statistics from both a national and Kansas perspective are shown in **Table 5.**

Table 5: NS Railroad Service

Location	Employees	Locomotives	Freight Cars	Passenger Cars
National	28,539	3,965 owned & leased	89,937 owned & leased	0
Location	Miles Operated	Miles Owned	Trackage Rights	Miles Leased To Class IIIs
KS	0	0	3	0
National	37,149	28,845	-	-

Source: Data obtained by HDR, online source: www.nscorp.com

4.6 Union Pacific Railroad

The Union Pacific Railroad (UP) has a total of 50,766 track miles which includes 32,012 route miles, 6,510 other main line miles, 3,037 passing lines and turnouts, and 9,207 switching and classification yard miles. UP's rail network, encompassing 23 states, links the Pacific Coast and Gulf Coast ports with the Midwest and Eastern U.S. gateways. UP also provides several corridors to key Mexican gateways. UP owns 26,171 route miles and operates on the remainder pursuant to trackage rights or leases.

UP operates numerous facilities, including terminals for intermodal and other freight; rail yards for train-building (classification yards), switching, storage-in-transit and other activities; offices to administer and manage operations; dispatch centers to direct traffic on their rail network; crew quarters to house train crews along their network; and, shops and other facilities for fueling,

maintenance, and repair of locomotives and repair and maintenance of rail cars and other equipment. The Neff classification yard located in Kansas City, MO is the tenth largest in UP's network. Neff handles an average of 1,000 cars per day.

Table 6 below provides UP statistics from both the national and Kansas perspectives.

Table 6: UP Railroad Statistics

Location	Employees	Locomotives	Freight Cars	Passenger Cars
National	41,700	8,350	46,131	0
Location	Miles Operated	Miles Owned	Miles Leased	Miles Leased To Class IIIs
KS	1,535	1,800	-	265
National	32,094	26,223	-	-

Source: Data obtained by HDR, online source: www.up.com

4.6.1 UP's Main Corridors in Kansas

Union Pacific Railroad has six principal corridors in and through Kansas. Each corridor carries substantial through freight as well as origin and termination service for shippers and receivers in Kansas. Minor portions of these various routes merge with other routes in and around the Kansas City area. The Union Pacific rail system in Kansas is portrayed in **Exhibit 2**.

The Golden State Route, comprised of the Pratt, Herington, Topeka, and Kansas subdivisions, enters Kansas near Liberal, in the State's southwestern corner, and terminates at Kansas City, passing through Hutchinson and Topeka en route. It serves as a primary route between Southern California and the Ports of Los Angeles and Long Beach and Kansas City. At Kansas City, it connects to UP routes to St. Louis and Chicago. Traffic on the Golden State is primarily domestic and international intermodal freight, finished domestic and imported autos and light trucks, and general manifest freight moving in individual carloads. Significant local traffic is generated at Hutchinson and Topeka. Most of the Golden State is single-track and it is equipped with Centralized Traffic Control (CTC). It is about 455 miles in Kansas. Approximate rail traffic per day is 25 trains.

The Marysville Cutoff, comprised of the Marysville and Kansas subdivisions, begins at Gibbon, Nebraska, where it leaves UP's principal east-west main line, the Overland Route, enters Kansas along its northern border and terminates at Kansas City. It is about 173 miles in Kansas. The line serves as a primary outlet route for unit coal trains from the Gillette Field of the Powder River Basin in Wyoming to utilities in Kansas, Missouri, Oklahoma, Louisiana, Arkansas, Texas, and the Southeast. It also serves as a return route for empty coal trains.

Empty return coal trains are also carried on UP's Falls City Subdivision and the former St. Joseph & Grand Island Railroad between Hiawatha and Upland, near Marysville. This route serves in effect as a third track. The Marysville Cutoff is mostly double-track and equipped with CTC. Approximate rail traffic per day is 60 trains.

The Kansas Pacific, consisting of the Kansas, Salina and Sharon Springs subdivisions, begins at Kansas City and leaves Kansas at its western border near Sharon Springs en route to its terminus at Denver. Primary traffic is unit coal trains that originate in the Yampa and North Fork Coal Fields in Colorado en route to utilities in Kansas and the Midwest, empty return coal trains, and locally originating unit grain trains and grain moving in blocks of 26 or 52 cars. The Kansas Pacific is mostly single-track and equipped with CTC. It is about 445 miles in Kansas. Approximate rail traffic per day is 15 trains.

The Falls City Subdivision begins at Omaha, Nebraska, and terminates at Kansas City. Primary traffic is general carload freight and empty unit coal trains returning to Wyoming, moving northward from Kansas City on the Falls City Subdivision as far as Hiawatha. The Falls City Subdivision is mostly single-track and equipped with CTC. It is about 96 miles in Kansas. Approximate rail traffic per day is 40 trains.

The OK&T, so named because it was at one time called the Oklahoma, Kansas & Texas Railroad, was formed out of the bankruptcy of the Chicago, Rock Island & Pacific Railroad. Consisting primarily of the Lost Springs and Enid subdivisions, it originates at Herrington and runs southward, exiting Kansas near Wellington en route to Oklahoma City and Fort Worth, Texas. Its primary traffic is unit grain trains originating on the Kansas Pacific, en route, and through short-line connections, and general carload freight, as well as finished automobiles from the General Motors assembly plant at Oklahoma City. The OK&T is single-track and is mostly not signaled. It is about 125 miles in Kansas. Approximate rail traffic per day is less than 10 trains.

The Missouri Pacific and Katy lines, comprised of the Coffeyville, Parsons, and Cherokee subdivisions, are single-track main lines that run southward from Kansas City leaving the state near Coffeyville and Chetopa. These lines carry coal trains forwarded from the Marysville Cutoff and the Kansas Pacific, unit grain trains destined to poultry feeders in Arkansas, Oklahoma, and Texas, unit grain trains destined to export at Galveston or to Mexico, and substantial carload, chemical, and finished automobile traffic between Texas, Mexico, and the Southeast, and Kansas City, Chicago, and the northeastern U.S. Both lines are mostly single-track and are equipped with CTC. Approximate rail traffic on each line is 25 trains per day. The Missouri Pacific line runs about 142 miles south from Paola to the Oklahoma border, while the Katy line is about 160 miles between the Kansas/Oklahoma border and Paola. Between the Paola and the Kansas/Missouri border in Kansas City is about 42 miles. The Missouri Pacific line primarily carries traffic into Arkansas and the Southeast, whereas the Katy line primarily carries Texas and Mexico traffic.

4.3.2 UP's Stations in Kansas

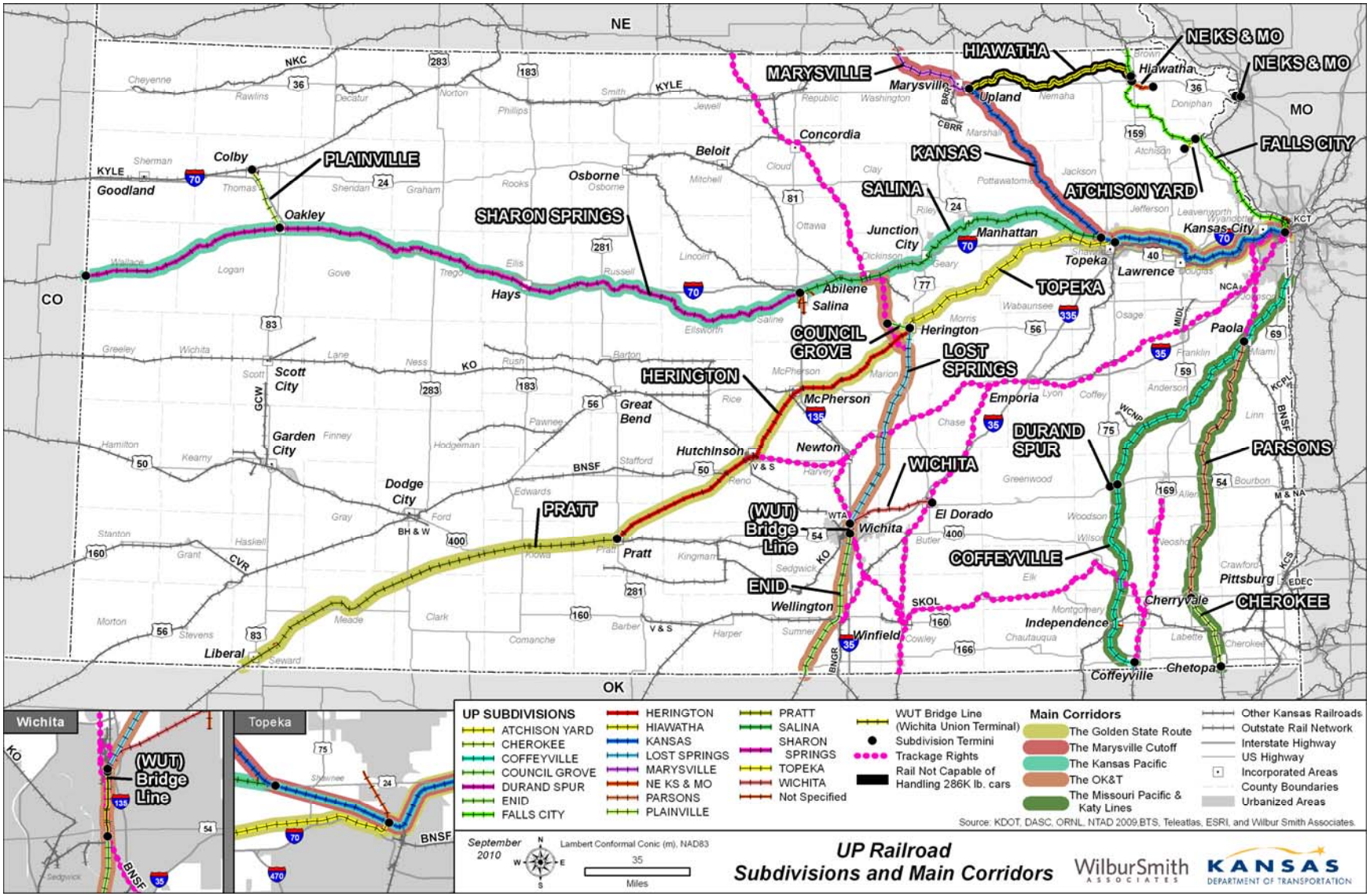
UP's rail stations and main activities are listed in **Table 7**.

Table 7: UP Rail Stations in Kansas

City	Terminal Name	Intermodal	Transload	Auto	Manifest
Bonner Springs, KS	Feed Products South Inc.		●		
Fairfax	International Transit & Storage		●		
Fairfax	Manufacturer			●	
Hiawatha, KS	Fairview Mills		●		
Kansas City, KS	Neff Yard	●			
Kansas City, KS	ARM-DAT, Inc.		●		
Kansas City, KS	Pavlich, Inc.		●		
Muncie	Ramp			●	
Salina, KS	Diamond Transfer -Team Track		●		
Wichita, KS	Garvey Public Warehouse		●		
Wichita, KS	Hall Industrial Services		●		
Wichita, KS	United Warehouse		●		

Source: UP and HDR

Exhibit 5: UP Rail Network in Kansas



Source: KDOT, UP, Wilbur Smith Associates – mapping

4.7 Summary of Class III Railroad Service in Kansas

There are currently 14 Class III railroads, including 11 local and regional carriers and three switching railroads in the State of Kansas. A primary goal of the Class III railroad operations is to forward and terminate local traffic, connecting it with the Class I railroads. The forwarded and terminated Class III rail volumes are accounted for as originated and terminated traffic in Class I statistics.

Table 8 below provides summary information of the Class III rail system in the state.

Table 8: Class III Rail Lines in Kansas

Class III Carriers	Main Line Owned	Lines Leased from Class I	Miles Operated	Trackage Rights
Local and Regional Carriers				
Blackwell Northern Gateway Railroad	18		18	
Blue Rapids Railroad	10		10	
Boothill and Western Railroad	10		10	1
Cimarron Valley Railroad	183		183	4
Garden City Western Railroad	45		45	
Kansas City Terminal (Switching service by KAW River Railroad)	27		27	
Kansas & Oklahoma Railroad	642	111	753	36
KYLE	271	146	417	13
Missouri & Northern Arkansas		8	8	
Nebraska Kansas Colorado Railroad	122		122	17
South Kansas & Oklahoma	305		305	36
V & S Railway	25		25	2
Switching and Terminal Carriers				
New Century AirCenter Railway	5		5	
Wichita Terminal Association	3		3	
Mileage Totals				
Class III Total	1,666	265	1,931	109
Class I + Class III Total	4,721	265	4,721	1,398

Short Lines = Data provided by each Short Line Company
Note: The Class II and III miles operated do not include the miles of trackage rights

The Kansas short line rail system is critical to providing local markets a transportation link to national and international markets via their interconnection with the Class I rail system. The short line rail system is truly a collector system and, as such, provides local rail access and customer service. Train traffic on the short lines will vary from seasonal to four trains per day. This is in contrast to the Class I railroads that on selected lines can see as many as 89 trains per day.

Train speeds on the short lines vary from a low of 5 to 10 mph to a high of 40 mph. This speed is a function of the track conditions, rail age, rail weight (measured in pounds for three foot section), tie condition, and ballast condition. Virtually all short lines were operated by Class I railroads prior to de-regulation of the rail industry in the early 1980s. As the Class I revenues decreased on these lines, so did the maintenance and infrastructure investments, leading to most short line systems being started in a deferred maintenance condition. The short lines have been able to replace ties and ballast through their own capital investments, previous federal freight rail programs, and the State Rail Service Improvement Fund. However, the majority of the rail has not been replaced or upgraded, with the age of some rail being over 100 years old.

The 2008 rail car load statistics show that Kansas short lines originated and terminated over 177,000 car loads. The significance of the short line car loadings is that for every car load there are 3 to 4 semi-trucks (548,000 to 685,000) removed from the state highway system.

4.8 Short Line Railroads in Kansas

4.8.1 Blackwell Northern Gateway Railroad Co.

The Blackwell Northern Gateway Railway Co. (BNGR) is an 18-mile-long rail line operated by the Blackwell Industrial Authority (BIA). During 2009, BNGR hauled only 20 carloads of sand. The railroad's main source of revenue was from rail car storage fees.

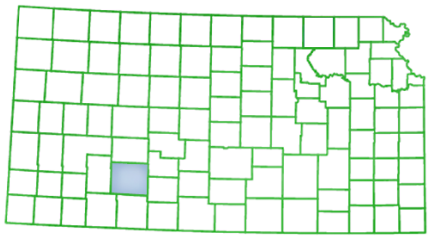


Table 9: Blackwell Northern Gateway Railroad Statistics

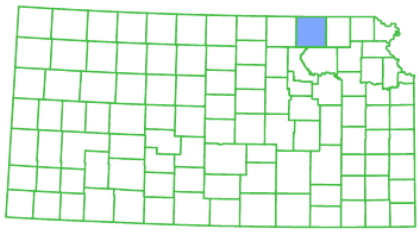
Location	Employees	Locomotives	Freight Cars	Passenger Cars
KS	N/A	2	2	0
Location	Miles Operated	Miles Owned	Miles Leased	Miles Trackage Rights
KS	18	18	0	0
National	34	34	0	0
Connections to other railroads:				
BNSF: Wellington, KS				

Source: Prepared by Olsson Associates, online source: www.blackwellrr.com

Exhibit 6: Blackwell Northern Gateway Rail Network in Kansas

Source: KDOT, BNGR, Wilbur Smith Associates - mapping

4.8.2 Blue Rapids Railroad



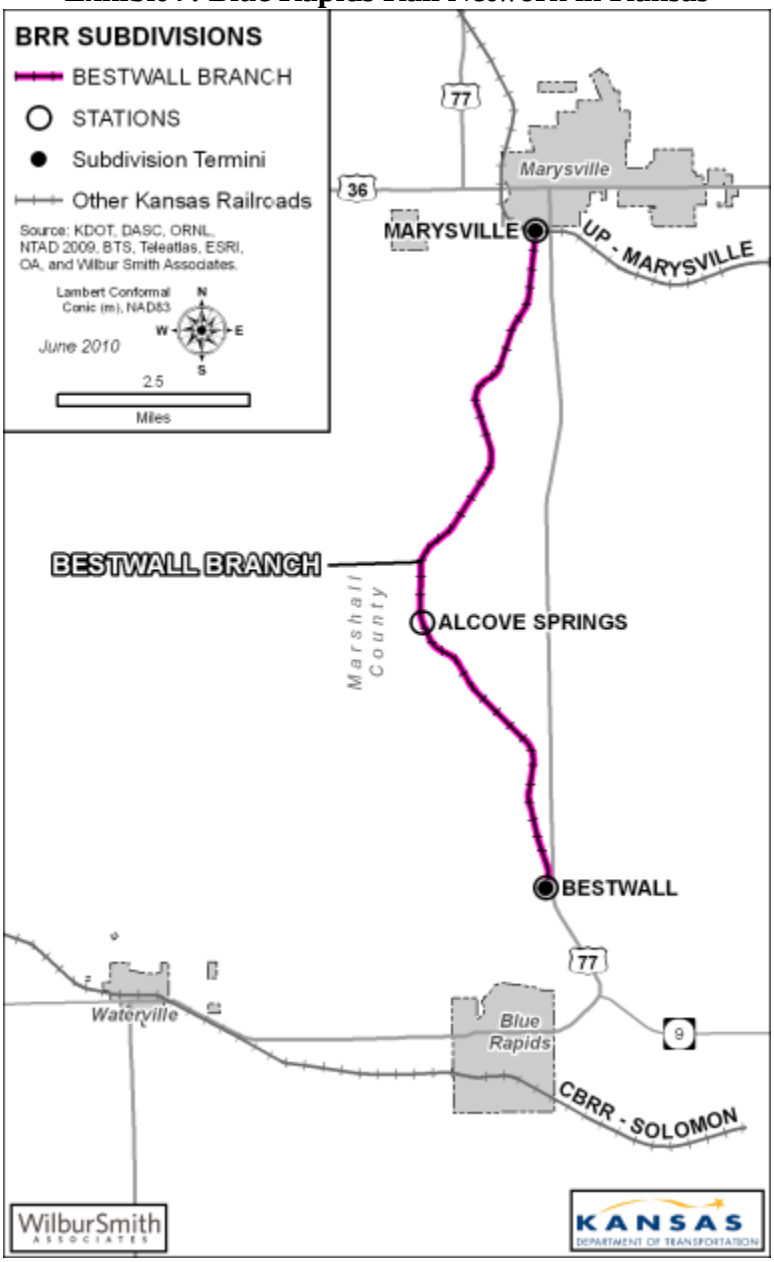
The Blue Rapids Railroad (BRRR) purchased the 10-mile segment of track running south from Marysville to the Georgia Pacific Gypsum manufacturing facility at Blue Rapids in the mid-1980s. Since then, the BRRR has been used to move railcars loaded with industrial gypsum plaster from the plant to the rail yard in Marysville, and via Class I railroad connections to customers across the country. In 2009, the railroad moved 422 railcars, or approximately 40,000 tons, of finished plaster products on this line. The Blue Rapids Railroad does not own any locomotives or rolling stock. It relies on the Union Pacific to perform the operations of switching railcars once or twice a week.

Table 10: Blue Rapids Railroad Statistics

Location	Employees	Locomotives	Freight Cars	Passenger Cars
KS	0	0	0	0
Location	Miles Operated	Miles Owned	Miles Leased	Miles Trackage Rights
KS	10	10	0	0
Connections to other railroads:				
UP Railroad: Marysville, KS				

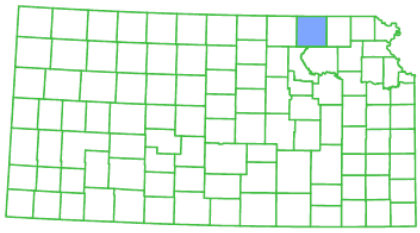
Source: Prepared by Olsson Associates, online source: none

Exhibit 7: Blue Rapids Rail Network in Kansas



Source: KDOT, BRRR, Wilbur Smith Associates – mapping

4.8.3 Boothill and Western Railway



The Boothill and Western Railway (BH&W) was created from part of the former Chicago, Rock Island and Pacific Railroad that connected Dodge City to Bucklin, KS.

The Boothill and Western Railway's current revenue is generated from rail car storage fees. There were no carloads moved over this line in 2009.

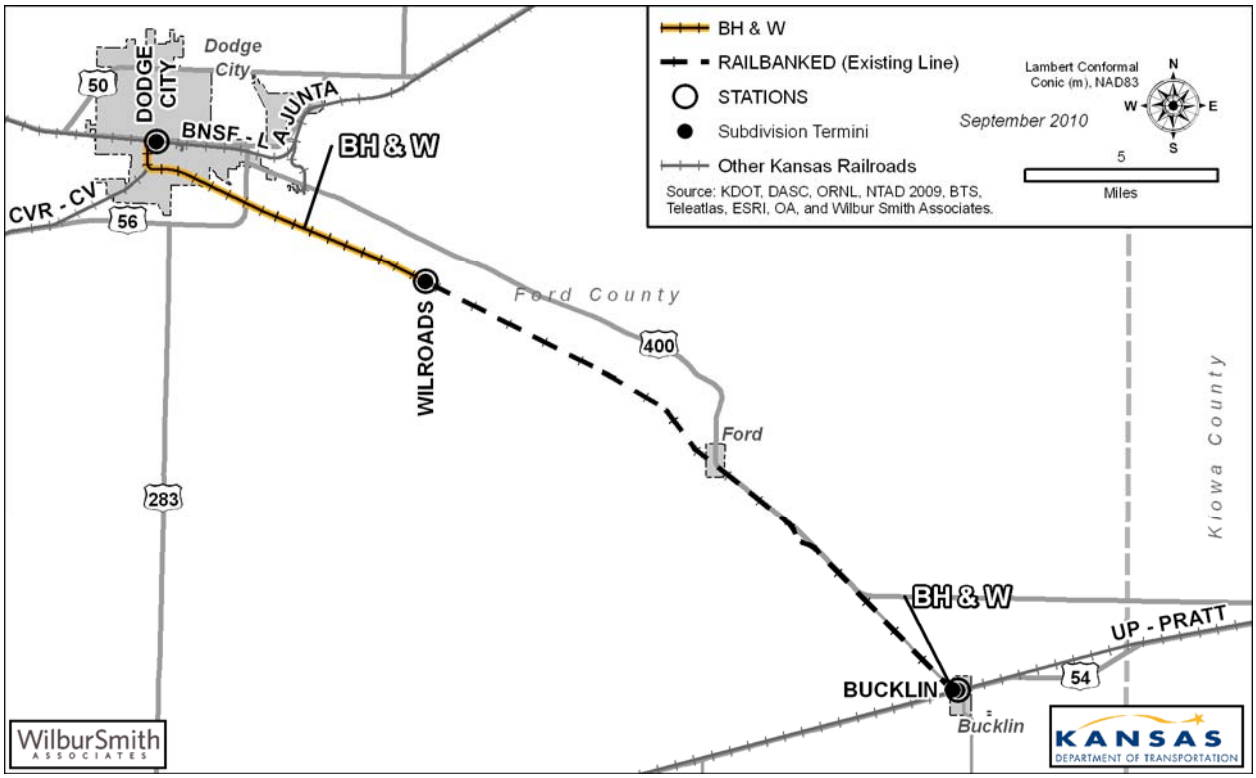
The Boothill and Western Railway interchanges with BNSF Railway at Dodge City.

Table 11: Boothill and Western Railroad Statistics

Location	Employees	Locomotives	Freight Cars	Passenger Cars
KS	N/A	2	0	0
Location	Miles Operated	Miles Owned	Miles Leased	Miles Trackage Rights
KS	10	10	0	1-BNSF
Connections to other railroads:				
BNSF: Dodge City, KS				

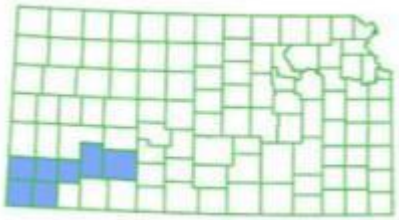
Source: Prepared by Olsson Associates, online source: none

Exhibit 8: Boothill and Western Rail Network in Kansas



Source: KDOT, BH&W, Wilbur Smith Associates - mapping

4.8.4 Cimarron Valley Railroad



The Cimarron Valley Railroad (CVR) is a subsidiary of the Western Group, located in Ogden, Utah. The Western Group owns six other railroads and a construction company. The CVR operates in the southwestern corner of Kansas. Its line runs southwest from Dodge City to Satanta. At Satanta, the line splits and the southern route goes to Boise City, Oklahoma. The western route continues to Springfield, Colorado. The railroad's operating plan calls for a two train operation. Other trains may be added during grain season to accommodate the harvest. The CVR operates a total of 254 miles of railroad and owns 183 miles of track in Kansas.

The CVR has 16 employees in Kansas. Other business involvement includes a car repair shop in Satanta, Kansas.

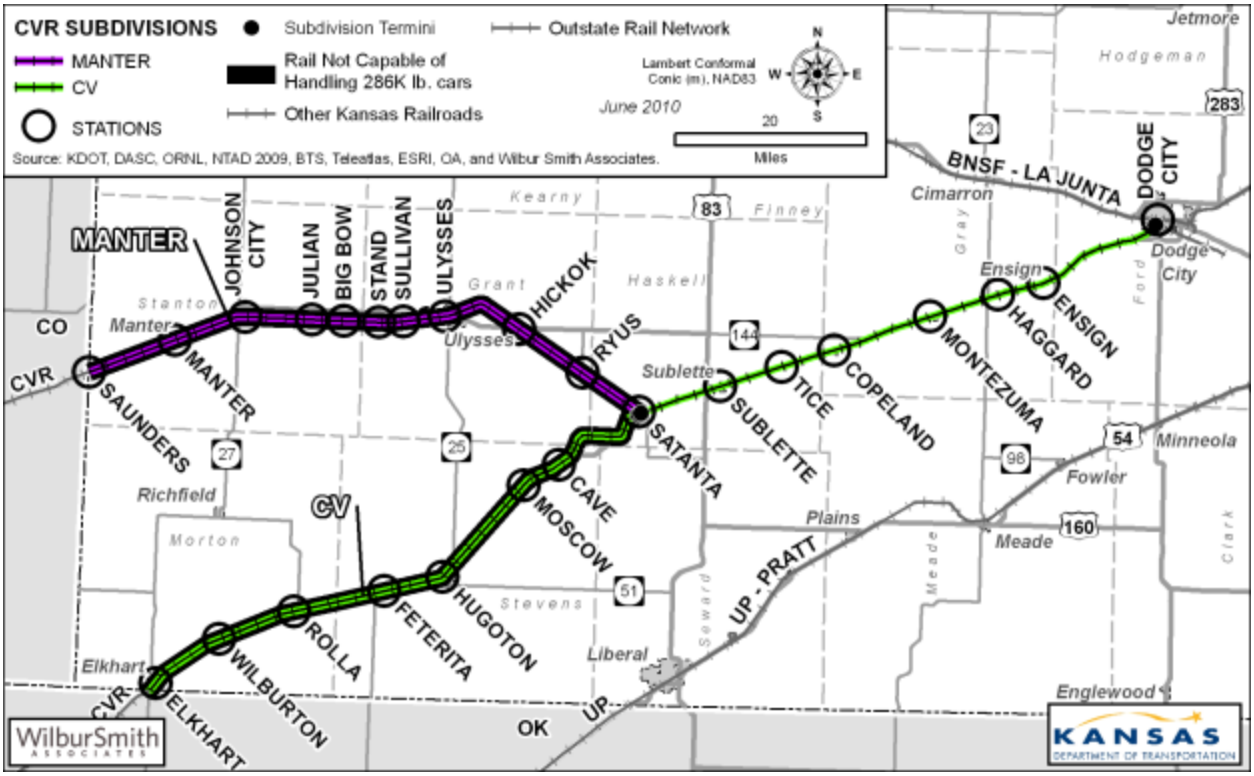
The primary commodities shipped on this line include grain and grain-related products. Secondary commodities shipped include fertilizer, soy bean meal, carbon black, chemicals, and various miscellaneous shipments. The CVR handled approximately 11,000 carloads in 2009.

Table 12: Cimarron Valley Railroad Statistics

Location	Employees	Locomotives	Freight Cars	Passenger Cars
KS	16	8	6	0
Location	Operated Miles	Owned Miles	Leased Miles	Miles Trackage Rights
KS	183	183	0	4-BNSF
National	254	254	0	4-BNSF
Connections to other railroads:				
BNSF Railway: Dodge City, KS, and Boise City, OK				

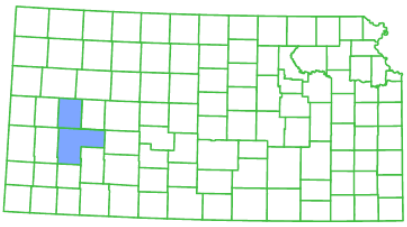
Source: Prepared by Olsson Associates, online source: www.westernrailroadbuilders.com/affiliates/cimarronvalleyrailroad.html/

Exhibit 9: Cimarron Valley Rail Network in Kansas



Source: KDOT, CVR, Wilbur Smith Associates – mapping

4.8.5 Garden City Western Railway, Inc.



Garden City Western (GCW) has been in business since 1916, serving the agricultural market of southwestern Kansas by connecting Garden City to Wolf. The rail line has 11 active customers shipping grain (wheat and milo), farm equipment, feeding ingredients, molasses, peanut meal, fertilizers, frozen foods, and petroleum products. In addition, several other products, such as utility poles, are shipped in and out of a large rail-to-truck transfer facility located on the GCW in Garden City. In 2009, the railroad handled approximately 1,300 carloads of freight. Currently, the rail operation employs four full-time railroad employees.

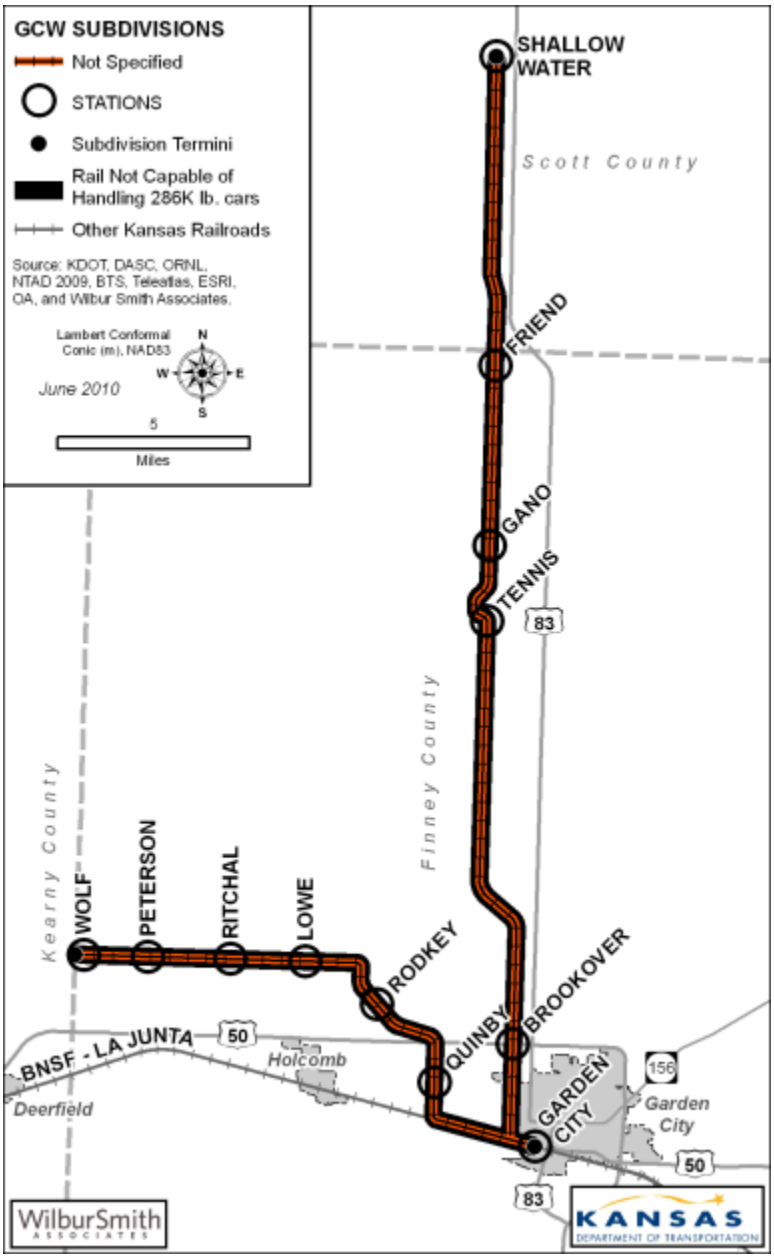
GCW's corporate parent, Pioneer Railcorp, is a short line railroad holding company which owns 16 railroads totaling over 535 miles in ten states. Pioneer's railroads serve over 250 customers, including some of the largest industrial corporations in the United States.

Table 13: Garden City Western Railroad Statistics

Location	Employees	Locomotives	Freight Cars	Passenger Cars
KS	N/A	2	0	0
Location	Operated Miles	Owned Miles	Leased Miles	Miles Trackage Rights
KS	45	45	0	0
Connections to other railroads:				
BNSF Railway: Garden City, KS				

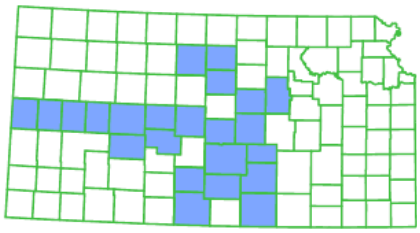
Source: Prepared by Olsson Associates, online source: www.pioneer-railcorp.com

Exhibit 10: Garden City Western Rail Network in Kansas



Source: KDOT, GCW, Wilbur Smith Associates - mapping

4.8.6 Kansas and Oklahoma Railroad



The Kansas and Oklahoma Railroad (KO) is a subsidiary of WATCO Companies, Inc. (WATCO), a Pittsburg, KS, based company. As of 2009, WATCO owned and operated 22 railroads nationwide, including the KO, South Kansas and Oklahoma Railroad (SKOL), and Kaw River Railroad (KAW) in Kansas. More than 1,200 people are employed by WATCO and its subsidiaries nationwide.

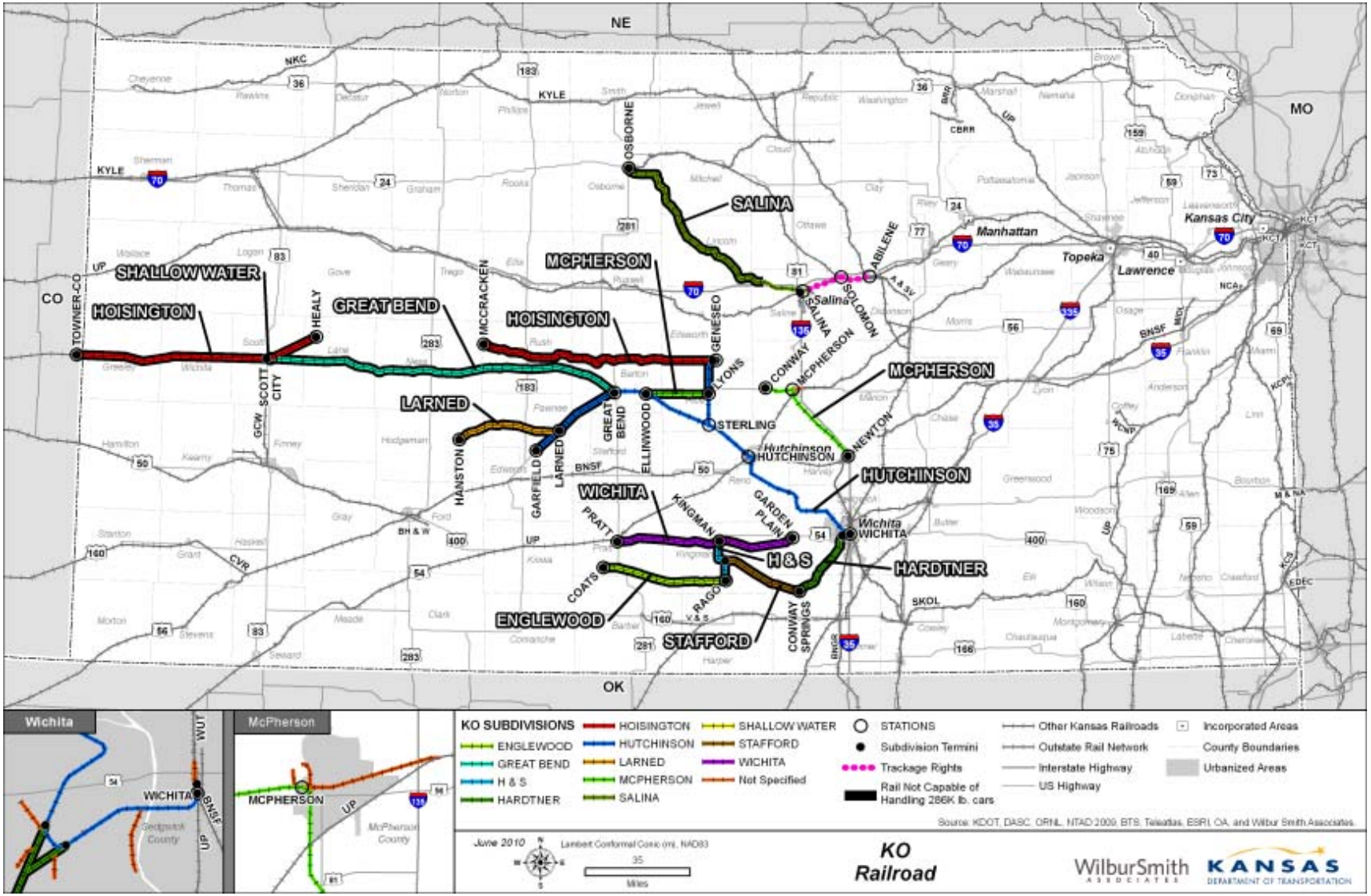
WATCO purchased the KO on June 29, 2001. The KO operates over 840 track miles in three directions, making it one of the largest short lines in the industry. It originates in Wichita and extends to the Colorado state line. It owns 642 miles of track in Kansas, leases 111 miles of track to operate, and has 36 miles of trackage rights on UP lines. In Kansas, the KO has 31 locomotives; 27 are owned and 4 are leased. It has access to 981 freight cars; 252 owned and 729 leased. More than 55,000 carloads of agricultural and industrial products, such as corn, wheat, fertilizers, lumber, cement, sand, and rock are transported annually on the KO.

Table 14: Kansas and Oklahoma Railroad Statistics

Location	Employees	Locomotives	Freight Cars	Passenger Cars
KS	N/A	27 owned 4 leased	252 owned 729 leased	0
National	1,200			
Location	Operated Miles	Owned Miles	Leased Miles	Miles Trackage Rights
KS	753	642	111	36-UP
Connections to other railroads:				
BNSF: Abilene, Hutchinson, Newton and Wichita, KS UP: Hutchinson, McPherson, Salina and Wichita, KS KYLE: Osborne, KS SKOL: Wichita, KS WTA: Wichita, KS				

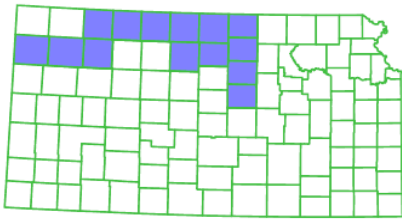
Source: Prepared by Olsson Associates, online source: www.watcocompanies.com/railroads

Exhibit 11: Kansas and Oklahoma Rail Network in Kansas



Source: Kansas and Oklahoma Rail Network in Kansas

4.8.7 Kyle Railroad Company



The Kyle Railroad (KYLE) is owned by Rail America, of Jacksonville, Florida. RailAmerica is the largest operator of regional and short line railroads in North America. The Company's railroads operate in 27 states, 5 Canadian provinces and the Northwest Territories. Principal commodities hauled include coal, farm products, lumber, paper, fertilizers, food grain products, roofing materials, frozen food, minerals, chemicals, forestry and steel products.

In Kansas KYLE operates 444 miles of track in the northwestern/north central section of the state. It operates an additional 87 miles in Colorado. The KYLE is based in Phillipsburg, Kansas, where extensive locomotive and repair shops are maintained. Other offices are located in Beloit, Concordia, and Goodland, Kansas. KYLE's lease/purchase with the Mid States Port Authority expired in 2009, and KYLE purchased the previously leased 255 miles. KYLE now owns 271 miles of track in Kansas and also operates 173 miles under a lease agreement with UP. KYLE also operates over an additional 13 miles of UP trackage rights in Kansas.

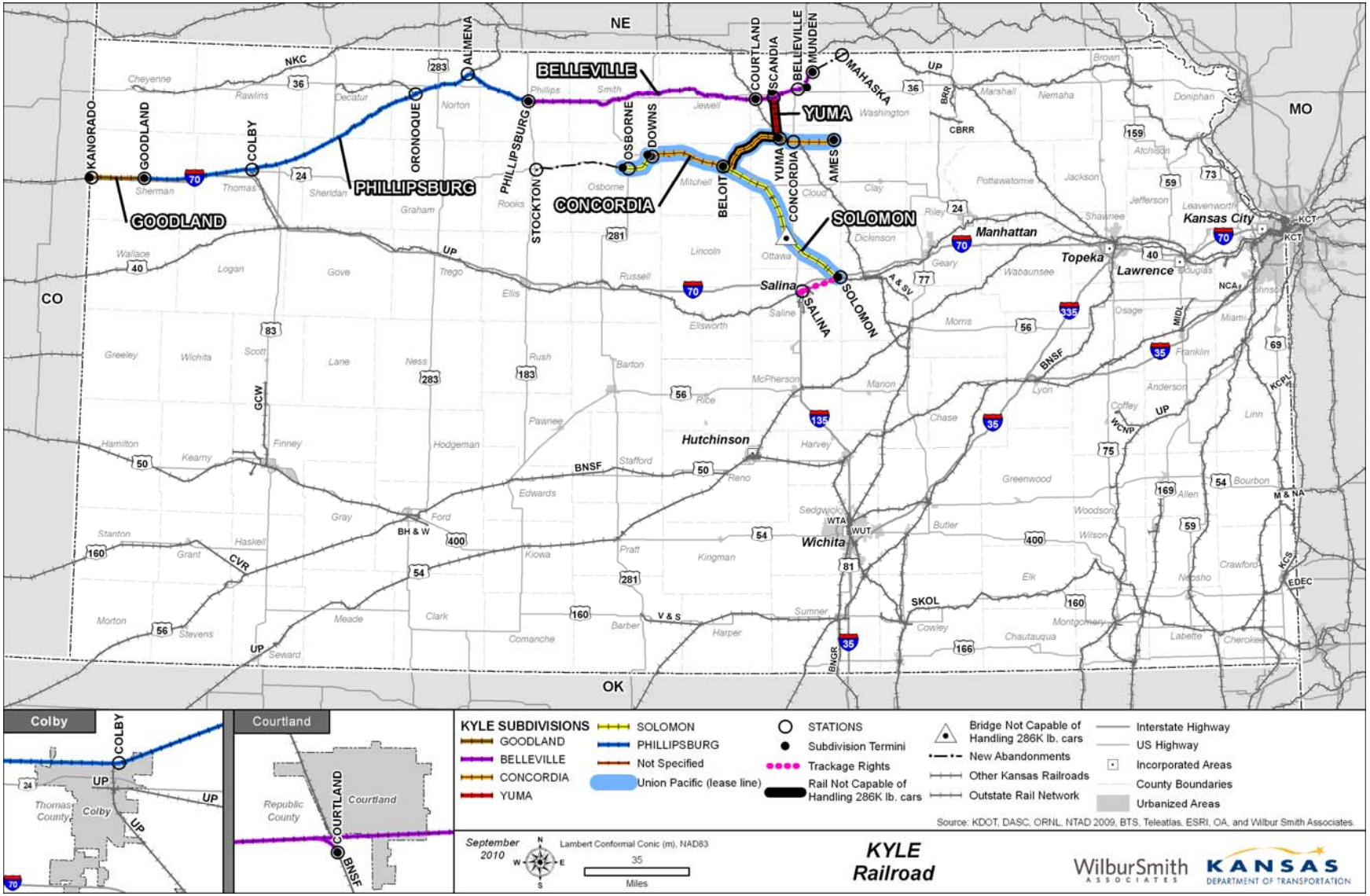
KYLE offers several routing choices for inbound and outbound freight interchanging with two Class I carriers and neighboring short lines. KYLE interchanges with the BNSF at Courtland, and the Union Pacific at Salina, Kansas, and Limon, Colorado. KYLE and another short line, Nebraska, Kansas and Colorado Railway, have interchange facilities at Norton, Oronoque, and Almena; and connections with the Kansas and Oklahoma Railroad at Osborne. The commodities shipped include aggregates, building materials (shingles), corn, fertilizer, millet, milo, petroleum (asphalt), sunflowers, sunflower oil, sunflower seeds, and wheat. In 2009, the KYLE handled 20,000 carloads of freight and employed 59 employees in Kansas and Colorado.

Table 15: Kyle Railroad Statistics

Location	Employees	Locomotives	Freight Cars	Passenger Cars
KS	59	11 owned 3 leased	1,200 leased	0
Location	Operated Miles	Owned Miles	Leased Miles	Miles Trackage Rights
KS KS, CO	405 492	271 358	134 134	13-UP 13-UP
Connections to other railroads:				
BNSF: Concordia and Courtland, KS Union Pacific: Limon, CO (near Solomon) Kansas and Oklahoma: Osborne, KS Nebraska Kansas, Colorado Railway: Norton, Oronoque, and Almena KS				

Source: Prepared by Olsson Associates, online source: www.railamerica.com

Exhibit 12: KYLE Rail Network in Kansas



Source: KDOT, KYLE, Wilbur Smith Associates - mapping

4.8.8 Missouri and Northern Arkansas Railroad

The Missouri and Northern Arkansas Railroad (M&NA) leases eight miles of UP line in Kansas. Currently there is no freight moving on this line, which lies between Fort Scott, Kansas, and the state line for a few miles to the west of Nevada, Missouri.

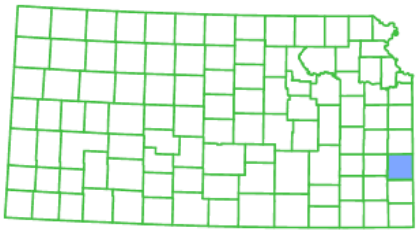
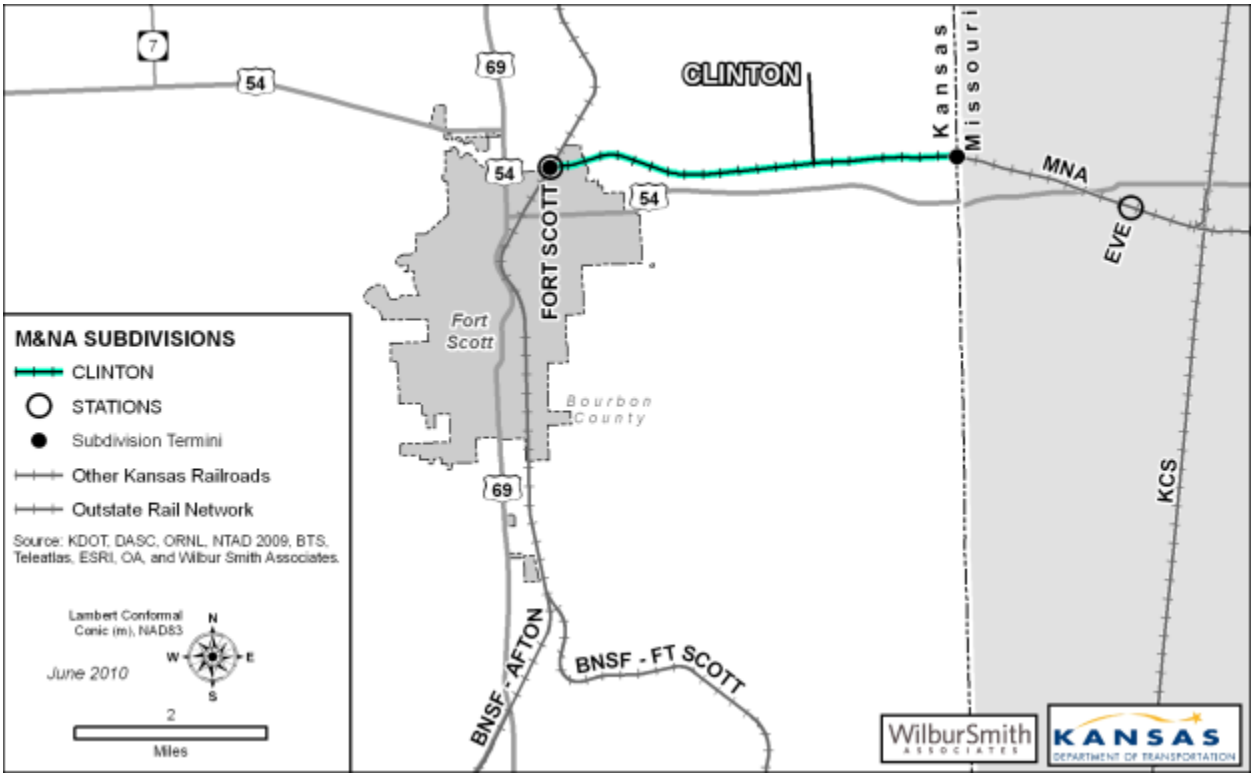


Table 16: Missouri and Northern Arkansas Railroad Statistics

Location	Employees	Locomotives	Freight Cars	Passenger Cars
KS	0	0	0	0
Location	Operated Miles	Owned Miles	Leased Miles	Miles Trackage Rights
KS	8	0	8	0
Connections to other railroads:				
BNSF: Aurora, Joplin and Lamar, MO; and Ft. Scott, KS KCS: Joplin, MO Union Pacific: Kansas City, KS, Newport, AR				

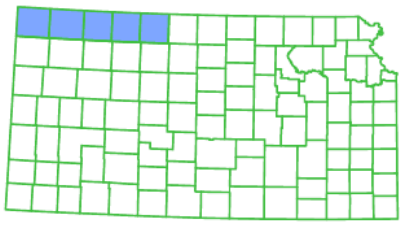
Source: Prepared by Olsson Associates, online source: www.railamerica.com

Exhibit 13: Missouri and Northern Arkansas Rail Network



Source: KDOT, M&NA, Wilbur Smith Associates – mapping

4.8.9 Nebraska, Kansas, Colorado Railway, Inc.



The Nebraska, Kansas, Colorado Railway, Inc. (NKC), owned by Omnitrax, has two branch lines in northwest Kansas. One line connects St. Francis to Orleans, NE. The other line connects Oberlin to Oronoque. The NKC uses trackage rights over the KYLE from Oronoque to Almena, and continues to Long Island where the second branch line enters Nebraska.

The primary commodities moved on these lines are grain and farm products. Wheat is the major grain commodity, which moves to the Pacific Northwest for ocean shipment to Asia. In 2009, NKC moved 3,171 carloads of freight.

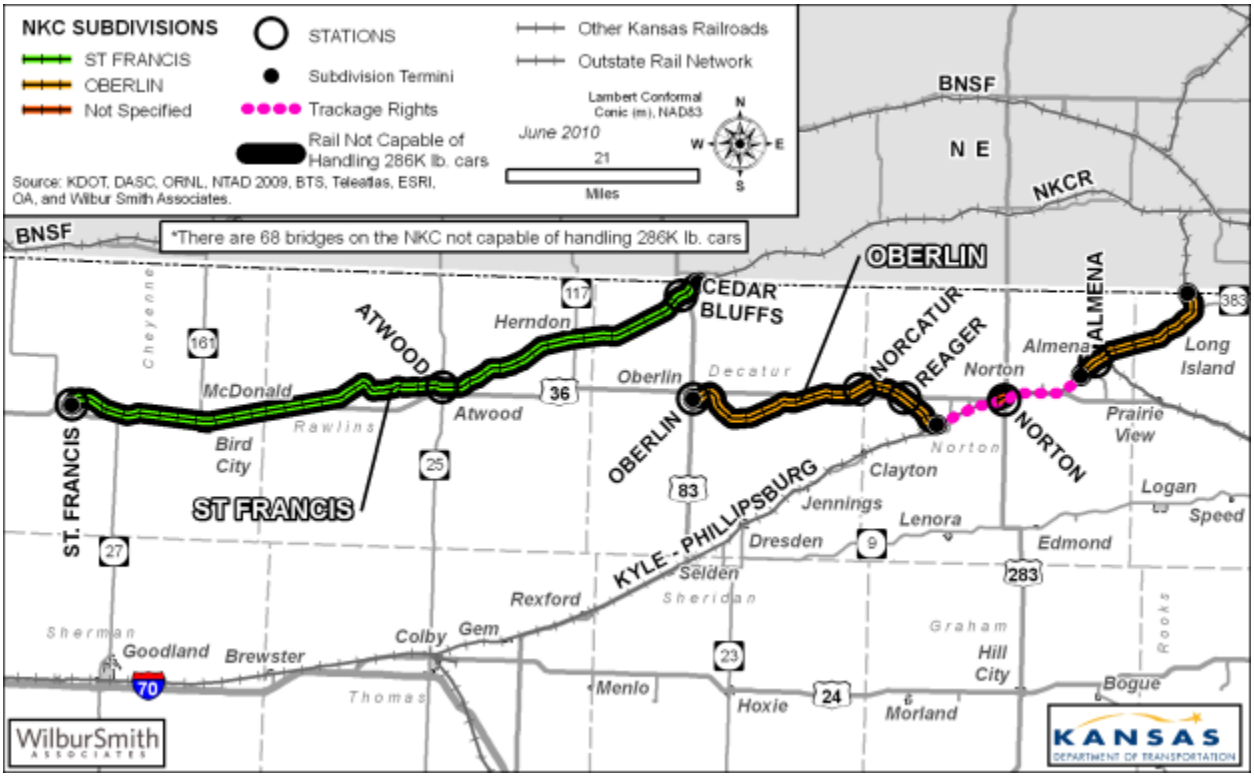
The NKC is dependent upon the BNSF, the connecting Class I railroad, for car supply, marketing and rates. NKC's success is dependent upon the success of the shippers along its lines and BNSF's commercial support for these shippers.

Table 17: Nebraska Kansas Colorado Railroad Statistics

Location	Employees	Locomotives	Freight Cars	Passenger Cars
KS	N/A	8 owned 4 leased	150 owned 6 leased	0
Location	Operated Miles	Owned Miles	Leased Miles	Miles Trackage Rights
KS	122	122	0	17 - KYLE
Connections to other railroads:				
BNSF: Holdrege and Orleans, NE, Sterling, CO KYLE: Almena, Norton, Oronoque, KS				

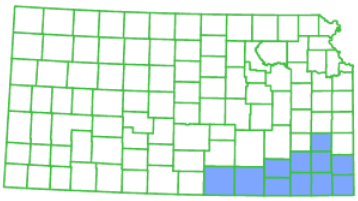
Source: Prepared by Olsson Associates, online source: www.omnitrax.com

Exhibit 14: Nebraska Kansas Colorado Rail Network in Kansas



Source: KDOT, NKC, Wilbur Smith Associates – mapping

4.8.10 South Kansas and Oklahoma Railroad



The South Kansas and Oklahoma Railroad (SKOL) is a subsidiary of WATCO Companies, Inc. (WATCO), a Pittsburg, Kansas based company.

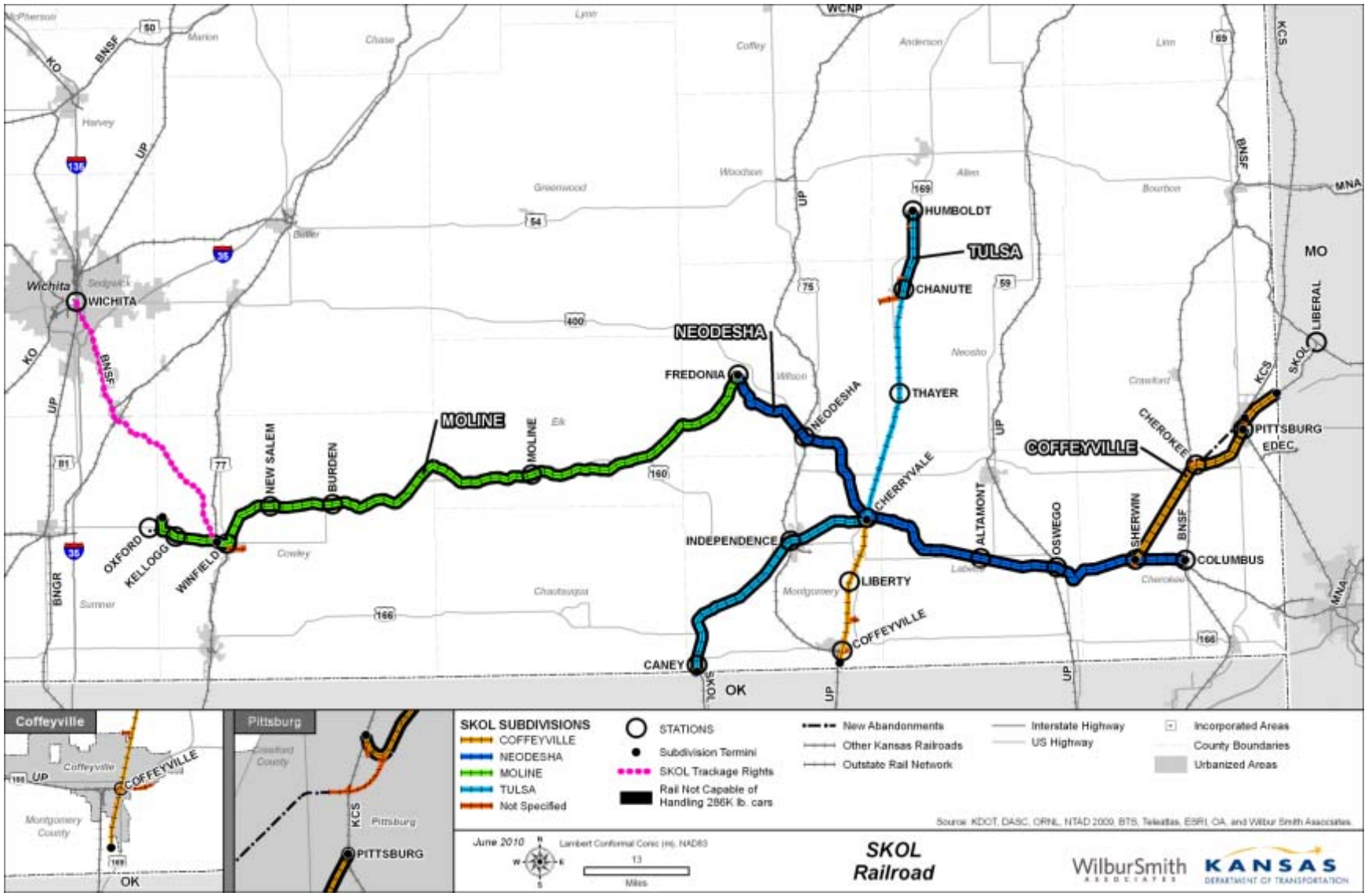
The SKOL, purchased in 1987, was the first short line railroad operated by WATCO. The SKOL operates 305 track miles in Kansas, originating from Cherryvale, Kansas and serves customers primarily in southeastern Kansas and northeastern Oklahoma. More than 48,000 carloads of agricultural and industrial products such as corn, wheat, fertilizers, lumber, cement and sand are transported annually.

Table 18: South Kansas and Oklahoma Railroad Statistics

Location	Employees	Locomotives	Freight Cars	Passenger Cars
KS	N/A	31 owned 3 leased	331 owned 611 leased	0
Location	Operated Miles	Owned Miles	Leased Miles	Miles Trackage Rights
KS	305	305	0	44- BNSF
KS, OK, MO	380	380	0	44-BNSF
Connections to other railroads:				
BNSF: Columbus and Winfield, KS Kansas City Southern: Pittsburg, KS Union Pacific: Coffeyville and Winfield, KS Kansas and Oklahoma: Wichita, KS				

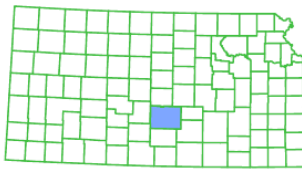
Source: Prepared by Olsson Associates, online source: www.watcocompanies.com

Exhibit 15: South Kansas and Oklahoma Rail Network in Kansas

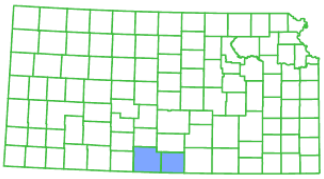


Source: KDOT, SKOL, Wilbur Smith Associates

4.8.11 V&S Railway LLC



V&S Railway operates on two separate rail lines. It has a 21.5 mile line that is located in Barber and Harper Counties between the cities of Attica and Medicine Lodge. The second line is 3.5 miles long and is located in the City of Hutchinson.



Commodities transported include sheet rock and bagged plaster. In 2009, the V&S hauled 1,250 carloads. Currently the railway has three employees and two locomotives; one in Medicine Lodge and one in Hutchinson. The V & S Railway connects with the BNSF Railway at Attica, Kansas in Harper County.

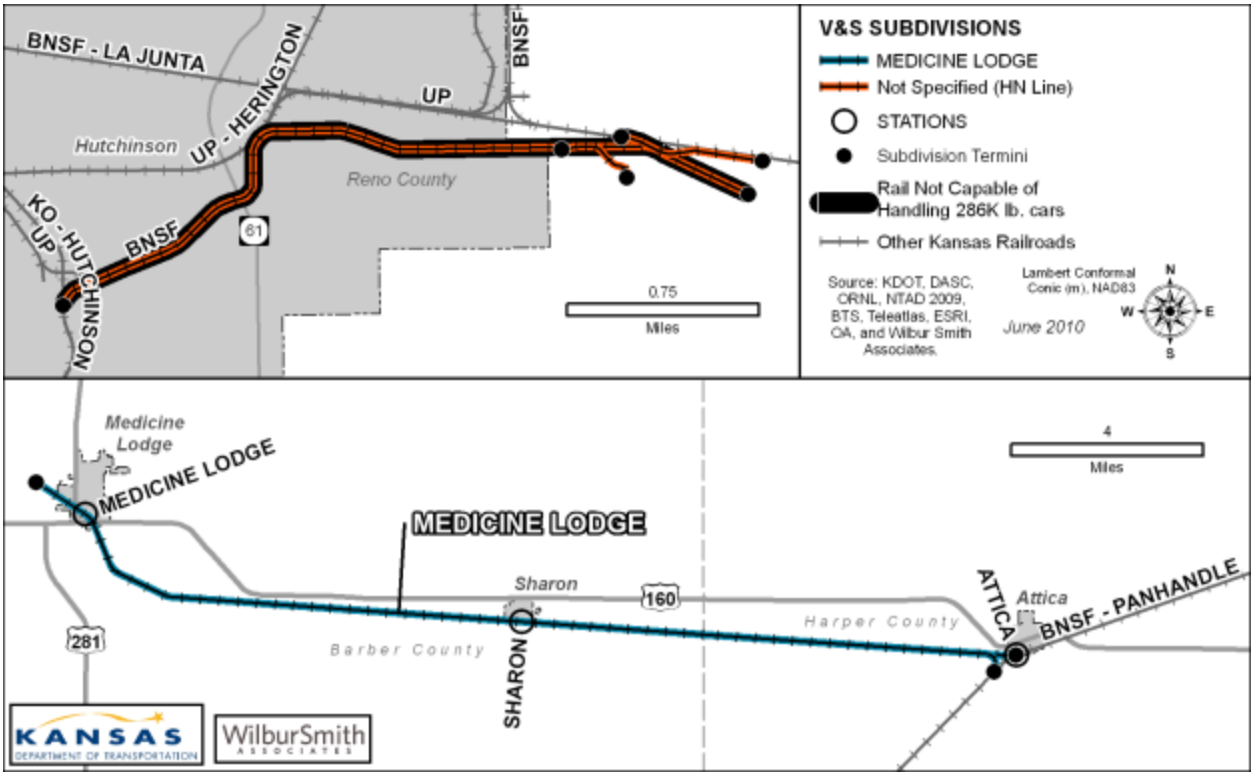
In November 2005 the Hutchinson and Northern Railroad was purchased by Pacific Western Railway. In January 2006 V & S Railway LLC began operating the railroad on behalf of Pacific Western Railway. In May 2006, V&S acquired the 3.5 mile line in Hutchinson, and currently operates the line in conjunction with its operations in Medicine Lodge. Major commodities shipped on the line include salt and scrap iron. A freight car repair facility is also located on the line.

Table 19: V&S Railway Railroad Statistics

Location	Employees	Locomotives	Freight Cars	Passenger Cars
KS	3	2	0	0
Location	Operated Miles	Owned Miles	Leased Miles	Miles Trackage Rights
KS	25	25	0	2-BNSF
Connections to other railroads:				
BNSF: Attica and Hutchinson, KS Union Pacific: Hutchinson, KS Kansas and Oklahoma: Hutchinson, KS				

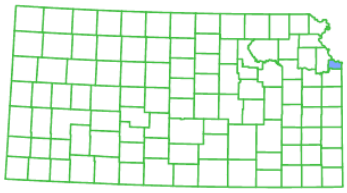
Source: Prepared by Olsson Associates, online source: www.vsrailway.com

Exhibit 16: V&S Railway Rail Network in Kansas



Source: KDOT, V&S, Wilbur Smith Associates – mapping

4.8.12 Kansas City Terminal Railway Company



The Kansas City Terminal Railway Company (KCT) and subsidiaries, founded in 1906, is a joint facility operation which serves the railroads that operate in Kansas City. The KCT provides dispatching and switching services for trains in and out of the metropolitan Kansas City area, with approximately 95 miles of track. The company is owned by railroads (Union Pacific Railroad Company, BNSF Railway Company, The Kansas City Southern Railway Company, Norfolk Southern Railway Company and Iowa, Chicago & Eastern Railroad), that are the primary customers and users of the Company's facilities.

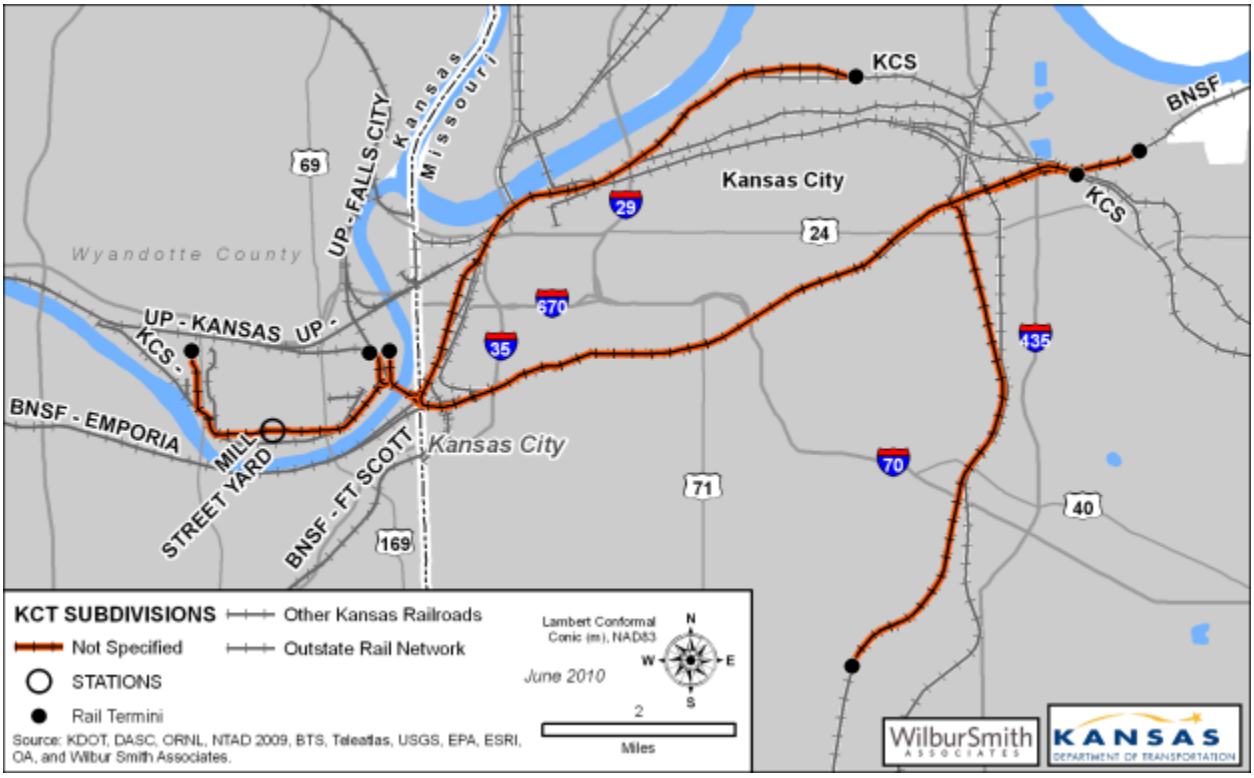
In 1994 the KCT's maintenance of way activities were contracted to the BNSF Railway. In March of 2006, the KCT formed a new corporation, Kansas City Transportation Company, with the KAW River Railroad (KAW) providing the industry switching operations for this new corporation.

Table 20: Kansas City Terminal Railroad Statistics

Location	Employees	Locomotives	Freight Cars	Passenger Cars
KS	N/A	0	0	0
Location	Operated Miles	Owned Miles	Leased Miles	Miles Trackage Rights
KS	27	27	0	0
MO	68	68	0	0
Connections to other railroads:				
BNSF: Kansas City, KS Norfolk Southern: Kansas City, KS Union Pacific: Kansas City, KS Amtrak: Kansas City, KS ICE: Kansas City, KS				

Source: Prepared by Olsson Associates, online source: none

Exhibit 17: Kansas City Terminal Rail Network in Kansas



Source: KDOT, KCT, Wilbur Smith Associates – mapping

4.8.13 New Century AirCenter Railroad/JCAX

New Century AirCenter/JCAX is a 2,300-acre inland port located along the I-35 NAFTA corridor. Rail service is provided by the New Century AirCenter Railroad (NCA) which interchanges with the BNSF Railway.

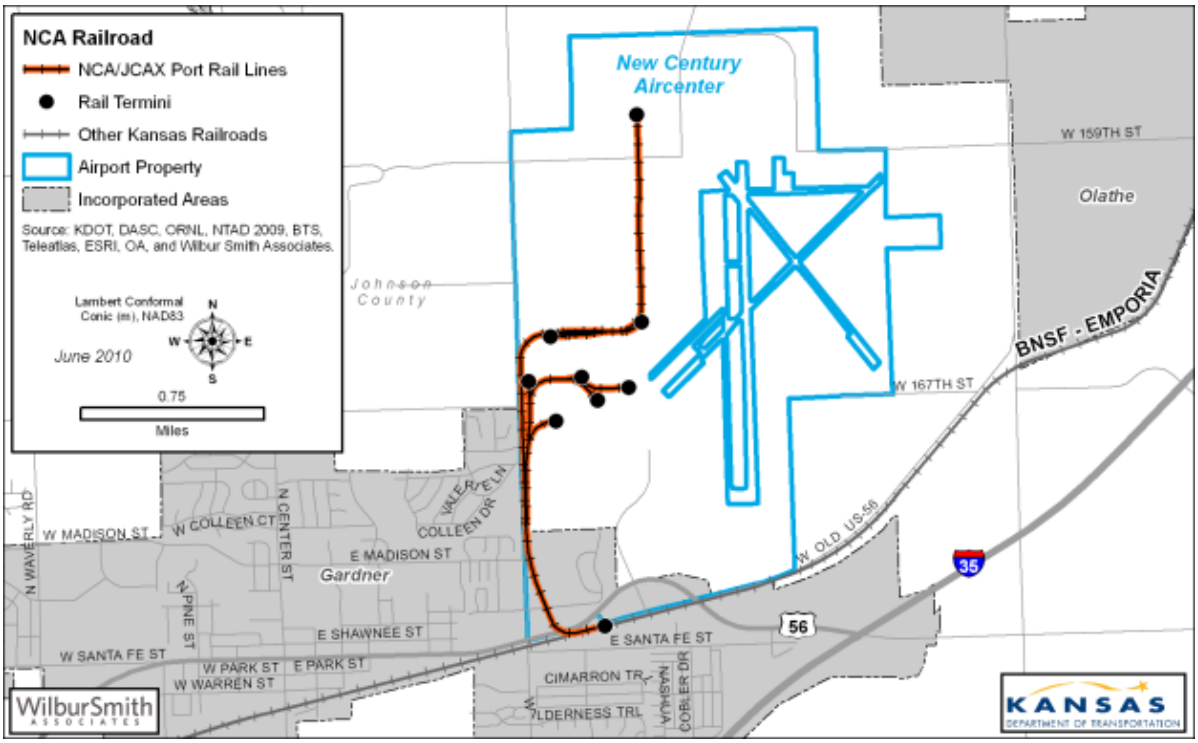
NCA provides switching services to meet intra-plant requests; usually within twenty minutes during normal business hours and as otherwise requested. The industrial park maintains a certified track scale for special weighing requirements and has installed in-motion railcar weight scales with computerized railcar identification and reporting systems. A total of 2,562 carloads were interchanged in 2009.

Table 21: New Century AirCenter Railroad Statistics

Location	Employees	Locomotives	Freight Cars	Passenger Cars
KS	N/A	1	0	0
Location	Operated Miles	Owned Miles	Leased Miles	Miles Trackage Rights
KS	5.2	5.2	0	0
Connections to other railroads:				
BNSF: Gardner, KS				

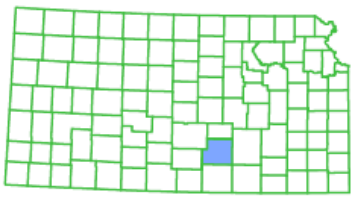
Source: Prepared by Olsson Associates, online source: www.newcenturyaircenter.com

Exhibit 18: New Century AirCenter Rail Network



Source: KDOT, NCA, Wilbur Smith Associates – mapping

4.8.14 Wichita Terminal Association Railroad, Inc.



The Wichita Terminal Association Railroad Inc. (WTA) was formed in 1889 to service the stockyards in Wichita, Kansas. The railroad is owned by a partnership between the BNSF Railway (BNSF) and Union Pacific (UP). The BNSF Railway handles the maintenance and dispatching on the line.

The railroad is primarily a switching and terminal railroad, which handles grain and grain-related products including wheat for flourmills. Often shipments of grain involve subsequent moves as related to the processing of flour products. Some scrap steel is also moved. In 2008, WTA switched over 37,000 cars.

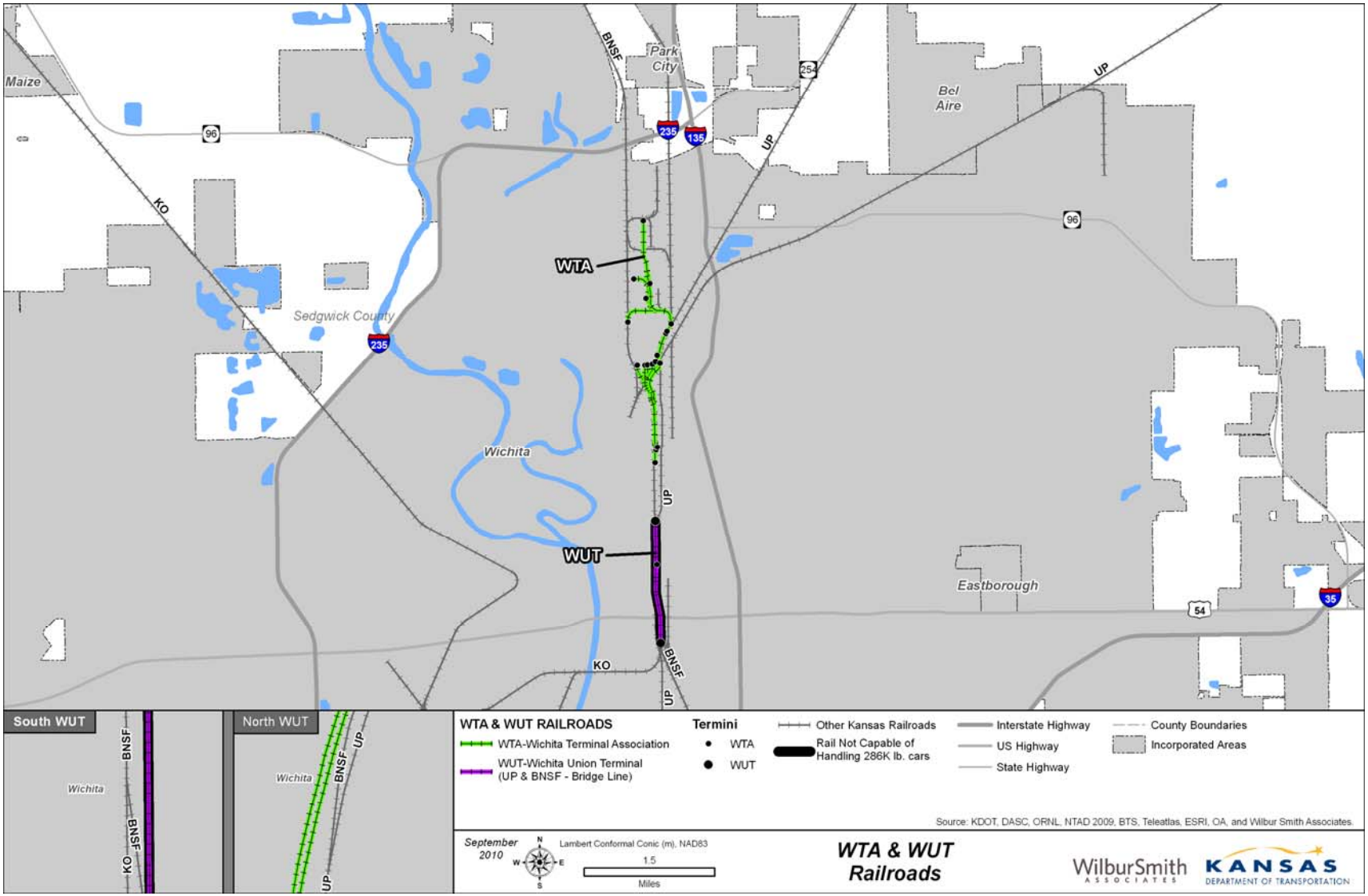
The Wichita Terminal Association should not be confused with the Wichita Union Terminal, which is comprised of two miles of track owned jointly by BNSF and UP. WTA provides maintenance for the Wichita Union Terminal but the tracks over which the Wichita Terminal Association crews operate have no physical connection with the Wichita Union Terminal's tracks.

Table 22: Wichita Terminal Association Railroad Statistics

Location	Employees	Locomotives	Freight Cars	Passenger Cars
KS	N/A	0	0	0
Location	Operated Miles	Owned Miles	Leased Miles	Miles Trackage Rights
KS	3	3	0	0
Connections to other railroads:				
BNSF: Wichita, KS Union Pacific: Wichita, KS				

Source: Prepared by Olsson Associates, online source: www.wtarr.com

Exhibit 19: Wichita Terminal Association Rail Network in Kansas



Source: KDOT, WTA and WUT, Wilbur Smith Associates – mapping

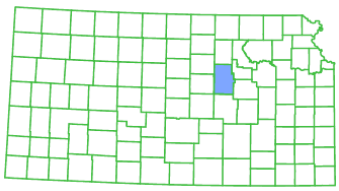
4.9 Tourist Railroads in Kansas

Also within Kansas are three tourist railroads. These carriers often operate under different authority from Class III carriers, since they usually do not fall under the jurisdiction of the U.S. Surface Transportation Board.[7]

Table 23: Tourist Rail Lines in Kansas

Tourist Railroads	Main Line Owned	Lines Leased from Class I	Miles Operated	Trackage Rights
Abilene Smoky Valley Railroad	18		18	
Central Branch Railroad	12		12	
Midland Railway	11		11	
Total Tourist Railroads	41		41	

4.9.1 Abilene and Smoky Valley Railroad



The Abilene and Smoky Valley Railroad (A&SV) is an excursion/tourist train that runs through scenic Kansas farmland between Abilene and Woodbine, with a stop in Enterprise. The railroad is owned and operated by the Abilene and Smoky Valley Railroad Association. The Abilene and Smoky Valley Railroad Association is a "not-for-profit" corporation dedicated to the restoration, operation, and display of historic railroad equipment and locomotives.

The Union Pacific had intended to abandon this segment between Abilene and Enterprise, but the Abilene and Smoky Valley Railroad acquired the line in1993. As ridership increased, the railroad also acquired the track from Enterprise to Woodbine. The purchase and refurbishing of the rail line was made possible through Transportation Enhancement funds under the federal Surface Transportation Program. The tourist train has been a popular attraction and complements Abilene's many historical attractions. Approximately 12,000 passengers rode for the year 2005.

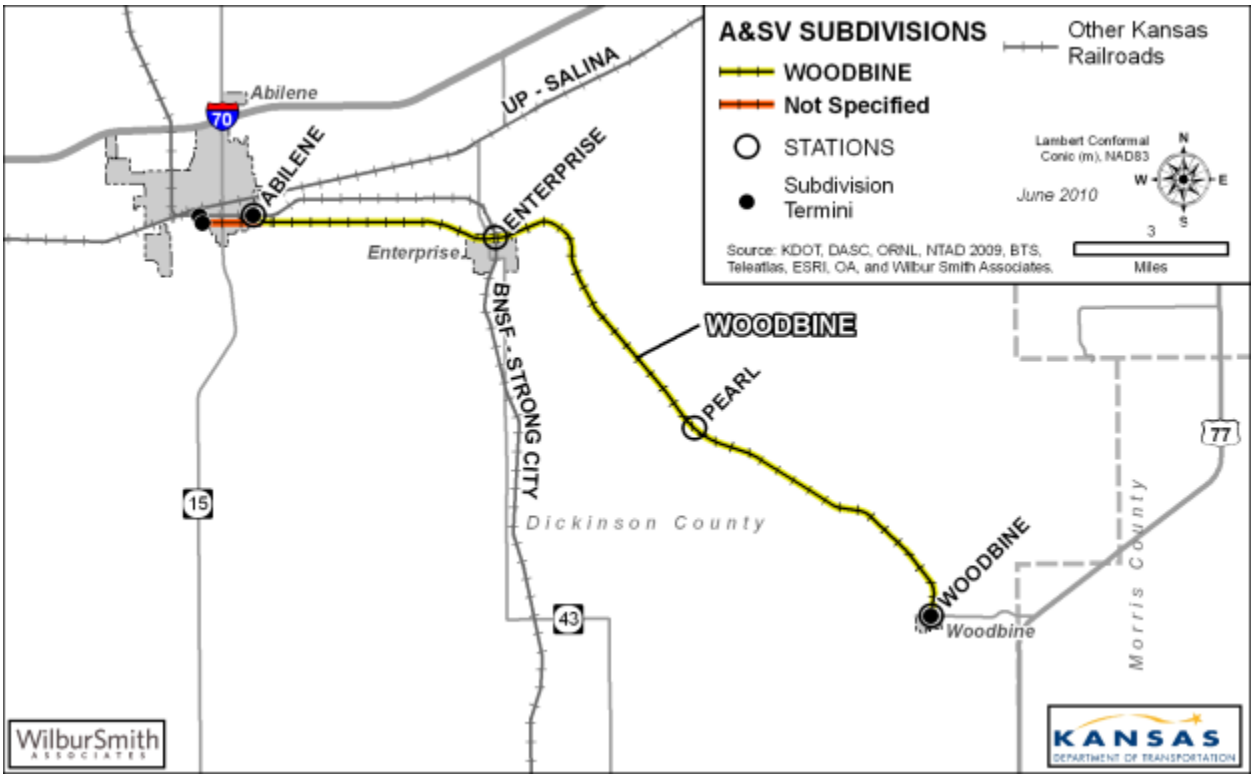
[7] These carriers typically are not considered to operate "as part of an interstate rail network."

Table 24: Abilene and Smoky Valley Railroad Statistics

Location	Employees	Locomotives	Freight Cars	Passenger Cars
KS	N/A	3 diesel 1steam	4	5
Location	Miles Operated	Miles Owned	Miles Leased	Miles Trackage Rights
KS	18	18	0	0
Connections to other railroads:				
None				

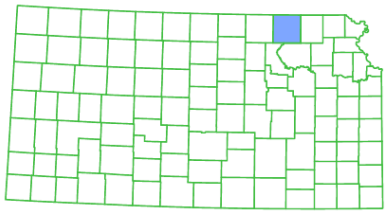
Source: Prepared by Olsson Associates, online source: www.asvrr.org

Exhibit 20: Abilene and Smoky Valley Railroad Network



Source: KDOT, A&SV, Wilbur Smith Associates - mapping

4.9.2 Central Branch Railroad



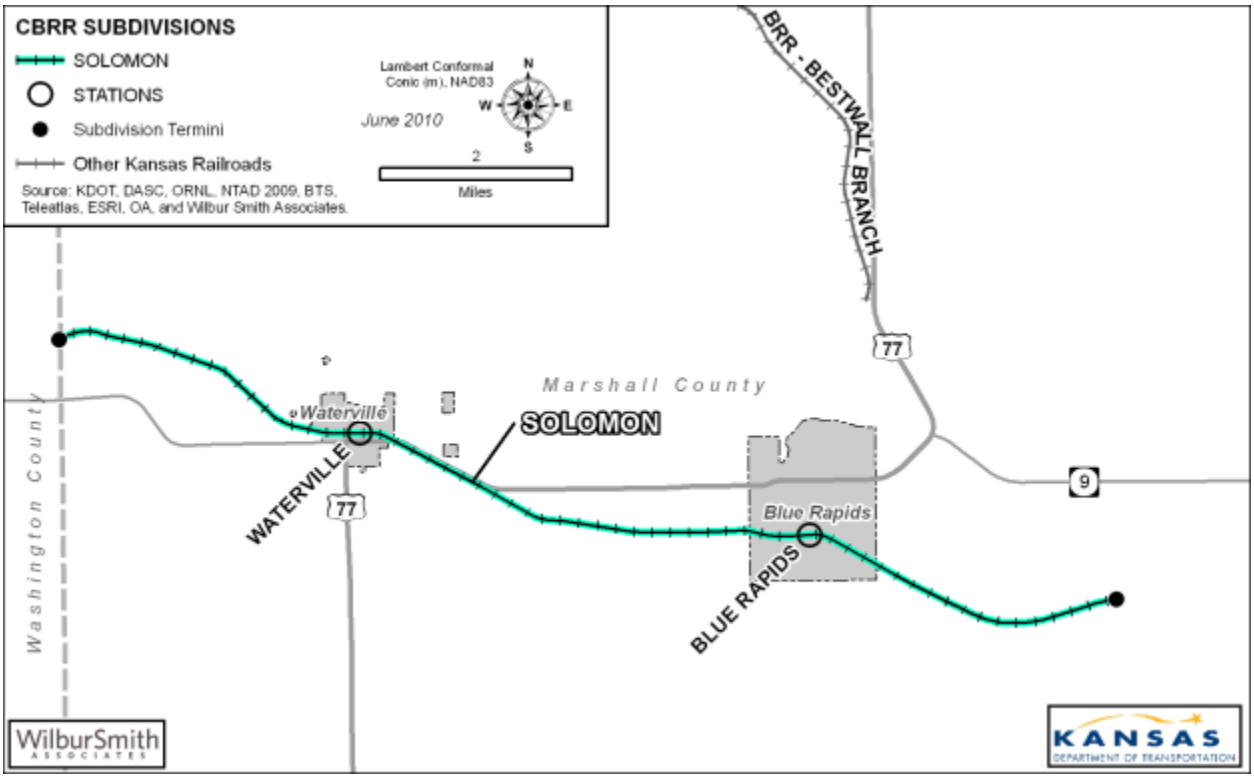
The Central Branch Railroad (CBRR) is owned by the Marshall County Railroad Historical Society. This rail line extends from west of Waterville through the communities of Waterville and Blue Rapids to a point just east of the Big Blue River. This 12 mile section of trackage solely in Marshall County was acquired in 2001 and in 2008 an aggressive fundraising campaign was launched for the purpose of restoring the rails.

Table 25: Central Branch Railroad Statistics

Location	Employees	Locomotives	Freight Cars	Passenger Cars
KS	0	0	0	0
Location	Operated Miles	Owned Miles	Leased Miles	Miles Trackage Rights
KS	12	12	0	0
Connections to other railroads:				
None				

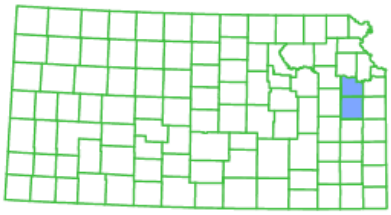
Source: Prepared by Olsson Associates, online source: www.centralbranchrailroad.org

Exhibit 21: Central Branch Rail Network



Source: KDOT, CBRR, Wilbur Smith Associates – mapping

4.9.3 Midland Railway



The Midland Railway (MRR) operates an excursion train on a line originally constructed in 1867. Trains began running in August 1988 on an 11 mile roundtrip from Baldwin City through scenic eastern Kansas farmland and woods using vintage equipment. The entire railroad operates between Baldwin City and Ottawa.

The Midland Railway is a project of the Midland Railway Historical Association and the Santa Fe Trail Historical Society. Both organizations are nonprofit, operated by volunteers, and educational in purpose. Funds for operations and development come from fares, sales, donations, and memberships.

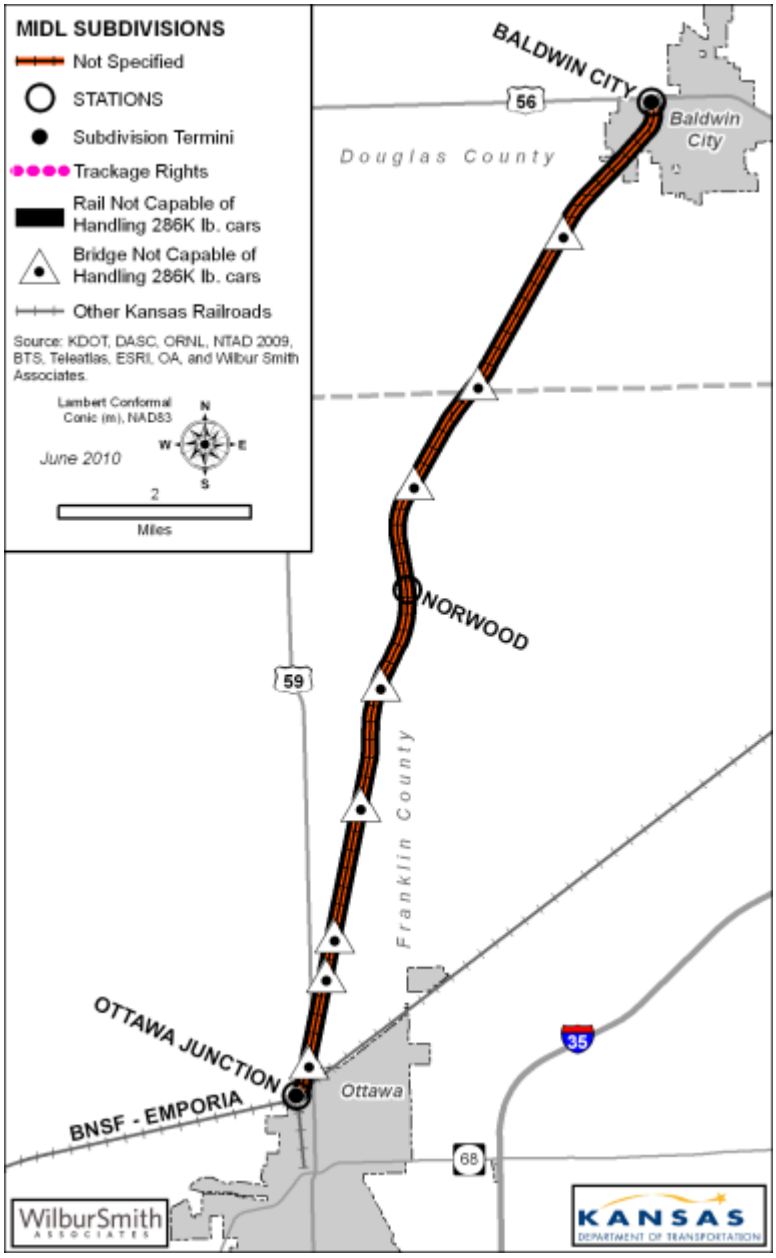
Midland Railway applied for and received Transportation Enhancement Funds from the Federal Surface Transportation Program to refurbish the rail line. This project was completed in 1998 and allowed operation of the first passenger train to Norwood, Kansas, since 1938. Midland Railway received a grant through TEA-21 in 2000. This grant allowed restoration of the line from Norwood to Ottawa, allowing for through service from Baldwin City to Ottawa.

Table 26: Midland Railroad Statistics

Location	Employees	Locomotives	Freight Cars	Passenger Cars
KS	N/A	6	0	13
Location	Operated Miles	Owned Miles	Leased Miles	Miles Trackage Rights
KS	11	11	0	0
Connections to other railroads:				
None				

Source: Prepared by Olsson Associates, online source: www.midland-ry.org

Exhibit 22: Midland Rail Network



Source: KDOT, MRR, Wilbur Smith Associates - mapping

4.10 Abandoned or Discontinued Rail Lines

From its peak in 1917, when rail mileage was recorded at 9,363 miles, over 4,400 miles of rail line has been abandoned in Kansas. These abandonments were largely the cause of overbuilding, financial difficulties experienced by railroads due to highway competition, and the consolidation of the rail industry over the past three decades. Fortunately, the pace of rail abandonments has decreased significantly over the past decade, and especially over the past five years, as the major industry consolidations have subsided and rail tonnage has increased. KDOT's State Rail Service Improvement Program has also contributed to the stabilization of the rail system through its investments to preserve critical rail corridors threatened with abandonment.

The following is a review of rail abandonments in Kansas over the past ten year period, as well as rail lines which have been preserved for future use by KDOT.

4.10.1 Abandoned Rail Lines in Kansas

Table 27 displays rail line segments which have been have been abandoned over the past decade. Rail lines proposed for abandonment by their owners must be reviewed and approved for abandonment by the federal Surface Transportation Board.

Table 27: Railroad Abandonments in Kansas (2000-2009)

Name of Carrier	Description of Track Abandoned	Kansas Mileage	Abandonment Year
Kansas Southwestern	Kingman to Olcott	16.7	2000
Kansas Southwestern	Conway Springs to Kiowa	57.6	2000
So. Kansas & Oklahoma RR	Sherwin to Faulkner	5.0	2000
Union Pacific RR	Marietta to Nebraska Line	3.9	2000
Central Kansas Rwy.	Alameda to Kingman	8.5	2001
Central Kansas Rwy.	Rago to Harper	11.5	2001
Central Kansas Rwy.	Garden Plain to Wichita	16.0	2001
Central Kansas Rwy	Conway to Lyons	19.6	2001
Central Kansas Rwy.	Hutchinson to Kingman	27.5	2001
Kyle RR	Ames to Frankfort	61.9	2001
Kyle RR	Lenora to Harlan	70.3	2001
So. Kansas & Oklahoma RR	Humboldt to Iola	9.1	2001
So. Kansas & Oklahoma RR	Severy to Fredonia	24.4	2001
Southeast Kansas RR	Pittsburg to Cherokee	6.0	2001
Union Pacific RR	Lindsborg to Salina	10.9	2001
Union Pacific RR	Geneseo to Lindsborg	28.0	2001
BNSF RR	In Ottawa	0.2	2002
BNSF RR	Columbus to Missouri Line	12.1	2002
Central Kansas Rwy.	In Wichita	1.0	2002
Kiowa, Hardtner & Pacific	Kiowa to Hardtner	9.9	2002
So. Kansas & Oklahoma RR	In Pittsburg	0.4	2002
Union Pacific RR	In Topeka	1.0	2002
Union Pacific RR	Marysville to Marietta	8.0	2003
BNSF RR	Wichita to Valley Center	5.9	2003
BNSF RR	In Wichita	11.0	2003
Victoria & Southern RR	Medicine Lodge to Sun City	20.0	2003
Kansas & Oklahoma RR	Coats to Protection	46.8	2003
Kansas & Oklahoma RR	Hanson to Jetmore	10.7	2003
BNSF RR	South Hutchinson	2.9	2004
Union Pacific RR	Vilets to Frankfort	5.3	2004
Butler County	Augusta to Andover	10.6	2004
Kansas & Oklahoma RR (Union Pacific RR)	McCracken to Healy	58.5	2004
BNSF RR	Reynolds, NE to Superior	40.0	2004
Union Pacific RR	Elwood to Robinson	31.0	2004
Boothill and Western Rwy.	Wilroads to Bucklin	15.8	2005
Kansas and Oklahoma RR	Silica to Chase	6.0	2006
Union Pacific RR	Near Coffeyville	0.8	2006
Union Pacific RR	Durand Ind. Lead, Yates Ctr	1.6	2006
Kyle RR (Union Pacific RR)	Osborne to Stockton	30.1	2008

Source: KDOT; railroads listed; Wilbur Smith Associates – mapping

There are currently no additional lines designated for abandonment in the future.

4.10.2 Rail Lines Preserved for Future Use

Recognizing that abandoned rail lines are usually lost for future rail or other transportation uses, KDOT has proactively rail-banked those abandoned lines which may have future strategic value. **Table 28** provides a list of those rail line segments currently being preserved for future use.

Table 28: Kansas Rail Line Segments and Mileage Preserved for Future Use

Rail Line Segment	Miles Preserved
Wichita to Clonmel	11.0
Topeka to Overbrook	23.6
Ottawa to Iola	50.2
Lawrence	1.4
Herrington to Osawatomie	116.1
Lomax to Overbrook	13.5
Oxford to Wellington	9.2
Englewood to Protection	30.4
Chanute to Fredonia	19.0
McPherson to Marion	33.4
McPherson to Lindsborg	15.0
Crestline to Waco, MO	16.0
Lyons to Galatia	53.2
Beaumont to Leon	13.1
US-54 to Augusta	6.4
Marietta to Jamaica, NE	4.5
Fredonia to Severy	23.5
Pittsburg to Cherokee	6.0
Iola to Humboldt	8.0
Sherwin to Faulkner	5.0
Marquette	2.0
Wichita to Garden Plain	15.0
Kingman	1.6
Kiowa to Hardtner	9.9
Pittsburg	0.4
Ottawa	0.2
Wichita (BU/SG Co. Line to Hydraulic St.)	9.8
Medicine Lodge to Sun City	20.2
Coats to Protection	46.8
Hanston to Jetmore	10.7
Marysville to Marietta	8.1
South Hutchinson	2.9
Augusta to BU/SG Co. Line	10.6
Bucklin to Wilroads	15.8
Total	612.2

Source: KDOT, Wilbur Smith Associates – mapping

Chapter 5 – Kansas Rail Traffic Profile

Kansas has one of the most heavily used rail systems in the nation. The state is ranked sixth in the nation for rail tons carried, behind fifth-ranked Texas.[8] It is also ranked sixth for carloads carried, behind fifth-ranked New Mexico. Kansas is the fifth largest originating state for agricultural product moved by rail.

This section of the report summarizes rail freight flows by direction, geographic area, growth trend, commodity, and traffic forecast. The 2007 U.S. Surface Transportation Board (STB) Carload Waybill Sample is the primary data source for the rail traffic analysis. The Waybill Sample is a stratified sampling of carload waybills for all U.S. rail traffic obtained from rail carriers that terminate 4,500 or more revenue carloads annually. Projections for the 2030 freight rail forecast were developed by paralleling the commodity growth trends in Global Insight, Inc.'s TRANSEARCH® database that was used in the 2009 Kansas Statewide Freight Plan.

5.1 Freight Rail Commodity Profile

In 2007, Kansas railroads carried a total of 344 million tons and 5.8 million carloads of freight (**Table 29**). The vast majority, over 85 percent, of the rail traffic was considered to be overhead freight[9] that passed through Kansas for commerce between markets outside of the State. Most of the through traffic was for imports and exports that flowed between the Pacific Coast ports and Midwest and Eastern markets, or coal from production areas north and west of Kansas that flowed to power plants or other coal consuming markets located in Midwest, Northeast, and Southeast. Of the remaining tonnage, 8.5 percent was inbound freight, 6 percent was outbound and only 0.3 percent was intrastate traffic. Carload unit distribution followed a similar distribution.

Table 29: Kansas Rail Traffic Directional Flows

Traffic Type	Tons (million)	Percent	Carloads/Units	Percent
Interstate Inbound	29.1	8.5%	459,603	7.9%
Interstate Outbound	20.7	6.0%	377,604	6.5%
Intrastate	1.2	0.3%	12,679	0.2%
Through Freight	293.4	85.2%	4,983,097	85.4%
Total=	344.5	100.0%	5,832,983	100.0%

Source: Prepared by Wilbur Smith Associates, based on 2007 STB Waybill Sample Data

[8] Association of American Railroads

[9] Overhead freight is standard industry terminology for freight that originates and terminates outside of the study area and passes through the study area.

5.1.1 Freight Rail Traffic Densities

Exhibit 23 displays the 2007 freight density map for all rail lines in Kansas measured in million net tons per mile. The map represents combined tonnage for freight moving outbound, inbound, intrastate and overhead. Rail lines with the heaviest density in Kansas are concentrated in the eastern portion of the State. The four busiest rail lines, each carrying over 40 million tons per mile per year are indicated by purple or red lines:

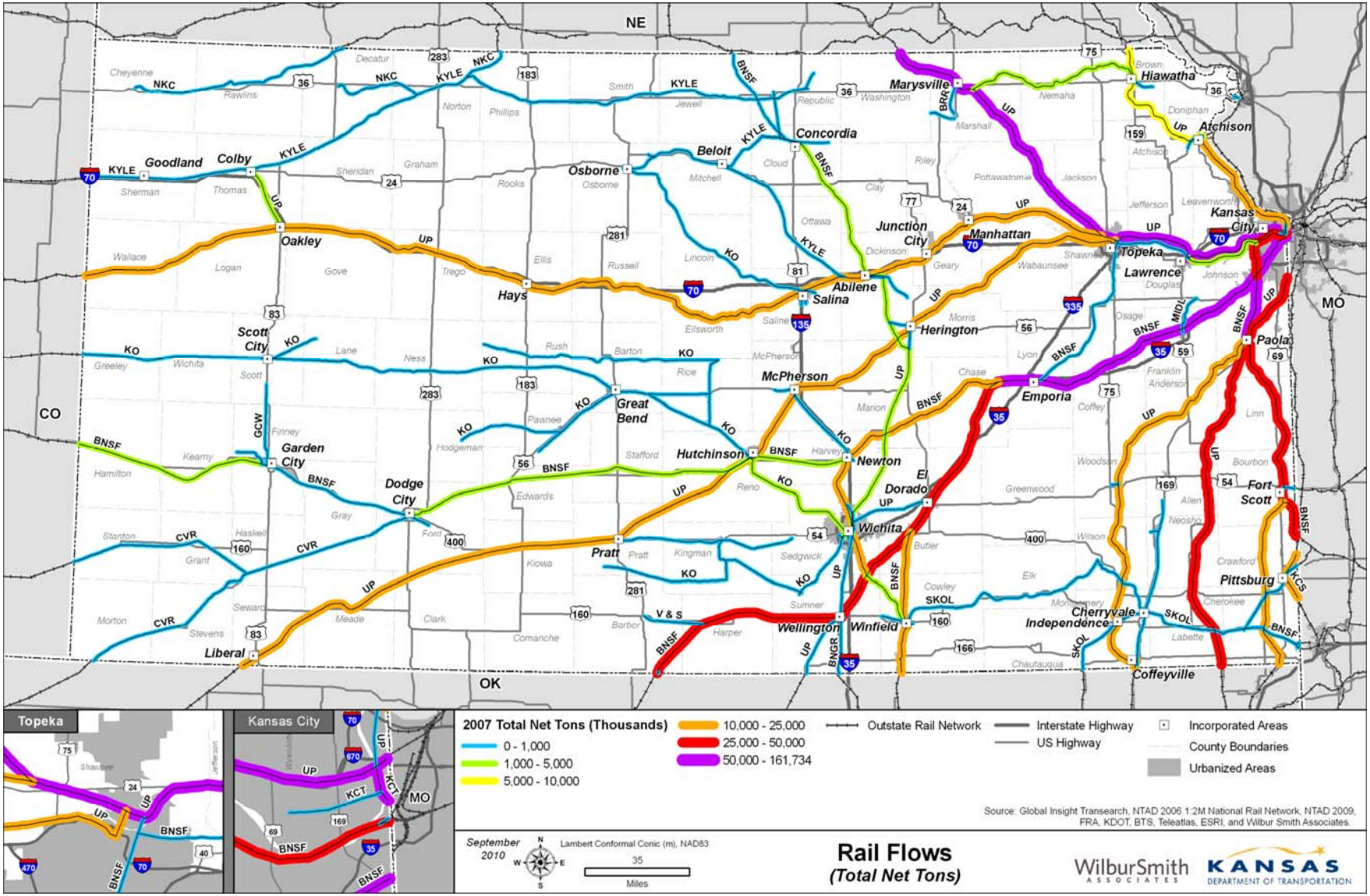
- UP "coal route" connecting Kansas City – Topeka – Marysville, including the Marysville and Kansas Subdivisions (purple line);
- BNSF "Transcon" connecting Kansas City – Emporia – Wellington, including a portion of the Panhandle and the Emporia Subdivisions (red line);
- UP line connecting Kansas City – Paola – Chetopa, including the Coffeyville and Parsons Subdivisions (red line);
- BNSF line connecting Kansas City and Ft. Scott, including the Fort Scott Subdivision (red line).

The heavy densities on these corridors are mainly attributed to coal, intermodal and agricultural freight. The heaviest tonnage is for coal shipments that enter Kansas on UP's Marysville Subdivision heading toward Kansas City and markets beyond. At 110 to 160 million tons per mile, UP's Marysville to Kansas City rail line is among the heaviest density rail lines in the nation.

Kansas is also a major conduit for import and export traffic traveling between Los Angeles and Chicago on either the BNSF or UP rail lines.

For outbound traffic, grain is the major commodity transported by rail from Kansas. The Class I railroads haul 110 car grain unit trains to cattle feed lots or to ports for export. The unit trains are loaded at large silos along the main rail lines. Smaller grain trains are loaded in rural areas, shuttled by short line railroads to interchange locations and then assembled into longer unit trains for transport by the Class I railroads. The short line railroads play an important role in the Kansas economy as the connector of rural agricultural areas to the main rail distribution lines. On the rail density map, the blue and green lines indicate how the short line networks connect the rural agricultural areas and serve as a vital link in getting Kansas' grain competitively to market and helping to sustain the State's rural economy.

Exhibit 23: Kansas Rail Traffic Density (2007)



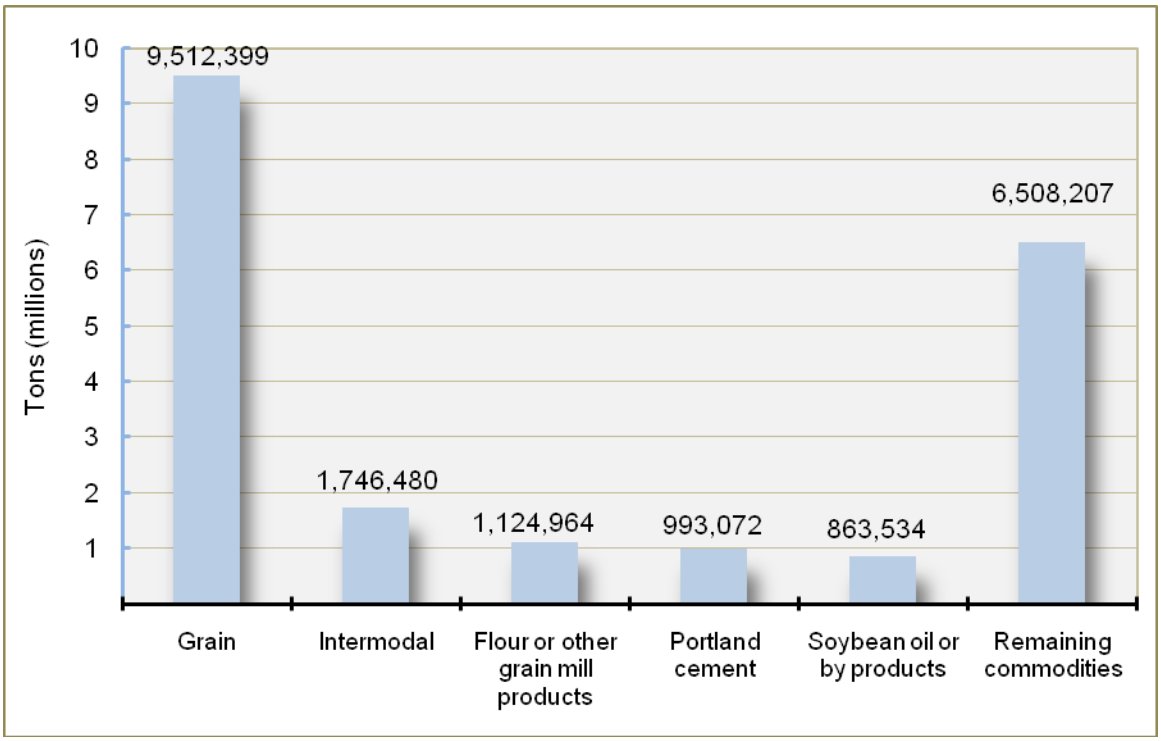
Source: KDOT, STB Waybill Sample, IHS Global Insight TRANSEARCH® Data, and Wilbur Smith Associates

5.1.2 Interstate Outbound

A total of 20.7 million tons of freight was transported outbound from Kansas in 2007. **Exhibit 24** shows the top five originating commodities which had a total weight of 14 million tons or 67.6 percent of the total. As shown in **Exhibit 24**, the combined grain products (barley, corn, oats, rice, rye, sorghum, soybeans, and wheat; and other) are the top outbound commodities, with 10.6 million tons or 51 percent of the total. Grain is also one of the most important commodities for U.S. freight railroads. According to 2008 AAR data, Kansas ranked as the 5th largest source of outbound agricultural products accounting for 7.7 percent of total tonnage[10].

Intermodal is reported as the second largest commodity with 1.7 million tons. In standard railroad reporting, freight inside of the containers can be freight of all kinds (FAK) and can be comprised of mixed product types. Thus, goods contained in the intermodal commodity category are reported as a single line of railroad business much like coal, grain, lumber, etc.

Exhibit 24: 2007 Tons – Top Five Commodities Outbound



Source: Prepared by Wilbur Smith Associates, based on STB Waybill Sample Data

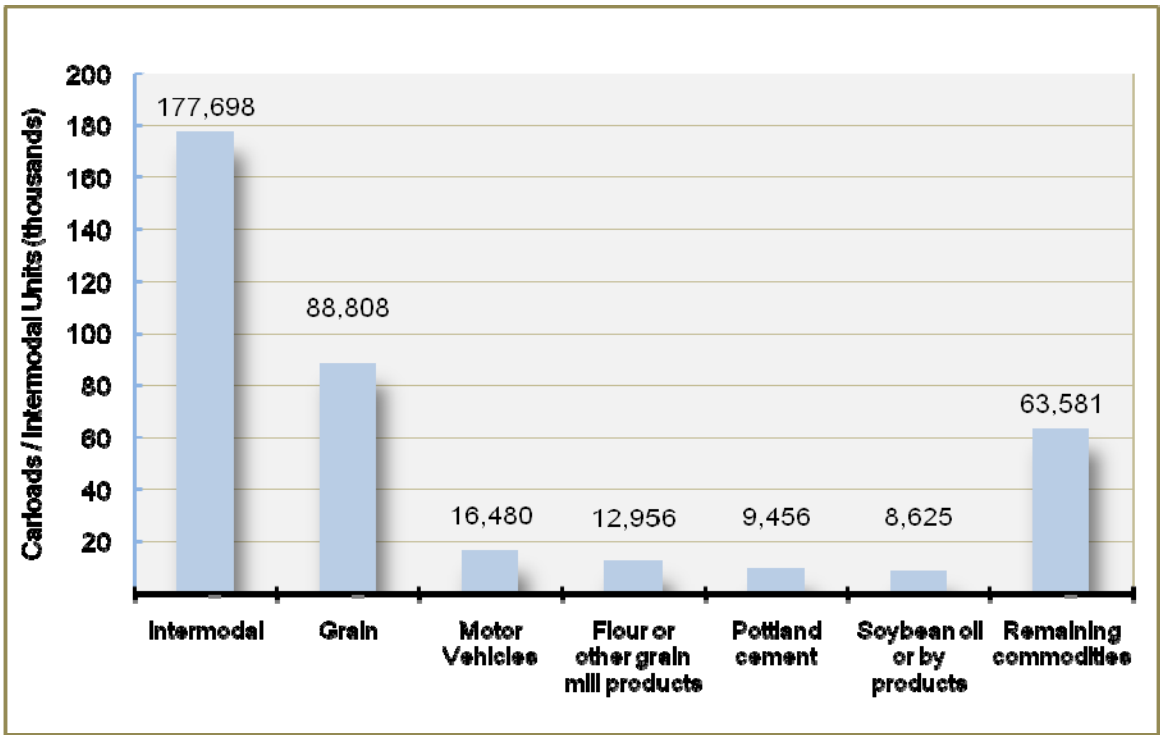
According to the 2007 STB Waybill Sample data, the average loading for a rail freight car is 99 tons when carrying a normal range of commodities, the average loading of a rail grain car is 104 tons and the average loading of a rail coal car is 117 tons.

[10] AAR, Railroad and States, available online at http://www.aar.org/~/media/AAR/InCongress_RailroadsStates/2009rankings.ashx, accessed April 27, 2010

The alternative to shipping by rail carload is to use intermodal units (containers in wellcars or trailers on flatcars). A typical international intermodal container is 20, 40 or 45 feet long, 8 feet wide and with a standard height of 8 feet 6 inches. These steel boxes are used internationally to transport freight by sea, rail and highway. A typical domestic intermodal container is 48 or 53 feet long, 8 feet wide and with a standard height of 8 feet 6 inches. The typical maximum cargo weight that can be carried in a container is 45,000 pounds or 22 tons. Containers are loaded onto a chassis and pulled by a truck when they are transported between vessels, trains and loading docks. The combined weight of the container, chassis and freight must be less than 56,000 pounds to be legally transported on most U.S. highways. If the combined weight exceeds 56,000 pounds a special heavy-weight highway permit must be obtained prior to transport which increases the cost of transportation. The average loading for an intermodal container with mixed freight is around 15 to 20 tons because products such as apparel and electronics are light weight and fill the container's cubic capacity before the maximum weight is reached. The average weight for grain or other heavy and densely packed commodities such as canned goods or wood products is 22 tons. Grain can be loaded in bins, bags or blown into plastic lined containers. Bins and bags are commonly used to transport identity preserved grain shipments.

Exhibit 25 shows the number of freight carloads/intermodal units that originated in Kansas. By unit count. Intermodal traffic had the largest number of units moved in Kansas in 2007. Grain was the second largest commodity generating 88,800 carloads.

Exhibit 25: 2007 Units Originated – Top Five Commodities

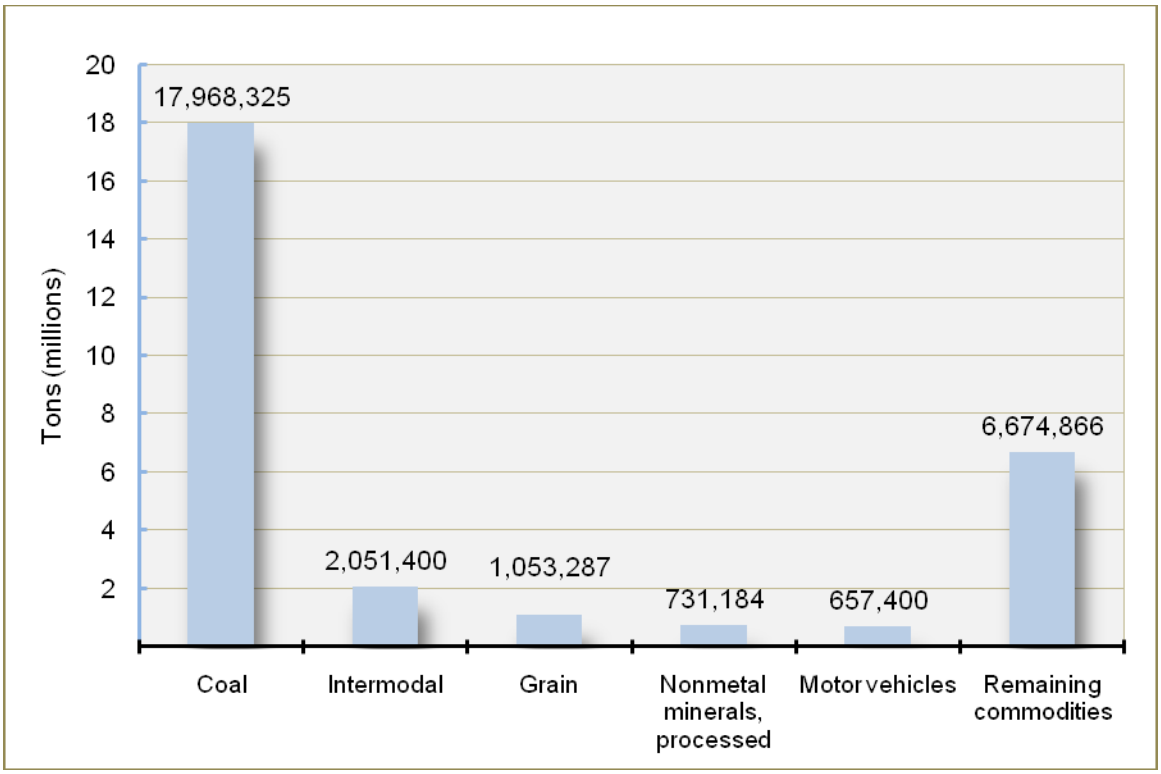


Source: Prepared by Wilbur Smith Associates, based on STB Waybill Sample Data

5.1.3 Interstate Inbound

A total of 29.1 million tons of freight was transported inbound to Kansas in 2007 from other states. **Exhibit 26** presents the top five inbound commodities that terminated in Kansas with a combined weight of 22 million tons or 75.6 percent of total inbound freight. Coal was the top inbound commodity. Coal by itself accounted for 61.7 percent of 2007's total inbound tonnage. Intermodal freight represented 7 percent and inbound tonnage and grain represented 3.6 percent.

Exhibit 26: 2007 Tons – Top Five Commodities Inbound



Source: Prepared by Wilbur Smith Associates, based on STB Waybill Sample Data

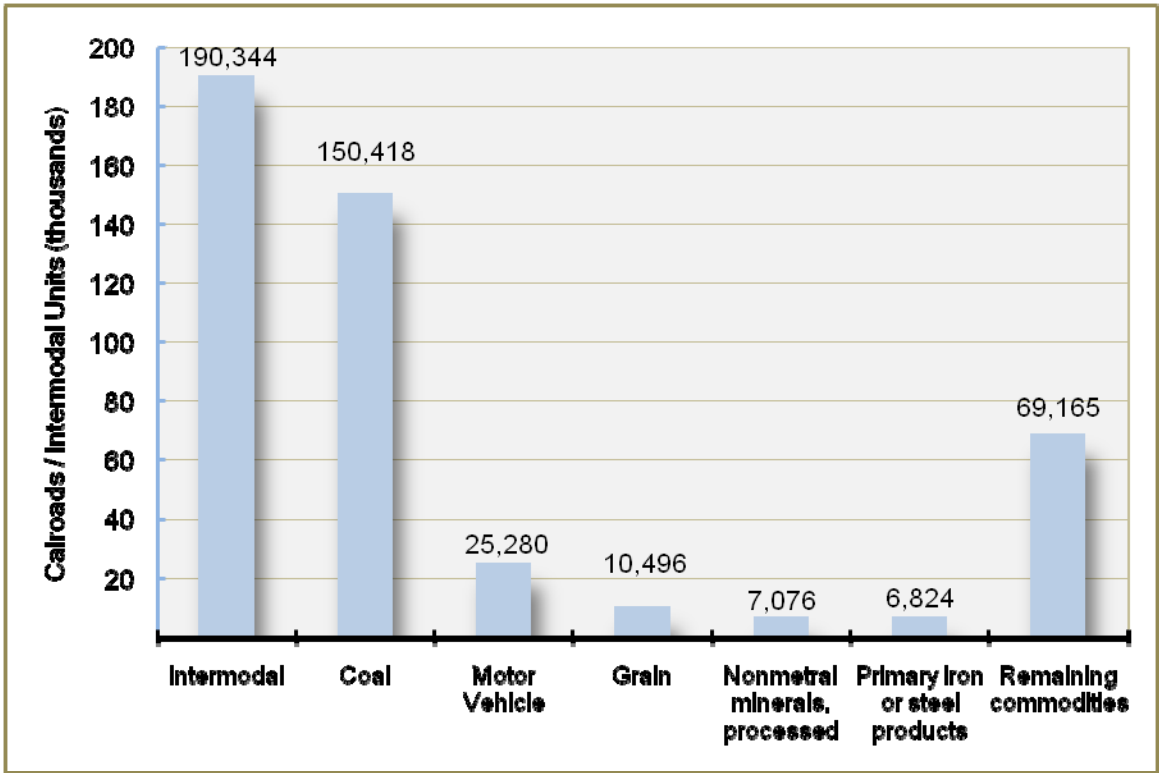
A portion of the inbound grain represents flows that can cross the border from surrounding states on short line railroads to be joined to unit trains on the main rail lines or it could be in transport to an ethanol plant.

Inbound freight totaled approximately 460,000 carloads or intermodal units terminated in Kansas. Intermodal was the largest commodity category with 190,000 intermodal units or over 41 percent of the total. As explained above, the freight content in the intermodal containers could be FAK and cannot be specifcally identified because of mixed product types, so the commodity group is reported as "intermodal".

As shown in **Exhibit 27**, by unit count, coal was the second largest inbound commodity, with 150,000 carloads or over 32 percent of the total. Note the proportion of carload units was at 32 percent while for total tonnage coal represented over 75 percent. According to the National

Energy Technology Laboratory (NETL)[11], over 95 percent of that 75 percent used by the coal-fired power plants in Kansas came from Wyoming.

Exhibit 27: 2007 Units – Top Five Commodities Terminated in Kansas



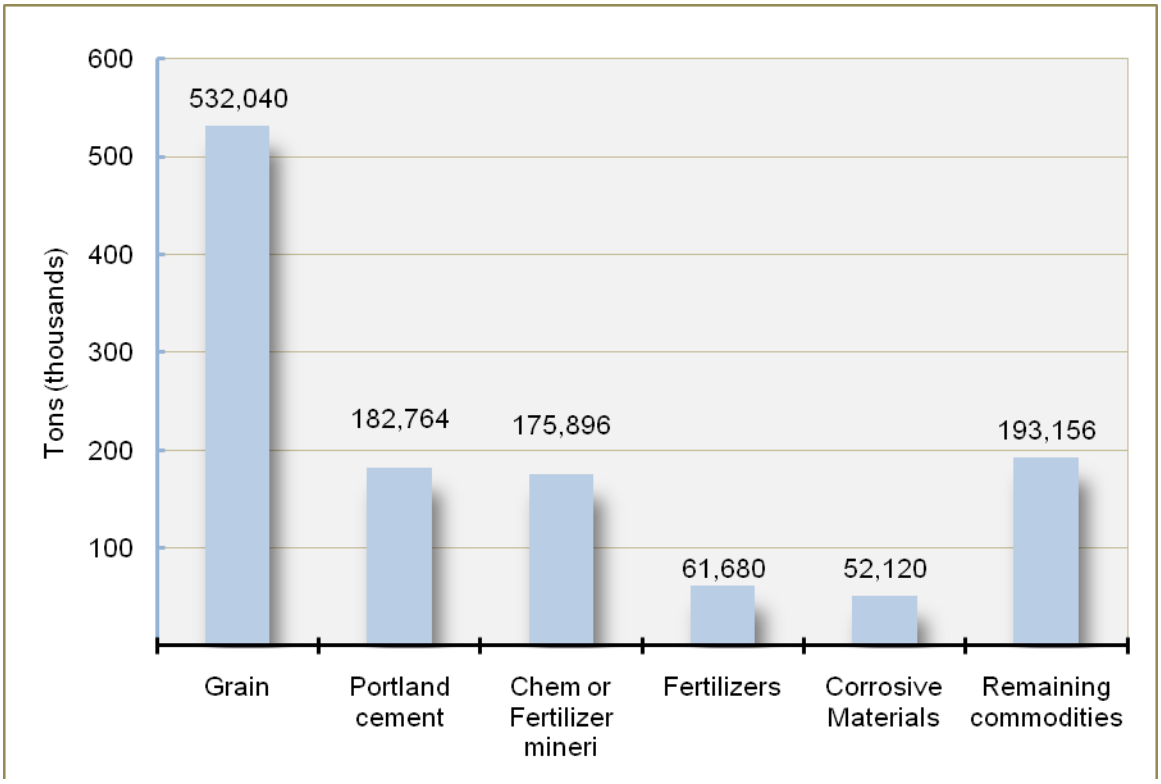
Source: Prepared by Wilbur Smith Associates, based on STB Waybill Sample Data

5.1.4 Intrastate in Kansas

In 2007 there was approximately 1.2 million tons of intrastate freight traffic. **Exhibit 28** shows the top five 2007 intrastate commodities in Kansas. Total tonnage for these five commodities was approximately one million tons, or 84 percent of the total local rail freight. The top two commodities were grain and portland cement. Chemicals, fertilizers and minerals accounted for approximately 237,000 tons. Combined, these top four commodity categories accounted for over 74 percent of the total tonnage.

[11] NETL, 2007 Coal Power Plant Database, available online at http://webcache.googleusercontent.com/search?q=cache:TEORE4jLVy0J:www.netl.doe.gov/energy-analyses/technology.html+NETL+Coal+Plant+Database&cd=1&hl=en&ct=clnk&gl=us, accessed April 27, 2010.

Exhibit 28: 2007 Tons – Top Five Commodities Intrastate



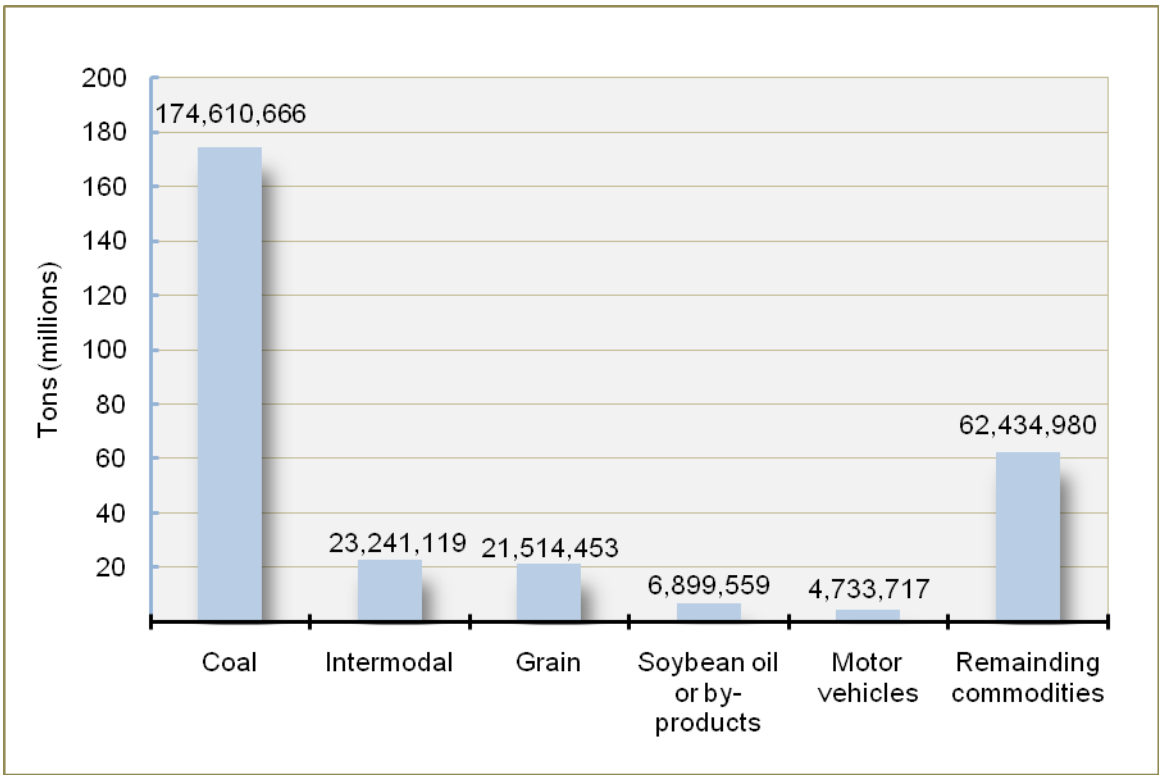
Source: Prepared by Wilbur Smith Associates, based on STB Waybill Sample Data

5.1.5 Through Traffic

In 2007 there was a total of 293 million tons of freight transported across Kansas whose origin and destination on the waybill sample was not in Kansas. At times this through-traffic is termed overhead freight. The total for the top five commodities was 231 million tons, accounting for 78 percent of the total. **Exhibit 29** indicates that coal, intermodal transporation and grain were the principle commodities carried as through-traffic across Kansas. Coal was the largest through-traffic commodity with 174 million tons. This is nearly 10 times the amount of coal tonnage that is shipped inbound for consumption within Kansas. Almost all of the coal traffic originated from the Western Mountain region and was transported across Kansas to the central and the western portion of the southern markets. Much of it passed through the Kansas City area.

As mentioned above, intermodal traffic mostly connected the ports and markets in Southern California and the Midwest Markets via the rail heads in and around Chicago.

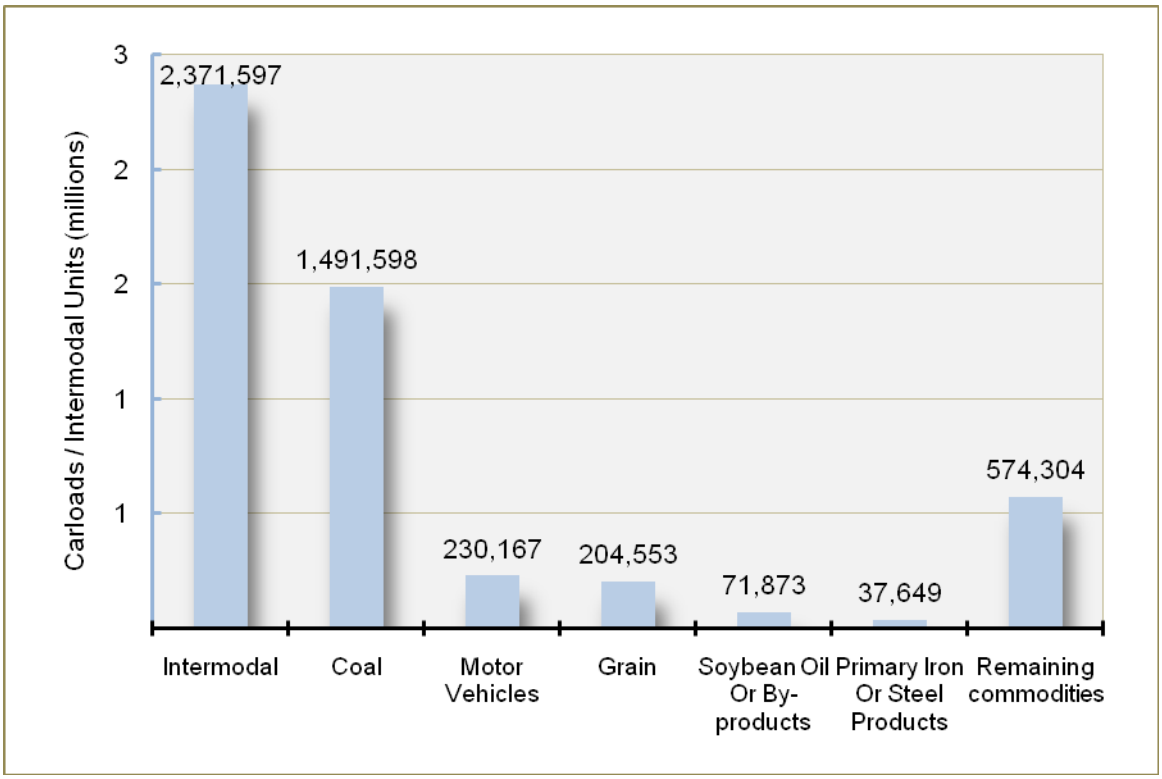
Exhibit 29: 2007 Tons – Top Five Commodities Through Kansas



Source: Prepared by Wilbur Smith Associates, based on STB Waybill Sample Data

In 2007 there were approximately 4.9 million carloads/intermodal units transported across Kansas. **Exhibit 30** shows the commodity categories with the highest number of units. Intermodal had 2.4 million units or 48 percent of the total. Coal had 1.49 million carloads or 30 percent. Motor vehicles crossing the state represented approximately 5 percent of the through traffic. The motor vehicles are either imports from Asia heading to Midwest and Eastern markets, or domestic vehicles manufactured in the Midwest headed to Western markets.

Exhibit 30: 2007 Units – Top Five Commodities Through Kansas



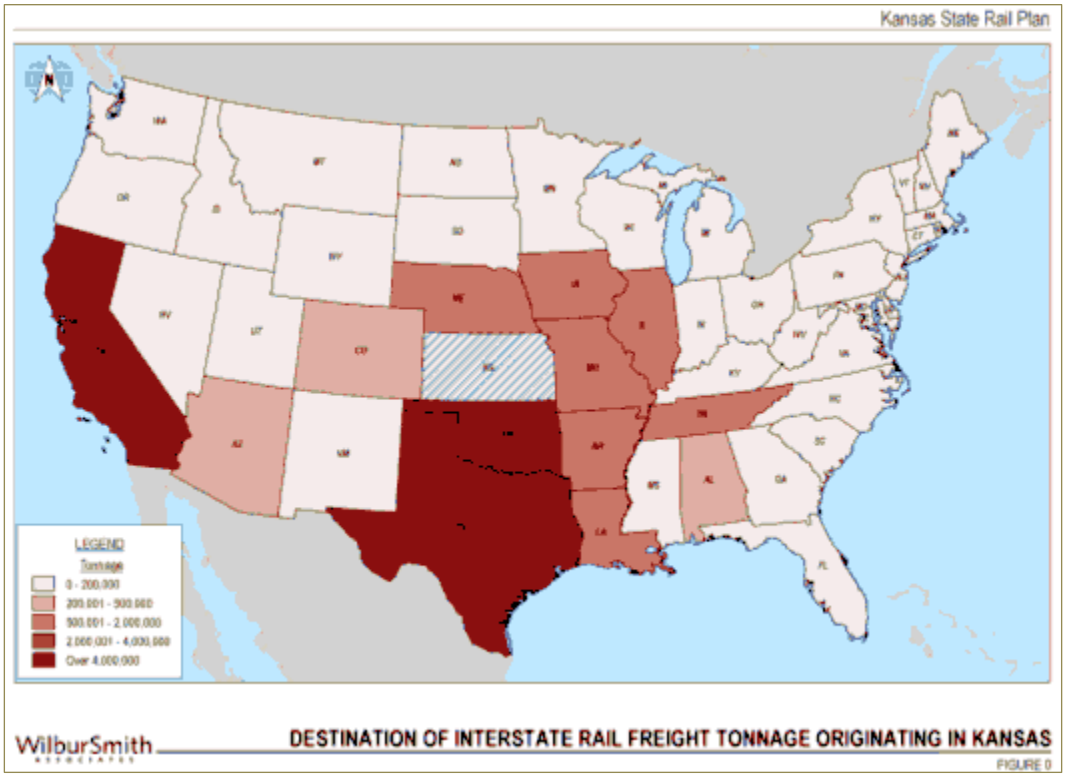
Source: Prepared by Wilbur Smith Associates, based on STB Waybill Sample Data

5.2 Freight Rail Geographic Profile

5.2.1 Destinations of Outbound Freight Originated in Kansas

More than 20.7 million tons of freight were transported out of Kansas in 2007. **Exhibit 31** indicates the top destinations for the freight that originated in Kansas. Texas, Oklahoma and California were the most important markets for Kansas farm products, each receiving over 4 million tons of freight. The three states accounted for 60 percent of the total outbound tonnage. Over 1 million tons of freight that originated in Kansas went to each of the following regions: West South Central, Pacific, East North Central and West North Central regions. Outbound commodities included grain and grain mill products, soybean oil, meat and animal by-products. In addition to agricultural products, Kansas also shipped flammable liquids, compressed gases and corrosive materials (e.g. caustic soda).

Exhibit 31: Destination of Interstate Rail Traffic Originated in Kansas

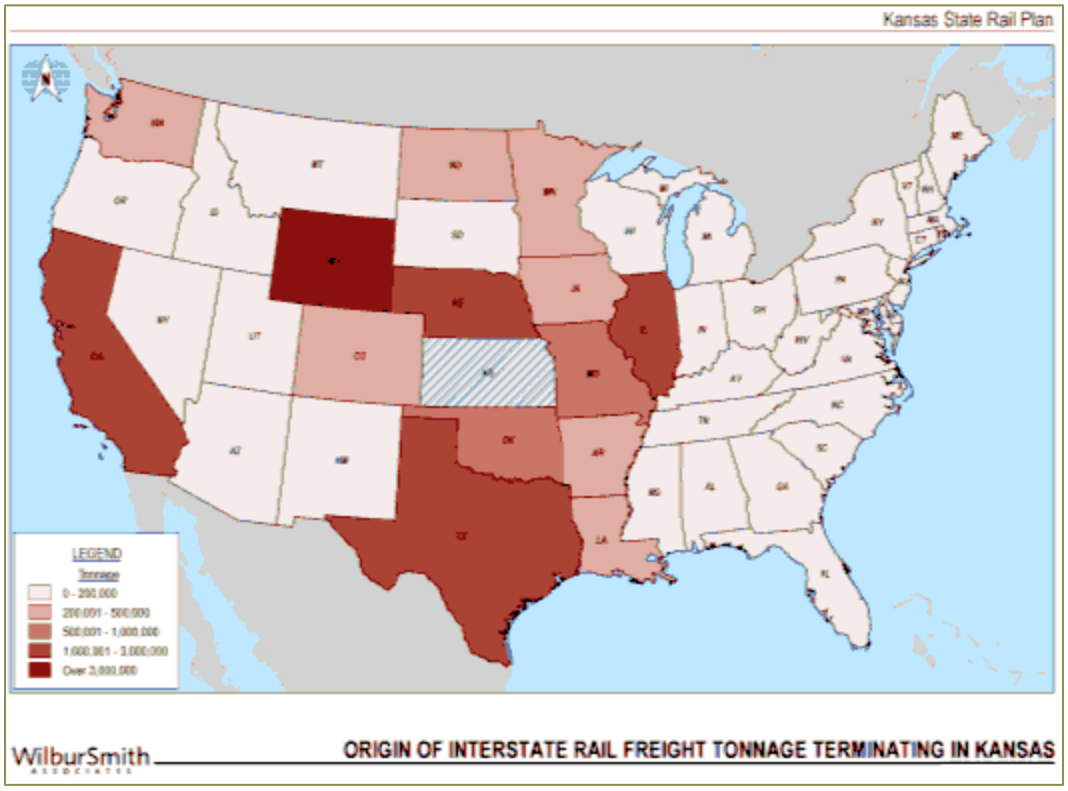


Source: Prepared by Wilbur Smith Associates, based on STB Waybill Sample Data

5.2.2 Origins of Inbound Freight Destined for Kansas

In 2007 there was more than 29 million tons of freight terminated in Kansas. **Exhibit 32** shows the top states that originated freight destined for Kansas. By weight, over 62 percent of the inbound tonnage was sub-bituminous coal that originated from the Wyoming Powder River Basin. California ranked second as a top origin state, with approximately nine percent of the total. This is a result of the import freight from Asia that passed through the ports of Los Angeles and Long Beach and was then moved by rail to Kansas. The State also received a large amount of agricultural products from Nebraska, Illinois, Texas, Missouri and Oklahoma.

Exhibit 32: Origin of Interstate Rail Traffic Terminating in Kansas

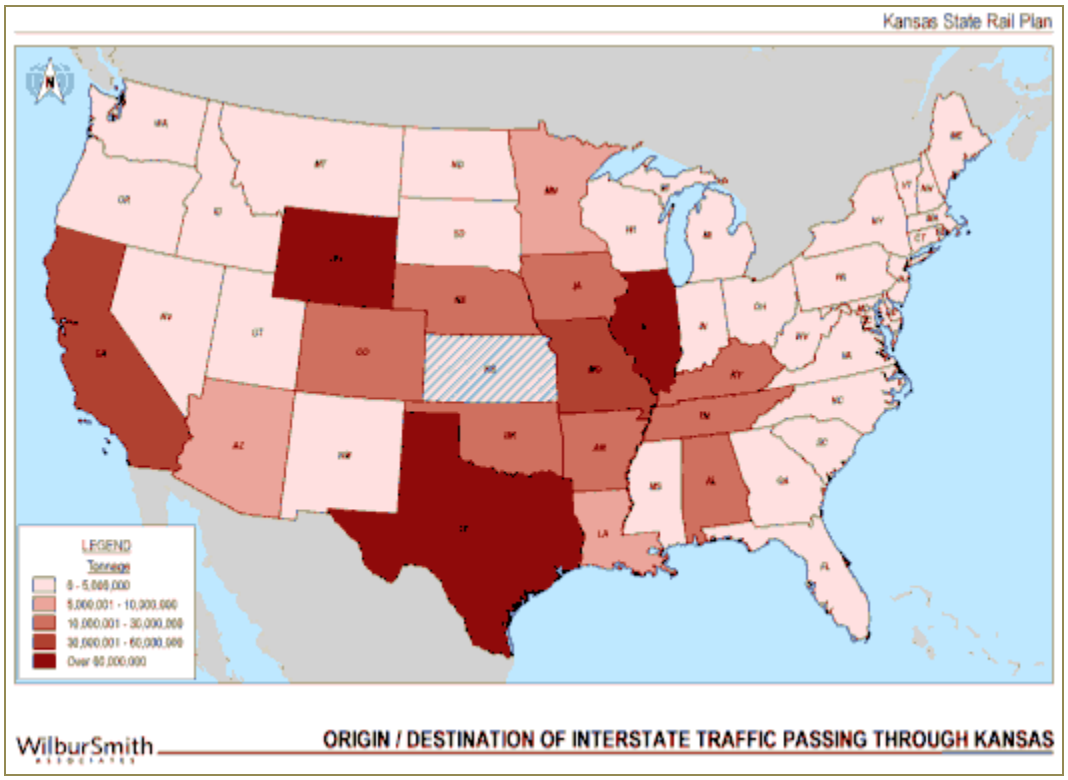


Source: Prepared by Wilbur Smith Associates, based on STB Waybill Sample Data

5.2.3 Origins and Destinations of Through Traffic

In 2007, Kansas rail lines carried more than 293 million tons of through traffic across the state. Kansas is the crossroad for two major commodity categories (**Exhibit 33**). Coal traffic crossing the State from Wyoming to central, southern and eastern states. The other commodity category that represents a large amount of traffic is intermodal, which generally moves from the ports in southern California to or from the main rail terminals in and around Chicago.

Exhibit 33: Origin/Destination of Rail Traffic through Kansas



Source: Prepared by Wilbur Smith Associates, based on STB Waybill Sample Data

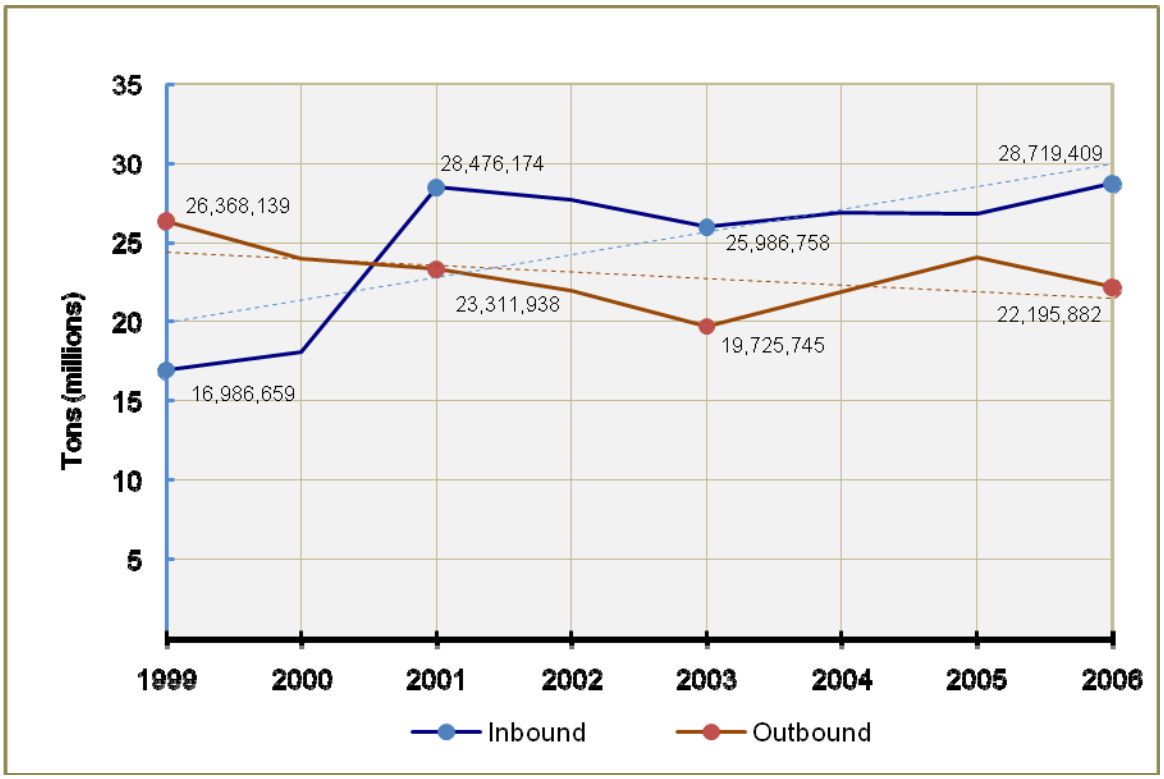
5.3 Freight Rail Trends

Historical data provided by U.S. Bureau of Transportation Statistics from the AAR indicates that inbound rail traffic in Kansas experienced an increase of 70 percent over the 1999 to 2006 period. During that time span, freight increased from 17 million tons up to 28.7 million tons. Most of the increase occurred during 2000-2001 after which it remained relatively stable over the succeeding five years. During the same period, outbound rail traffic trended down from 26.3 million tons in 1999 to 22.2 million tons in 2006.

5.3.1 Inbound and Outbound Trends

Exhibit 34 shows that in 2001, Kansas started to have more inbound traffic than outbound. In every year, coal was the top inbound commodity and farm products were the top outbound commodity in tonnage.

Exhibit 34: Historical Rail Traffic in Kansas (1999-2006)



Source: U.S. Bureau of Transportation Statistics, State Transportation Statistics, available online at: http://www.bts.gov/publications/state_transportation_statistics

Commodities such as wheat, corn, soybeans and sorghum comprise most of the outbound agricultural freight from Kansas. As stated above, in 2008 Kansas ranked fifth in the nation for the origination of agricultural products. Kansas shipped out over 12 million tons or approximately 7.7 percent of the U.S. total agricultural products. **Table 30** shows tonnage shipped by state. The only states that rank higher than Kansas are Illinois, North Dakota, Minnesota, and Nebraska.

Table 30: Grain Production Ranking by State (Wheat, Corn, Soybean, and Sorghum)

State	Tons	% US Total
Illinois	24,989,864	15.8%
North Dakota	18,400,110	11.6%
Minnesota	17,524,725	11.1%
Nebraska	16,928,781	10.7%
Kansas	12,163,568	7.7%
Iowa	9,985,159	6.3%
South Dakota	9,853,849	6.2%
Indiana	8,284,799	5.2%
Ohio	6,976,082	4.4%
Montana	5,211,582	3.3%
All Other	28,216,854	17.8%
U.S. Total	158,535,373	100.0%

Source: AAR (2008 STB Waybill Sample)

Changes in argicultural crop growth, particularly grains, and innovative energy projects have the potential to change future rail freight demand and alter rail flow patterns. Therefore, a discussion on these trends is needed to determine the potential rail infrastructure capacity changes in the State.

5.4 Freight Flow Forecasts for 2030

5.4.1 Tonnage Forecast

Table 31 presents the tonnage and percentage of change for rail traffic in Kansas in the base year of 2007 and the forecast for 2030. For the most part, growth rates are based upon those developed by IHS Global Insight for the *Kansas Statewide Freight Study*.[12] Inbound traffic is anticipated to grow the least at only 0.8 percent compound annual growth rate (CAGR). Outbound traffic, which is driven by production activities in the State, is anticipated to have a CAGR of 1.6 percent. Intrastate traffic remain at a very low level. Overhead (or through traffic) is forecast to increase 37 percent.

[12] The one exception is grain traffic, which is assumed to increase at a rate of 1.2 percent per year. Historical growth rates and long-term forecasts by both the U.S. Department of Agriculture (USDA) and the Food and Agriculture Policy Research Institute (FAPRI) suggest that this is an appropriate growth rate for future years.

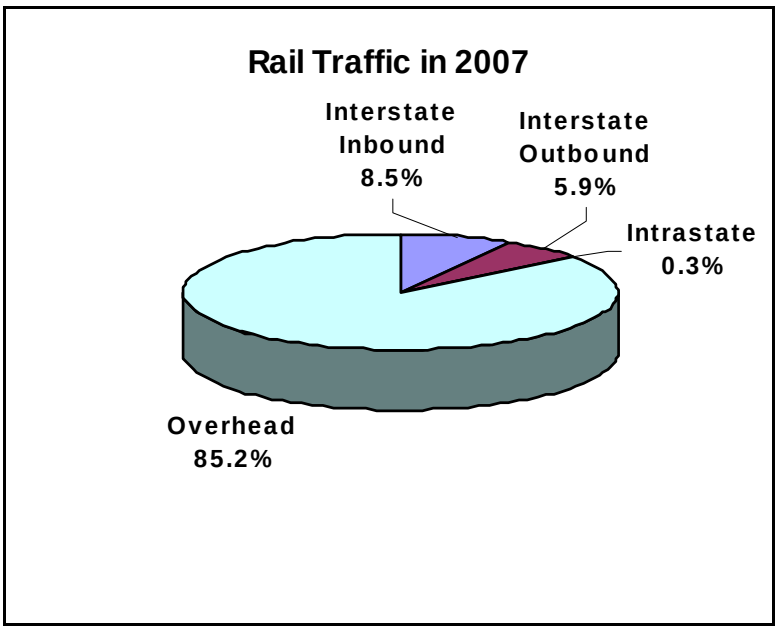
Table 31: Forecasted Rail Traffic for Kansas by Traffic Type

Traffic Type	2007 Tonnage (millions)	2030 Tonnage (millions)	Change (%)	CAGR (%)
Interstate Inbound	29	35	20.60%	0.80%
Interstate Outbound	21	30	44.50%	1.60%
Intrastate	1	2	25.60%	1.00%
Overhead	293	404	37.50%	1.40%
Total=	345	470	36.50%	1.40%

Source: Prepared by Wilbur Smith Associates, based on STB Waybill Sample data and adjusted IHS Global Insight forecasts

Exhibit 35 indicates the 2007 directional share of rail traffic in Kansas. Overhead (or through traffic) dominates at 85.2 percent of all tonnage.

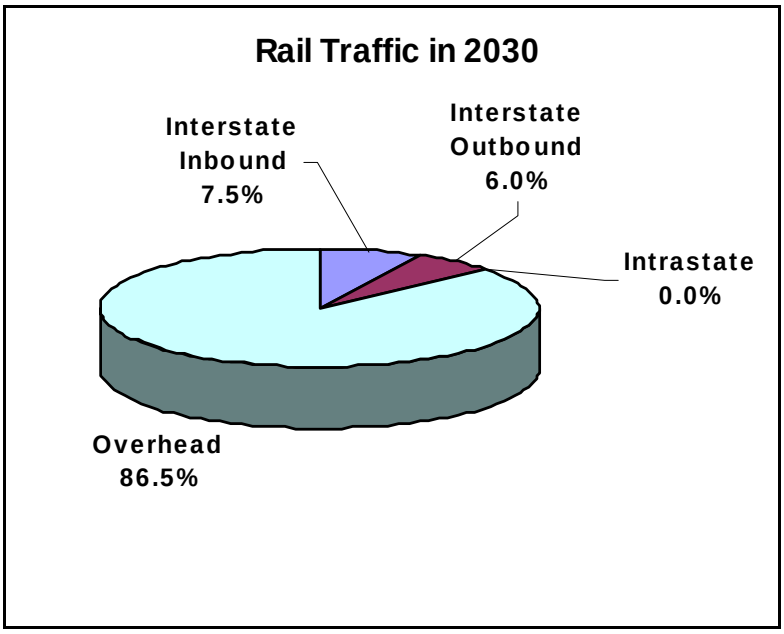
Exhibit 35: 2007 Share of Rail Traffic



Source: Prepared by Wilbur Smith Assocaites, based on STB Waybill Sample Data

Exhibit 36 shows how the directional share will change by 2030. Inbound directional share is anticipated to decrease by approximately one percent. Outbound share will increase by a marginal amount up to six percent. Intrastate share will increase in absolute amount but its share will decrease because the overall base tonnage amount increases. Overhead (or through traffic) share is forecast to increase by a little more than one percent and end at over 86.5 percent.

Exhibit 36: 2030 Share of Rail Traffic



Source: Prepared by Wilbur Smith Associates, based on STB Waybill Sample data and adjusted IHS Global Insight forecasts

5.4.2 Commodity Forecast

Table 32 presents the share of the rail traffic by commodity in 2007 and 2030. Most commodities are expected to have a moderate growth rate between 1 percent and 2 percent, such as farm products, coal, and flammable liquids, etc. Intermodal and nonmetallic ores are expected to grow above 2 percent annually. Lumber and wood products are anticipated to decline over the period 2007 to 2030.

Table 32: Forecasted Rail Traffic by Commodity

Commodity	2007 Tons	2007 Share	2030 Tons	2030 Share	CAGR (2007-2030)
Coal	192,683,655	55.9%	257,243,760	54.7%	1.3%
Farm products	38,042,129	11.0%	50,178,894	10.7%	1.2%
Food and kindred products	28,582,309	8.3%	33,535,770	7.1%	0.7%
Intermodal	27,261,168	7.9%	56,644,084	12.0%	3.2%
Flammable liquids	11,619,387	3.4%	16,416,025	3.5%	1.5%
Chemicals or allied products	11,297,371	3.3%	11,850,378	2.5%	0.2%
Transportation equipment	7,405,786	2.1%	9,874,296	2.1%	1.3%
Primary metal products	4,892,776	1.4%	6,349,709	1.4%	1.1%
Clay, concrete, glass, or stone products	4,044,630	1.2%	6,050,997	1.3%	1.8%
Nonmetallic ores, minerals, excluding fuels	3,988,374	1.2%	6,833,387	1.5%	2.4%
Lumber or wood products, excluding furniture	3,354,440	1.0%	3,264,107	0.7%	-0.1%
Pulp, paper, or allied products	2,952,260	0.9%	3,266,204	0.7%	0.4%
Petroleum or coal products	2,336,722	0.7%	2,864,313	0.6%	0.9%
Waste or scrap materials not identified by producing industry	2,288,104	0.7%	3,422,851	0.7%	1.8%
Other	3,768,158	1.1%	2,409,205	0.5%	2.0%
Total=	344,517,268	100.0%	470,203,980	100.0%	1.4%

Source: Prepared by Wilbur Smith Associates, based on STB Waybill Sample, adjusted IHS Global Insight forecasts

Chapter 6 – Role of the Kansas Rail System in Multimodal Transportation

Multimodal transportation generally refers to a system whereby more than one transportation mode is available. Kansas' highway and rail systems provide the primary options for the movement of bulk and containerized commodities.

Intermodal transportation generally refers to the connecting of different modes to form a seamless transportation system through the use of efficient transfer terminals. Intermodal freight transportation is usually associated with moving freight in intermodal containers or trailers by a combination of truck and rail, and depending on whether the movement is international or domestic, an ocean-going link.

A typical international intermodal container is 20, 40 or 45 feet long, 8 feet wide and has a standard height of 8 feet 6 inches. These steel boxes are used internationally to transport freight by sea, rail and highway. A typical domestic intermodal container is 48 or 53 feet long, 8 feet wide and has a standard height of 8 feet 6 inches. The typical maximum cargo weight that can be carried in a container is 45,000 pounds or 22 tons. Containers are loaded onto a chassis and pulled by a truck when they are transported between vessels, trains and loading docks. The combined weight of the container, chassis and freight must be less than 56,000 pounds to be legally transported on most U.S. highways.

Intermodal movements can also include non-containerized materials. To help distinguish these movements from the more common containerized intermodal movements, these will be referred to as transload operations and facilities.

6.1 Kansas' Role in U.S. Freight Transportation Logistics

Kansas' location, situated midway between the West Coast ports and the Midwest intermodal rail terminals, creates a significant amount of containerized traffic moving across the State. Most of the 20-foot, 40-foot and 45-foot international containers from Asia are off-loaded from vessels at the ports of Los Angeles and Long Beach, loaded onto double-stack well cars and then pulled by either the BNSF or UP railroads to their intermodal terminals in Chicago. At Chicago the containers are drayed by truck to end-users or distribution centers, or they are steel-wheel interchanged with the CSX or NS railroads for further rail transport to Midwest and Eastern markets. Some of the international containers pulled from the West Coast ports to Kansas City, Missouri, are off-loaded and a limited number of international containers temporarily terminate in Kansas City where they are rubber-wheel interchanged to the KCS railroad for further rail transit to South Central markets.

International containers arriving at U.S. East Coast ports are transported to Kansas City, Missouri by the NS or CSX/KCS service before local drayage delivery. Some Kansas bound

international trade is delivered by rail to Chicago where it is transloaded and warehoused for eventual truckload or less-than-truckload delivery to Kansas end-users.

6.2 Rail Intermodal Development in Kansas

Kansas City SmartPort, founded in 2001, is a non-profit economic development organization representing the combined logistics capabilities in 18 counties in and around the Kansas City metropolitan area in Missouri and Kansas[13]. KC SmartPort's mission is to promote the Kansas City region's transportation and logistics capabilities and to make it more efficient and less expensive to move goods into, out of, and through the area, thus benefiting the economic sustainability in the region.

The area served by KC SmartPort is at the connecting point for 5 Class I railroads: BNSF and UP from the West, NS and CSX from the East, and KCS from the South. The area served by KC SmartPort is also situated at the intersections of I-70, I-29, I-35 and eventually I-49 (planned improvements to upgrade US 69 and US 71 connecting Shreveport, LA to the Kansas City region).

The BNSF and UP have rail facilities in both Kansas and Missouri. In Kansas both railroads have rail yards in the vicinity of the intersection of I-70 and I-635. BNSF's Argentine rail yard is located south of the Kansas River and UP's Armourdale rail yard is north of the Kansas River. BNSF's intermodal activities are located at the Argentine rail yard. UP's intermodal activities are located in Missouri at the Neff Rail Yards.

A new 440-acre BNSF Kansas City Intermodal Facility (KCIMF) is being developed 30 miles southwest of Kansas City, KS between Gardner and Edgerton in Johnson County, adjacent to Interstate 35 and US 56. Development of the facility is expected to commence in late 2010. The Allen Group also plans to develop 560 adjacent acres for a regional multimodal logistics center that would accommodate up to seven million square feet of warehousing and supporting activities. Zoning approval requests commenced in mid-2010 and full build-out of the logistics park is anticipated to take 10 years. The KCIMF and surrounding logistics park will create an estimated 8,000 jobs for the area.

NS and KCS have intermodal terminals located in Missouri. NS has its main rail facility close to the intersection of I-35 and I-435. This facility can support both intermodal and RoadRailer® service. The CenterPoint-KCS Intermodal Center (KCSI), which opened in March 2008, is located in Grandview, MO approximately 20 miles south of Kansas City on US 71. KCSI is used by KCS for the carriers' own service, as well as part of a KCS/CSX marketing agreement. KCSI provides direct rail linkage via the KCS to the new Port of Lazaro Cardenas in Mexico.

[13] Kansas City SmartPort, http://www.kcsmartport.com/about/about.php

KC SmartPort encompasses 2 Foreign Trade Zones[14] (FTZ#15 and FTZ#17) that are under the authority of Greater Kansas City Foreign Trade Zone, Inc., a private, not-for-profit corporation. These two FTZs are commonly referred to as the "distributed" FTZ, which means they can contain several zones and subzones throughout the area. FTZ#17 is in Kansas and has 2 sites:

- 17A General Motors
- 17B Bayer Health Care Group

FTZ#15 is in Missouri and has 6 sites:

- 15A Ford
- 15C Yulshin USA Ltd.
- 15D Bayer Corporation
- 15E Kawasaki Motors Manufacturing
- 15G Pfizer, Inc.
- 15H Midwest Quality Gloves, Inc.

Wichita has one FTZ under the authority of the Board of Commissioners of Sedgwick County and it has 3 sites:

- 161A Hospira, Inc.
- 161B Frontier El Dorado Refining Co.
- 161C Hawker Beechcraft Corp.

6.3 International Freight Transportation Logistics

The containerized freight congestion caused by the 2004/2005 labor issues at the San Pedro Bay Ports (SPBP) of Los Angeles and Long Beach and the 2008 driver slowdowns at Oakland and Stockton, CA prompted shippers and consignees to search for alternatives for their international trade flows. Instead of relying solely on the SPBP/Chicago corridor, shippers and consignees have adopted what is termed the “four corners approach”. This approach uses port access in the Pacific Northwest, along the Atlantic East Coast, and on the Gulf of Mexico to diversify the risk of importing the majority of freight through SPBP.

Some shippers and consignees have increased access through the Seattle/Tacoma ports and some have experimented with the new Port of Prince Rupert in British Columbia. The use of these two options only diversifies the ports of entry on the West Coast. After the freight is off-loaded from the container ships it is moved inland by intermodal trains to the Chicago rail terminals. The Northern routes for the UP, BNSF, Canadian National (CN) and Canadian Pacific (CP), however, do not cross Kansas to reach Chicago. From Chicago, international freight follows the same distribution patterns to get to the Midwest, Central Midwest and Eastern markets.

[14]United States Department of Commerce. International Trade Administration, Accessed at: http://ia.ita.doc.gov/ftzpage/letters/ftzlist.html#Kansas

Some shippers have started to use all-water containership services via the Panama Canal or the Suez Canal to bypass SPBP. These new services are investigating use of the new super large container ships that carry nearly twice as many containers as the prior generation of vessels.

Particularly for non-containerized cargoes, rail connections with ports in the Gulf of Mexico will remain vital to Kansas shippers' multimodal logistics. Of Kansas overseas exports across all commodities, about 20 percent by tonnage is shipped by rail through Gulf Coast ports[15].

6.3.1 Impacts of the Panama Canal Expansion

In 2001, the Panamanian Government commissioned a strategic assessment designed to keep the Panama Canal competitively positioned to capture increasing international trade and maintain its long-term sustainability as a trade route between Asia and the U.S. East Coast ports. As a result, the Panama Canal is undergoing a $5.2 billion expansion program which will lengthen, widen and deepen the locks at the Atlantic and Pacific canal terminals to enable the super large container ships to transit the isthmus. The project is currently under construction and is scheduled for completion in 2015. Transit time to East Coast ports from Asia should be 24 to 26 days.

A major reason that all-water containerized service between the U.S. East Coast and Asia had not increased in prior decades was that the Panama Canal vessel transit capacity is limited to approximately 40 vessels per day in each direction (14,000 vessels per year). Canal Water Time (CWT), the duration it takes for the Atlantic/Pacific transit, averages from 15 to 30 hours – including wait time at the locks. The Panama Canal Expansion Project will not necessarily increase the number of vessels that can cross the Panama isthmus, but it will radically increase the size of vessels that can. "Panamax" container ships can carry approximately 5,000 TEUs (twenty foot equivalent units – in container size terminology) through the Canal. The new generation of containerships is labeled "Post Panamax" because the ships will only fit through the Canal after the Expansion Project.

These new Post Panamax containerships will be able to carry 8,000 to 12,000 TEUs. The size of the new containerships and modern operating efficiencies lower the transportation costs per container. However, the enormous size of the container ships increases the depth requirement under the vessels to be 50 feet or more. Only three ports on the U.S. East Coast currently have 50-foot deep port channels that can accommodate the drafts of these new containerships: the ports of New York/New Jersey, Norfolk and Savannah.

6.3.2 The Suez Canal Option

An alternative to using the Panama Canal is to use the all-water Suez Canal route. Container ships have been transiting the Suez Canal for service between Europe and Asia for decades.

[15] FHWA Freight Analysis Framework - 3

However, there has been only minimal Suez Canal service between the U.S. East Coast and Asia because the transit time was 32 days or longer due to port-stops in the Mediterranean.

In 2007, the New World Alliance (TNWA) partners of APL, Hyundai Merchant Marine (HMM) and Mitsui O.S.K. Lines (MOL) introduced an eastbound express all-water service between the U.S. East Coast and the Indian Sub Continent or Southeast Asia via the Suez Canal. Direct service without any stops in the Mediterranean ports reduces transit time to approximately 26 to 28 days to the East Coast – similar to the transit time through the Panama Canal.

The Suez Canal is capable of providing passage for the 50-foot drafts required for the Post Panamax container ships. The Suez Canal service to the East Coast was starting to gather momentum but the 2008/2009 recession curtailed import growth for the time being.

As a result of the two all-water developments described above, shippers in the East and Midwest have new and cost efficient ocean transportation options to supply their factories and distribution centers from the East Coast as well as the West Coast.

Both NS and CSX railroads have spent millions of dollars developing two rail corridors that will connect Norfolk to central Ohio. NS is developing what it calls the Heartland Corridor from Norfolk to Columbus. CSX is developing its National Gateway from Norfolk and Baltimore to a new intermodal facility in North Baltimore, OH. Both corridors will provide faster, more consistent intermodal service to the Midwest from the East Coast. Expedited rail service will provide truck-competitive next day delivery of containers to the Ohio Valley markets and second day delivery to Chicago.

6.4 Intermodal Freight Rail Growth in Kansas

In the future, the new all-water routes have the potential to reduce the amount of international freight and the number of containers that transverse Kansas. Containers moved all-water routes to the East Coast and inland via either rail or highway service may mean fewer containers moved from the West Coast across Kansas to the Chicago rail gateways. Delivery of the containers from East Coast ports will take longer to reach their destination, but due to the efficiencies of the Post Panamax containerships and the new rail corridors, they may prove to be more cost competitive.

Transit time to market is an important consideration for supply chain managers. Vessel duration from Asia to the SPBP is approximately 14 to 16 days, allowing 2 to 3 days for port processing and 5 to 6 days for the inland rail move, which equates to 21 to 25 days for freight to move from Asia to Chicago.[16] The Prince Rupert option reduces vessel duration to 12 days, 2 days at the port and 5 days for the inland rail move for a total of 19 days to reach Chicago. The Panama Canal vessel duration is 24 to 26 days, with 2 to 3 days for port processing and 2 days for the

[16] The above are average duration assumptions based on vessel and rail carrier schedules posted on websites. Actual durations can vary depending on weather conditions, or other events at the ports or along the rail journey that can occur during transit.

inland rail move for a total of 28 to 31 days for freight to move from Asia to Chicago via the East Coast. The Suez Canal vessel duration is 26 to 28 days from India or Southeast Asia to the East Coast, with 2 to 3 days for port processing and 2 days for the inland rail move for a total of 30 to 33 days for freight to move from India or Southeast Asia to Chicago. The option to use the West Coast ports to Chicago can take approximately one week out of the supply chain process compared to the East Coast ports. Time is important for imported products such as holiday gifts, back to school clothes, and summer-time lawn and garden necessities. One week could represent 25 percent of these products' entire sellable shelf-life, which is why retailers will continue to use the SPBP supply chain option to get time sensitive products to their stores via intermodal. Replenishment stock or inventory that does not require as much velocity may gradually shift to the Panama or Suez Canal routes if the overall supply chain economics supports the change.

Time, rate of adaption, the price of fuel, backhaul and commercial considerations will influence the competitive pricing and the conversion to use of the East Coast port options. Needless to say, Kansas will continue to see a significant volume of intermodal through freight from SPBP to Chicago.

A number of additional factors also affect the potential growth of intermodal freight in Kansas. These are described below.

6.4.1 Intermodal Equipment Availability for Kansas Agricultural Use

A key concept for intermodal transportation is equipment balance. Loaded containers are usually delivered to densely populated areas. After being unloaded, the empty containers are "made available" for reloading with exports. Most rural and agricultural areas with less population density have less demand for inbound freight and receive fewer loaded inbound containers. Consequently, these areas also have fewer empty containers available for reloading.

When empty containers are in high demand in rural areas for loading with agricultural export freight, a supply of empty containers must be moved into the deficit area from a surplus area. There is a cost for moving the empties to the desired location. The cost of the empty inbound move must be added to the shipper's overall transportation cost. This is the major reason why using containers to export products out of rural areas is more challenging and costly than exporting from populated areas that have container consolidation depots that can provide a more adequate supply of empty containers.

This is a critical issue facing shippers who require use of intermodal containers for agricultural transport. The containers are used to enable shipment tracking of specific loads of a commodity such as wheat. Most wheat is stored in large quantities in grain elevators and shipped in grain car unit trains. Since the grain is mixed during storage it is a fungible product – meaning one shipment of grain can be interchanged for another with minimal loss of processing characteristics. However, some grain end-users are now producing differentiated products that require unique and consistent grain characteristics and the grain cannot be mixed with other

fungible grains. The identity of the grain must be preserved and tracked from growth through storage to final delivery. This identity-preserved grain usually is transported in bins or sacks, or blown into plastic lined intermodal containers. Since there is limited availability of intermodal containers in rural agricultural areas in Kansas, this is a constraint on the growth of identity preserved grain. Containers need to be trucked round-trip from the Kansas City area intermodal terminals increasing the per unit transport cost of the grain.

6.4.2 Existing Rail Intermodal Clearances in Kansas

The rail network used in Kansas for intermodal transportation currently has no height clearance restrictions on the routes employed. Clearance restrictions, such as bridges with less than 22 feet of overhead clearance from the top or rail, can preclude the use of double-stack container trains.

6.4.3 Non-Containerized Truck-Rail Facilities in Kansas

Non-containerized rail/truck transfer facilities handle a variety of cargoes. Often, the term "transload" refers to rail/truck facilities used to transfer bulk or other commodities such as grain, fertilizer, lumber, chemicals, plastics, etc. In some cases, these facilities are used for transferring break-bulk commodities, such as lumber, paper, or palletized cargo not in a container. In many cases, break-bulk facilities are associated with warehouses. Given the importance of grain production to the economy of Kansas, some of the most common truck/rail transfer facilities within the state are grain elevators. Kansas has some of the largest grain elevators in the world. Of these the highest capacity are often used to load trainload quantities of grain or "shuttle trains." These shuttle trains have over 75 cars. The shuttle elevators within the state are listed in **Table 33**.

Table 33: Shuttle Grain Elevators in Kansas

Name	City	Railcar Capacity	Carriers
The Scoular Company	Wellington	100	BNSF
Collingwood Grain	Plains	100	UP
United Prairie Ag LLC	Hugoton	100	BNSF, CVR
Wallace County Coop	Sharon Springs	100	UP
WindRiver Grain, L.L.C.	Garden City	100	BNSF
Dodge City Coop Exchange	Ensign	100	BNSF, CVR
AgMark	Glen Elder	100	UP, KYLE
Scoular Grain	Downs	100	UP, KYLE
Castle Rock Marketing	WaKeeney	100	UP
Farmers Coop Assn	Hanover	100	UP
AgMark LLC	Concordia	100	BNSF
Bartlett Grain	Wichita	100	UP, BNSF, WTA
Farmers Coop Assn	Haviland	100	UP
ADM Grain Elevator A	New Cambria	100	UP
DeBruce Grain	Abilene	100	UP, BNSF
Cargill	Salina	100	UP, BNSF, KO
ADM Farmlandele	Hutchinson	100	UP, BNSF
Bartlett River	Kansas City	75	UP, BNSF
The Scoular Company	Coolidge	100	BNSF
ADM Grain	Dodge City	100	BNSF
Cargill Westgrain Elevator	Topeka	100	UP
DeBruce Grain	Wichita	100	UP-SKOL, BNSF-KO
Scoular Grain	Salina	100	UP, BNSF
ADM Grain Co.	Hutchinson	100	BNSF
Cornerstone AG LLC	Colby	100	BNSF, UP
Bartlett Grain	Atchison	75	UP
Castle Rock Marketing	Ogallah	100	UP
Right Coop Association	Wright	100	BNSF

Source: UP, BNSF Websites, KDOT

Shuttle grain elevators are typically located on Class I railroad lines. Kansas Class III carriers also provide vital truck/rail links for grain shippers. Some of the largest grain elevators on short line or regional carriers' lines are listed below.

Table 34: High Capacity Grain Elevators on Kansas Short Line and Regional Railroads

Name	Town	Capacity (000's of Bushels)	Carrier
Farmers Coop Grain Assn	Conway Springs	3,115	K&O
Elkhart Coop Equity Exchange	Elkhart	2,670	CVR
Dodge City Coop Exchange	Ensign	2,218	CVR
ADM Grain, Inc.	Goodland	3,014	KYLE
The Scoular Company	Goodland	2,000	KYLE
Kanorado Coop Assn	Kanorado	2,095	KYLE
ADM Grain, Inc.	Leoti	2,213	K&O
Scott Cooperative	Marienthal	2,892	K&O
ADM Grain, Inc.	Montezuma	3,200	CVR
Dodge City Coop Exch.	Montezuma	2,296	CVR
Elkhart Coop Equity Exch.	Rolla	2,400	CVR
United Prairie Ag, LLC	Satanta	3,195	CVR
United Prairie Ag, LLC	Ulysses	3,318	CVR

Source: Kansas Grains and Feed Association, 2010 Kansas Official Directory

Other non-containerized truck/rail transfer facilities are listed in **Table 35**.

Table 35: Rail/Truck Bulk Transload Facilities in Kansas

Company	Location	Railroad	Products Handled
ARM-DAT Inc	Kansas City	UP	Acids, Chemicals (dry and liquid), Foods and Petroleum Products
Buesing Bulk Transport Inc	Kansas City	BNSF	Chemicals (dry and liquid), Foods and Plastics
Groendyke Transport, Inc	Kansas City	UP	Acids, Chemicals and Petroleum Products
Liquid Transport Corp	Kansas City	BNSF	Acids, Chemicals (dry and liquid), Plastics and Petroleum Products
Truck Transport Inc	Chanute	SK&O	Acids, Chemicals (dry and liquid), Foods and Plastics
Metro Park Warehousing, Inc.	Kansas City	BNSF	Paper products
International Transit and Storage Corp.	Kansas City	UP	Food and alcoholic beverages
Garvey Public Warehouse	Wichita	BNSF	Various
CTS Bulk Terminal	Wichita	BNSF	Various Dry Bulk
Wagner Industries, Inc.	Kansas City	BNSF	Various
Unimark Oil Company, LLC	Kansas City	BNSF	Chemical and Petroleum
Metro Park Warehouses, Inc.	Kansas City	BNSF	Various
United Warehouse	Wichita	BNSF	Various

Source: Prepared by Wilbur Smith Associates, Oak Ridge National Laboratory, BNSF website

6.5 Rail/Water Bulk Transfer Terminals in Kansas

The transfer of bulk goods between rail and water transport networks occurs at ocean, lake or river ports. The main rivers in Kansas are the Missouri River in the northeast corner of the state and the Kansas River which flows from Junction City to the Missouri River at Kansas City. While the Kansas River is not considered to be navigable, the Missouri River is used by barge traffic. This includes a 140-mile stretch that runs through Northeast Kansas. Below is a list of port facilities that have rail access within Kansas.

Table 36: Rail/Water Transfer Facilities in Kansas

Name	Town	Purpose	Railway Connection
Chemtronics Dock.	Leavenworth	Receipt of liquid fertilizer	One surface track, capacity 5 cars, serves terminal at rear, connects with Union Pacific Railroad.
AGP Grain Cooperative, Barge Dock.	Atchison	Shipment of grain	Three surface tracks, total capacity 81 cars serve under-track pits, and loading spouts; connect with Union Pacific Railroad.
Westway Terminal Co. Wolcott Dock.	Wolcott	Receipt of calcium chloride and asphalt	One surface track serving 2 loading spouts connects with Union Pacific Railroad.
ADM/Growmark, Wolcott Elevator Dock.	Wolcott	Shipment of grain	Three surface tracks, total capacity 60 cars, serve 3 under-track pits and loading spout, connect with Union Pacific Railroad.
Kansas City-Wyandotte County Joint Port Authority Wharf.	Kansas City	Shipment of grain	Trackage with capacity for 72 cars serves under-track pits and loading spouts at grain elevator in rear connects with Union Pacific Railroad.
Farmland Industries; Grain Elevator "X" Dock.	Kansas City	Shipment of grain	Three surface tracks with total capacity for 62 cars serve 2 under-track pits and 2 loading spouts; connects with Union Pacific Railroad.

Source: U.S. Army Corps of Engineers Port Series

Chapter 7 – Impacts of Rail Transportation in Kansas

The rail transportation system has impacts on Kansas' business and industry as well as on the general public. This chapter discusses these impacts on the State's economy, transportation access and mobility, energy and environment, land use, and quality of life.

Where possible the estimated economic value of the benefits related to the rail system in Kansas is also provided.

7.1 Economic Impacts

The railroad industry plays an important role in the economic development of the state of Kansas. The economic value of rail transportation in Kansas can be measured in terms of the rail carriers' properties and operations within the State in terms of employment, payroll taxes, capital investment and corporate tax contribution.

7.1.1 Rail Employment in Kansas

Statistics from the federal Railroad Retirement Board (RRB), which administers benefit programs to the nation's railroad workers and their families[17], shows that the rail industry in Kansas generates approximately 5,800 direct annual jobs (active employees) and has about 13,100 beneficiaries[18] including retired employees, spouses, and survivors. In fiscal year 2008, the annual payroll for the active employees accounted for over $428 million and the benefits for retired employees, spouses, and survivors accounted for over $290 million (in $2008). The annual payroll state taxes associated with active employees, representing 6.45 percent of annual payroll, is approximately $28 million per year.

Table 37 shows the rail industry's wage and payroll tax contributions to Kansas for 2008.

[17] RRB, available online at: http://www.rrb.gov/opa/agency_overview.asp

[18] There are 900 beneficiaries listed in Table 1 receiving dual benefits (6,800 + 3,800 + 3,400 - 900).

Table 37: Kansas Railroad Employment and Personal Income (2008)

Category	Active Employee	Beneficiaries		
		Retired Employees	Spouses	Survivors
Employment	5,800	6,800	3,800	3,400
Salary/Benefits	$73,746	$31,246	$8,800	$13,167
Total Personal Income ($ millions)	$428	$212	$33	$45
Total Salary/Benefits ($ millions)	$428	$291		
Payroll Tax ($ millions)	$28			

Source: Railroad Retirement Board, 2010
Source of the average salary for the railroad employees is the Association of American Railroads (AAR), and the currency has been adjusted from 2007$ to 2008$ with 2% inflation rate.
Average benefit rate for the spouses was estimated based on data published in the Minnesota Comprehensive Statewide Freight and Passenger Rail Plan, 2009.

7.1.2 Railroad Property Taxes

In addition to the economic value associated with the payroll tax, railroad companies in Kansas also contribute to the State's property tax revenue. The Kansas State Department of Revenue (KDOR) performs an annual assessment of railroad properties and distributes these unit values to individual taxing subdivisions. Unit values consist of all properties owned and leased by the rail industry which are used in their business operations, including real and personal properties, as well as tangible and intangible properties. The assets of railroad companies are thus valued through their contributory influence on the value of the business.

According to the Department of Revenue, the assessed market value of railroads in Kansas was $277,754,750 in 2008, which resulted in a tax liability of approximately $36 million[19]. The 2008 assessed market value and tax liability increased by 4.5 percent and 6 percent, respectively, from 2007 levels.

State legislation allows railroad machinery and equipment acquired by qualified purchase or lease made or entered into after June 30, 2006 to be exempt from personal property tax in Kansas. Also, railroad machinery and equipment transported into the state after June 30, 2006 for the purpose of expanding an existing business or the creation of a new business are exempted from personal property tax. Approximately $28 million of personal property value was exempt from tax over the period 2007 to 2009, which resulted in tax exemptions of approximately $3.6 million during this time period (**Table 38**).

[19] Kansas Department of Revenue Division of Property Valuation, Statistical Report of Property assessment and Taxation, March 2009.

Table 38: Exempted Railroad Property Value and Tax ($ millions)

Year	Exempt Assessed Value Class I Railroads	Exempt Assessed Value Class III Railroads	Total Exempt Assessed Value Railroads
2007	$4.10	$0.03	$4.13
2008	$9.70	$0.06	$9.76
2009	$14.19	$0.12	$14.31
Total	$27.99	$0.20	$28.19
Exempted Tax	$3.61	$0.03	$3.64

Source: Kansas Department of Revenue, March 2010
Note: the exempted tax is estimated based on an average tax rate of 12.9% in 2008

7.1.3 Railroad Capital Investment

Every year U.S. Class I railroads invest capital for replacement, improvement and expansion projects. These investments enhance safe operation, support transportation needs and improve rail efficiency. Capital investments include new locomotives and freight cars to replace older and less efficient equipment, track and facilities maintenance, and other system improvements. **Table 39** shows the historical cash capital expenditures for the Class I rail operators that own trackage within Kansas (BNSF, Union Pacific and Kansas City Southern).

Table 39: Class I Railroad Cash Capital Expenditures ($ billions)

Railroads	2005	2006	2007	2008
BNSF	$1.75	$2.01	$2.25	$2.28
UP	$2.17	$2.24	$2.27	NA
KCS	$0.07	$0.12	$0.24	$0.27

Source: Annual Reports for Class I railroads that operate in Kansas, 2005-2008.

Although detailed information pertaining to capital expenditures made by railroad operators in the State of Kansas is unavailable, Kansas is one of the major markets for two of the abovementioned Class I railroads. In 2008, BNSF and UP operated over 1,200 and 1,500 route miles in Kansas[20], respectively, which accounted for 3.4 percent and 6.8 percent of the total mile tracks owned by these two companies, respectively. Because the financial information of short line and regional carriers is confidential, the capital investments of these carriers are unknown, whether specific to Kansas or multi-state. However, the American Short Line and Regional Railroad Association (ASLRRA) reports that short line and regional carriers invest 30 percent of revenues in infrastructure. The capital investments of smaller carriers within the state are considerable.

[20] Class I Annual Reports, R-1.

In addition to the direct capital investment impacts, goods movement by rail also creates indirect and induced economic benefits to Kansas. For example, purchases from the railroad companies support vendors located in Kansas.

7.1.4 Indirect Economic Impacts

The values of indirect and induced economic benefits which result from railroad operations within the State were analyzed using the IMPLAN Professional Version 3 Model. As shown in **Table 40** the 5,800 annual direct jobs within the rail industry in Kansas are estimated to generate 9,000 indirect and induced annual jobs at firms that provide goods and services to railroads or that are recipients of spending by the employees of railroads and their suppliers. These indirect and induced economic impacts result in an estimated $360 million per year in labor income and $1 billion of total economic output (in $2008).

Table 40: Estimated Annual Indirect and Induced Economic Impacts of Kansas Railroad Operations

Impact Type	Employment	Labor Income ($ millions)	Value Added ($ millions)	Output ($ millions)
Indirect Effect	3,985	$192	$277	$536
Induced Effect	4,956	$168	$309	$536
Total Indirect and induced Effect	8,941	$360	$586	$1,072

Source: Prepared by Wilbur Smith Associates

Table 41 presents the major indirect and induced annual employment impacts by industry sector resulting from rail industry operations in Kansas.

Table 41: Impact on Employment by Industry Sector of Kansas Rail Operations

Description	Employment		Labor Income ($ millions)	Value Added ($ millions)	Output ($ millions)
	Number	Share			
Food services and drinking places	643	7%	$11	$16	$33
Maintenance and repair construction of nonresidential structures	549	6%	$29	$31	$56
Securities, commodity contracts, investments, and related activities	353	4%	$17	$18	$52
Wholesale trade businesses	325	4%	$22	$38	$58
Real estate establishments	281	3%	$5	$25	$32
Offices of physicians, dentists, and other health practitioners	260	3%	$19	$22	$32
Private hospitals	257	3%	$13	$14	$28
Performing arts companies	251	3%	$1	$2	$4
Monetary authorities and depository credit intermediation activities	251	3%	$13	$34	$48
Other	5,771	65%	$793	$1,703	$2,974
Total	8,941	100%	$924	$1,901	$3,316

Source: Prepared by Wilbur Smith Associates

7.2 Transportation-Related Impacts

The Kansas rail system generates transportation efficiency benefits to businesses and transportation-related social benefits to the State's general public. Transportation efficiency benefits primarily result from shipping cost savings accruing to freight rail users. Public benefits include fuel efficiencies, emission cost savings and safety cost savings related to the rail mode that accrue to the State's general population.

The types of transportation benefits related to the rail industry are shown in **Table 42**.

Table 42: Transportation Benefits Resulting from Rail Industry Operations

Category	Benefits	Population Group
Travel Efficiency Gains	Shipping Cost Savings	Freight Rail Users
Public Benefits	Fuel Efficiency Benefits	State Population
	Emission Cost Savings	State Population
	Safety Cost Savings	State Population

Source: Prepared by Wilbur Smith Associates

7.2.1 Shipper Cost Savings

Freight rail is the preferred transportation choice for moving low value, high density products long distances. In 2007, freight railroads in Kansas moved over 344 million tons of goods (including inbound, outbound, through and internal movements) supporting the State production and consumption. If this freight-rail tonnage was shifted to trucks, shippers would pay an additional $6.7 billion (in $2008) in shipping costs. The calculations involved in estimating these additional shipping costs are provided in **Table 43**.

Table 43: Estimated Additional Shipping Cost if Freight Rail Tonnage is Shifted to Truck

Calculation Item	Value
Billion Ton-Miles of Goods for Rail (1)	71.9
Billion Ton-Miles of Goods for Truck (2)	53.9
Average Rail Shipping Cost ($ per ton-mile) (3)	$0.033
Average Truck Shipping Cost ($ per ton-mile) (4)	$0.105
Total Shipping Cost for Rail (5)=(1) X (3) ($ millions)	$2,373
Total Shipping Cost for Truck (6) =(2) X (4) ($ millions)	$5,664
Additional Shipping Cost by Truck (6)-(5) = Δ ($ millions)	$3,291

Source: BNSF, UP, AAR, and AASHTO

Studies have also shown that the diversion of freight from truck to rail, and from autos to passenger rail have a positive impact by reducing State highway maintenance expenditures. As detailed in the FHWA's *2000 Addendum to the 1997 Federal Highway Cost Allocation Study*, indexed to 2008, the average highway maintenance per truck ton-mile is estimated to be $0.0057, assuming an average truck weight of 23 tons. Without rail service, Kansas highways would have to accommodate an additional 54 billion ton-miles of truck traffic, resulting in the State having to spend $307 million more on highway maintenance per year.

7.2.2 Transportation Fuel Savings

In addition to their role as an economic engine, railroads offer substantial public benefits to Kansas. Rail consumes less fuel and emits fewer emissions than trucks in moving the same amount of freight. According to AAR statistics, the average fuel efficiency for freight rail is 0.00231 gallons per ton-mile and the average fuel efficiency for a combination truck is 5.1 miles per gallon[21], which is equal to 0.00853 gallon per ton-mile[22]. If the 344 million rail tons were shifted to truck, an additional 294 million gallons of diesel would be consumed.

Table 44 shows the additional fuel cost to Kansas necessary if rail freight was diverted to truck transport. The total estimated cost of $1.1 billion (in $2008) is based on an average diesel fuel expense of $3.75 per gallon.

[21] FHWA, 2006 Highway Statistics.

[22] Assuming the average truck loads is 23 tons.

Table 44: Estimated Additional Fuel Cost if Freight Rail Tonnage is Shifted to Truck

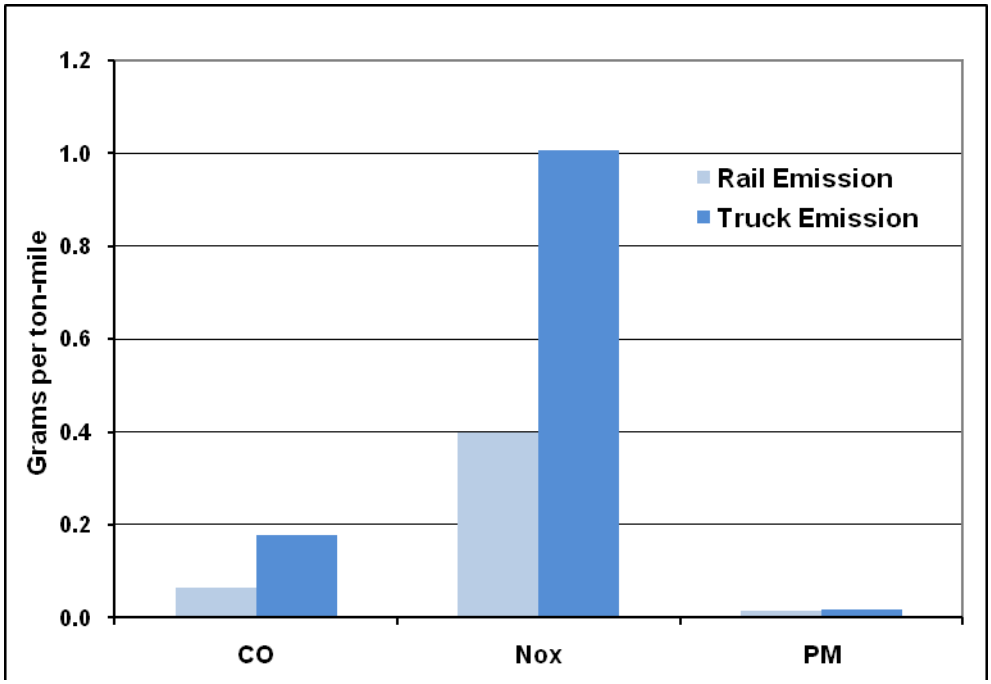
Calculation Item	Value
Billion Ton-Miles of Goods for Rail (1)	71.9
Billion Ton-Miles of Goods for Truck (2)	53.9
Rail Fuel Efficiency (gallon per ton-mile) (3)	0.00231
Truck Fuel Efficiency (gallon per ton-mile) (4)	0.00853
Rail Fuel Consumption (5)=(1) X (3) (gallons millions)	166
Truck Fuel Consumption (6)=(2) X (4) (gallons millions)	460
Additional Fuel Consumption for Truck (6)-(5)= Δ (gallons millions)	294
Additional Fuel Cost (Δ gallons x $3.75/gallon = $ millions)	$1,103

Source: (1). AAR Railroads Facts, 2008; (2). FHWA, 2006 Highway Statistics.

7.2.3 Transportation Air Quality Emissions Savings

A comparison of the air quality emissions for truck and rail are displayed in **Exhibit 37**. This comparison shows that rail has a clear advantage over truck operations. Rail emits fewer emissions, especially for Carbon Monoxide (CO), Nitrogen Oxide (NOx) and Particulate Matter (PM), compared with truck for moving the same amount of ton-miles.

Exhibit 37: Emissions Comparison for Rail and Truck



Source: (1) Assessing the Effects of Freight Movement on Air Quality at the National and Regional Level, FHWA, 2005. (2) Emission Factors for Locomotives, EPA, 1997. (3) Final Regulatory Impact Analysis of Corporate Average Fuel Economy for MY 2011 Passenger Cars and Light Trucks, USDOT, 2009

If all freight tonnage in Kansas (344 million tons of goods) were shifted to highways, an additional 34,000 tons of pollutions would be emitted by the resulting truck operations. The

resulting cost to remediate these emissions would represent a negative cost to Kansas population of over $108 million (in $2008) annually.[23]

7.2.4 Transportation Safety Savings

Based on statistics published by the Federal Railroad Administration (FRA) and the Federal Highway Administration (FHWA), rail operations nationally have lower accident rates and safety costs compared to truck operations for moving the same amount of goods. If all freight-rail tonnage in Kansas (344 million tons of goods) were shifted to trucks, the anticipated negative impact on Kansas population would represent an additional $306 million ($2008) in safety costs annually. **Table 45** displays the calculations related to transportation safety costs.

Table 45: Additional Safety Costs if All Freight Rail Tonnage Shifted to Truck

Calculation Item	Value
Billion Ton-Miles of Goods for Rail (1)	71.9
Billion Ton-Miles of Goods for Truck (2)	53.9
Accident Cost for Rail ($ per ton-mile) (3)	$0.004
Accident Cost for Truck ($ per ton-mile) (4)	$0.011
Rail Safety Cost (1) x (3) = (5) ($ millions)	$282.1
Truck Safety Cost (2) x (4) = (6) ($ millions)	$588.1
Additional Safety Cost for Truck (6) - (5) = Δ ($ millions)	$306.0

Source: Estimated by WSA based on FRA and FHWA data.

7.3 Land Use Impacts

There are positive and negative impacts on land use resulting from the rail operations. Passenger rail service can promote transit-oriented development in high-density urban areas. An effective passenger rail service can improve access to city centers. New-built or refurbished rail stations can attract commercial activities and residential demand, which support more jobs, payroll and taxes revenue. However, rail operations can also create land use issues resulting from noise and air pollution. Rail yards sometimes conflict with adjoining residential and commercial areas.

Some urban areas have considered rail bypass projects which aim to route freight rail operations away from city centers. Among cities that have considered these types of projects include Denver, CO; Memphis, TN; and Indianapolis, IN. There is also a trend by carriers to shift intermodal terminals away from city centers. In Kansas City for example, the BNSF is moving intermodal operations from the more centrally located Argentine Yard to the outskirts of Kansas City in Edgerton, KS.

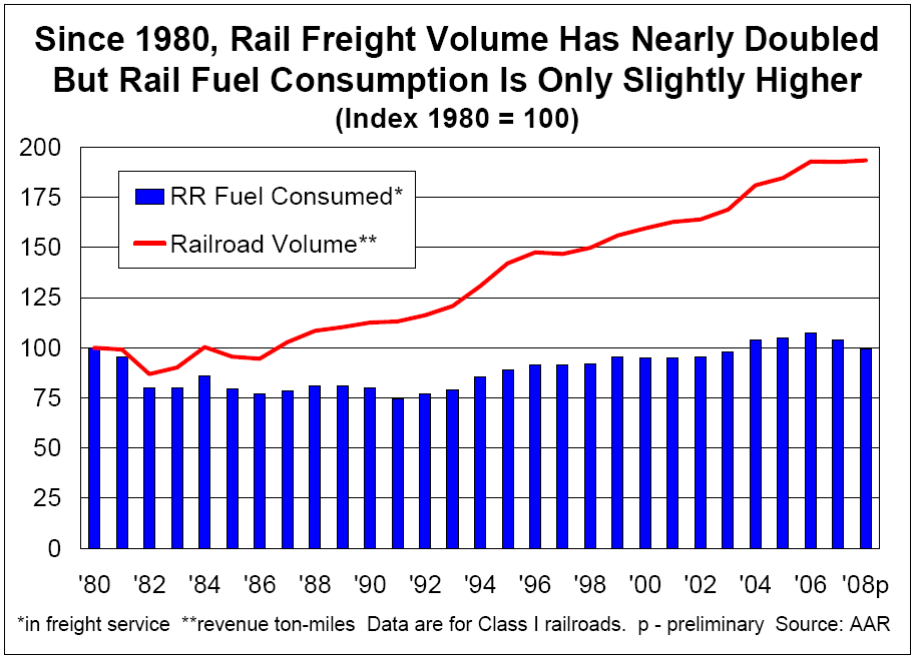
[23] The monetary damage costs of emissions are from Table VIII-5 of *Final Regulator Impact Analysis of Corporate Average Fuel Economy for MY 2011 Passenger Cars and Light Trucks*, USDOT, 2009.

Local land use decisions that are contrary to rail operations must be balanced against the continued need for rail access to urban areas.

7.4 Energy Impacts

Freight railroads are the most energy efficient choice for moving goods. Nationally, in 2008 one gallon of fuel moved one ton of freight by rail 457 miles[24] – roughly the mileage between Kansas City, KS and Liberal, KS. Moving freight by rail is a way to reduce both energy use and greenhouse gas emissions without harming the economy. Based on data from the American Association of State Highway and Transportation Officials, if one percent of long haul freight currently moved by truck were moved by rail instead, fuel savings would be approximately 111 million gallons per year. Moving more freight by rail would also help cut highway congestion by taking trucks off the road, especially along key corridors. A single intermodal train can take up to 280 trucks off the highways. Depending on cargo, other trains can take up to 500 trucks off highways. **Exhibit 38** depicts the increased efficiency in rail fuel consumption since 1980.

Exhibit 38: Rail Fuel Consumption



Source: Association of American Railroads

The rail mode's fuel efficiency superiority over other surface transportation modes is primarily based on the fact that it can move long and heavy loads over steel rails which result in much lower friction, and the resulting loss of energy, than trucks' rubber tires on pavement. Also contributing to their efficiency is trains normally run at steady-state speeds, with limited inefficiency due to acceleration, and low driven wheel traction loading.

[24] Association of American Railroads, *Railroad Facts, 2009 Edition*

The Association of American Railroads, in their publication "Freight Railroads & Greenhouse Gas Emissions, July 2007, ” also notes that railroads are curbing fuel consumption through the use of technology, training of personnel and changes in operating practices. Summaries of these initiatives are described below:

Locomotives

Railroads, nationally, have spent billions of dollars on thousands of new environmentally friendly locomotives and have overhauled thousands of older locomotives to improve their environmental friendliness. Some new yard switching locomotives use two or three independent generator sets (GenSets) that can cycle on and off as needed which greatly reduces fuel consumption and emissions. Other new hybrid switching locomotives use a small, fossil-fueled engine in addition to a large bank of rechargeable batteries and can save up to half the fuel and produce fewer emissions compared to conventional switchers.

Locomotive Monitoring Systems

Railroads use sophisticated onboard monitoring systems to gather and evaluate information on location, topography, track curvature, train length, and weight; they provide engineers with real-time coaching on the optimum speed for that train from a fuel savings and operational standpoint.

Training

In many cases, railroad fuel efficiency is directly related to how well an engineer handles a train. In effect, railroads use the skills of their engineers to save fuel by offering training programs through which engineers and simulators provide fuel-saving tips.

Information technology

Railroads use advanced computer software to improve their operational and fuel efficiency. For example, for more efficient yard operation railroads use sophisticated software to model the best ways to sequence cars in large classification yards.

Innovative trip planning systems

Railroads also use trip planning systems that automatically analyze a mix of ever-changing variables (e.g., crew and locomotive availability, congestion in rail yards, the priority of different freight cars, track conditions, etc.) to optimize how and when freight cars are assembled to form trains and when those trains depart. The result is smoother traffic flow, better asset utilization, and reduced fuel use.

Reduced idling

Locomotives often have to idle when not in use for various reasons, such as preventing freezing of the coolant (most lack antifreeze), charging batteries and air reservoirs, and providing for crew

comfort. However, some railroads are implementing stop-start idling reduction technology that allows main engines to shut down when ambient conditions are favorable. One advantage of GenSet locomotives is their smaller engines use antifreeze, thus allowing them to shut down in cold weather. Some railroads also use auxiliary power units that warm engines so that locomotives can be shut down in cold weather.

Components and design

Railroads use innovative freight car and locomotive components and designs to save fuel. For example, advanced top-of-rail lubrication techniques save fuel by reducing friction and wear. Also, improving the aerodynamic profile of trains saves fuel by reducing drag.

7.5 Community Impacts

Community and quality of life impacts related to rail transportation include safety, noise and air pollution, energy and highway congestion relief. Safety, environmental and energy contributions have been discussed earlier in this chapter. One additional community impact which has been the subject of recent attention is congestion relief related to rail operations.

According to *2008 Kansas Long Range Transportation Plan*[25], with increasing population and freight movement, urban and rural areas have seen heavier traffic volumes and worsening congestion. There were 105 miles of congested highways in the State's urban areas, and it is expected the congested highway mileage will reach 265 miles by 2030. Rural congestion is also rising. In 2008, KDOT indentified 535 miles of congested rural highways, and this number could be 1,725 miles in 2030 if no improvements are made on these congested segments. Truck traffic contributes significantly to the rural congestion, with trucks accounting for 20 to 25 percent of traffic.

Building roads is one traditional way to relieve the highway congestions nationwide, but some believe that roadway construction simply encourages more roadway usage. Shifting traffic from highway to rail could be an effective alternative for highway congestion relief. According to AAR, a freight train can take 280 trucks off the roads,[26] and the American Public Transportation Association (APTA) cited Maryland DOT's (MDOT) estimates that a full passenger railcar can move 200 passenger cars off the roads.

The noise pollution from rail operations is also a sensitive issue. The Federal Railroad Administration (FRA) has issued regulations requiring that train horns must be utilized as trains approach at-grade crossings as means to warn motorists and pedestrians. The Federal Railroad Administration has provided localities nationwide with the opportunity to establish quiet zones at these crossing locations. A quiet zone is a grade crossing at which trains are prohibited from

[25] Kansas DOT, Long Range Transportation Plan 2008, available online at http://www.ksdot.org:9080/lrtp2008/
[26] AAR, Freight rail works, available online at http://freightrailworks.org/freight-rail-opens-highways.php

sounding their horns in order to decrease the noise level for nearby residential communities. Communities wishing to establish quiet zones must equip proposed grade crossings with adequate safety measures to overcome the decrease in safety created by silencing the train horns. The additional safety measures must be constructed at the community's expense and must meet federal specifications.

As of March 2010, two quiet zones, located in Overland Park and Lenexa, have been established in Kansas[27].

7.6 Summary of Rail Impacts in Kansas

Overall, the rail system in Kansas contributes significant benefits to the State's economy and the general public. The railroad sector generates thousands of direct, indirect and induced jobs to State residents and provides billions of dollars in transportation and highway maintenance savings. Moving goods by rail also significantly reduces air pollution, fuel consumption, and contributes to the safety of the transportation system.

A summary of the estimated annual benefits related to rail operation in Kansas is provided in **Table 46**.

[27] FRA, Quiet zone locations, reported 3/16/2010.

Table 46: Summary of Annual Benefits from Kansas Rail Operations

Economic Value (Direct Impacts)	
Active Employees	5,800
Beneficiaries	14,000
Personal Income / Benefits ($ millions)	$428
Output ($ millions)	$2,243
Payroll Tax ($ millions)	$28
Property Tax ($ millions)	$36
Economic Value (Indirect and Induced Impacts)	
Employment	8,941
Personal Income ($ millions)	$360
Output ($ millions)	$1,072
Transportation Value ($ millions)	
Shipping Cost Savings	$3,291
Emission Cost Savings	$109
Fuel Cost Savings	$1,103
Safety Cost Savings	$306
Highway Maintenance Cost Savings	$307
Total	$5,116

Source: Prepared by Wilbur Smith Associates

Chapter 8 – Rail Safety and Security

Over the past decade rail safety and security has been a high priority by both rail carriers and public agencies. Rail safety has historically been a priority due to its potential impacts on the general public and the efficiency of rail operations. The focus of rail security has been aimed at threats posed by terrorists using the rail mode to disrupt transportation in general or harm large numbers of citizens.

A number of federal and Kansas state agencies, in concert with Kansas' rail operators, continue to make progress with regard to rail safety and security. The following is a summary of these issues and activities on-going in Kansas.

8.1 Rail Safety

Rail safety requirements are provided through a combination of federal and state laws. Most safety-related rules and regulations fall under the jurisdiction of the Federal Railroad Administration, as outlined in the Rail Safety Act of 1970 and other legislation, such as the most recent Rail Safety Improvement Act of 2008.

Rail safety issues are generally comprised of highway/rail grade crossing safety, rail safety inspection, rail trespass, and other requirements regarding the movement of hazardous materials and implementation of new technology. Although these issues fall under FRA's jurisdiction, state agencies are heavily involved in efforts to improve the safety of the rail system. Overall rail safety trends in Kansas are shown in **Table 47.**

Table 47: Total Train Accidents/Incidents in Kansas (2001-2009)

	2001	2002	2003	2004	2005	2006	2007	2008	2009
Total Accidents/Incidents	100	83	92	104	108	99	87	88	59
Total Fatalities	6	6	6	6	3	9	5	5	6
Total Non-fatal Conditions	157	86	90	109	117	104	146	122	89

Source: FRA Office of Safety Analysis

Total train accidents are the sum of train accidents occurring in Kansas which were reported to FRA. These accidents include train derailments, collisions and any accident involving railroad employees or trespassers which occur on railroad property which result in fatalities, injuries or property damage which exceeds a limit financial amount established by FRA. The train accident statistics provided do not include highway/rail grade crossing accidents or incidents which are portrayed in Exhibit 2. Non-fatal conditions are reportable injuries occurring to employees or trespassers. Because property damage-only accidents are included, there is no direct correlation between the number of fatalities/non-fatalities and the total number of accidents.

These figures show no discernable trend regarding safety in the level of accidents or fatalities/injuries over the past decade. The significant decrease in accidents in 2009 could be attributed to the decrease in overall rail traffic due to the national economic recession.

8.1.1 Railroad Grade Crossing Safety

The rail safety area most visible to the general public and for which the public is most exposed to potential harm from rail operations is the interface between the rail and highway systems at grade crossings. Over ten thousand rail-highway crossing exist in Kansas, with 5,447 located on public roadways.

KDOT has aggressively invested in and improved safety warning devices at highway-railroad grade crossings. Historically, KDOT has allocated $10 million per year in federal Hazard Elimination and Surface Transportation Program funds for highway-railroad grade crossing safety improvements or corrective activities designed to reduce the incidence of accidents, injuries and fatalities at public railroad-highway crossings.

KDOT utilizes federal funding for the Highway/Railroad Grade Crossing Improvement Program. This program provides flashing light and gate signal systems and passive sign upgrades on public roads. These funds are also eligible for the Railroad Grade Separation Program.

The State funded Highway/Railroad Crossing Program is a $300,000 per year program that addresses Highway/Railroad safety improvements that do not meet federal aid program eligibility requirements.

The Railroad Grade Separation and Local Partnership Grade Separation Programs were established to address grade crossing separation needs across the state. These funds were recently utilized to match federal funds for the Wichita grade separation project.

Grade crossing projects are selected and prioritized on the basis of a customized exposure rating process developed specifically for KDOT in 2000. KDOT maintains an inventory of approximately 100 prioritized crossing projects from which its annual program of approximately 50 projects is selected.

Grade crossing incident statistics over the past decade are shown in **Table 48** below.

Table 48: Kansas Grade Crossing Incident Statistics

	2001	2002	2003	2004	2005	2006	2007	2008	2009
Total Incidents	63	71	58	72	64	59	57	43	46
Fatalities	5	9	3	7	7	15	9	9	2
Injuries	20	26	28	16	31	27	18	16	15

Source: FRA Office of Safety Analysis

The number of grade crossing incidents and fatalities/injuries has decreased steadily over the past five years. This decrease is at least partly attributed to the State's emphasis on addressing the over 4,000 crossings without active warning systems, as well as the grade crossing safety educational programs provided by the State's Operation Lifesaver chapter.

8.1.2 Rail Safety Inspection

The Federal Railroad Administration enforces federal regulations and standards which apply to track, signal, train control, motive power, equipment, operating practices, and hazardous materials. The federal Rail Safety Act of 1970 authorized states to work with FRA to enforce railroad regulations at their expense. Kansas does not currently participate in the FRA Certified rail inspection program.

8.1.3 Hazardous Materials

Federal common carrier obligations mandate that railroads are required to transport hazardous materials. The U.S. Department of Transportation received the authority to regulate the transportation of hazardous materials through the Hazardous Materials Act. Federal hazardous material regulations apply to all interstate, intrastate, and foreign carriers by rail, air, motor vehicle and vessel.

At the state level, the Kansas Department of Health and Environment oversees the registration and regulation of transporters of hazardous waste.

8.1.4 Positive Train Control

Positive train control (PTC) refers to technologies designed to automatically stop or slow a train before certain accidents occur. PTC is designed to prevent collisions between trains and derailments caused by excessive speed, incursions by trains on tracks under repair and by trains moving over switches left in the wrong position. PTC systems are designed to determine the location and speed of trains, warn train operators of potential problems, and take action if operators do not respond to a warning.

The Rail Safety Improvement Act of 2008 required railroads to place PTC systems in service by December 31, 2015 on Class I railroad routes with over 5 million gross ton miles per mile with commuter or intercity passenger operations or any amount of toxic/poison-by-inhalation hazardous materials. Positive train control requirements currently exclude Class II or Class III railroads which have no passenger service.

The cost of implementing positive train control on rail passenger routes may have implications on future rail passenger service plans.

8.2 Rail Security

The focus of rail security has changed significantly over the past decade. In response to potential terrorism threats to the transportation system, new federal agencies have been established to oversee and provide assistance to ensure the security of transportation modes. The following addresses specific rail security issues and Kansas' involvement in rail security procedures.

8.2.1 Federal and State Roles in Rail Security

The primary agencies responsible for security related to transportation modes in Kansas are the U.S. Department of Homeland Security and the Kansas Division of Emergency Management. These agencies have addressed transportation security largely through identifying critical infrastructure assets, developing protection strategies for these assets, and developing emergency management plans.

The Department of Homeland Security addresses rail system security through the following means:

- Training and deploying manpower and assets for high risk areas;
- Developing and testing new security technologies;
- Performing security assessments of systems across the country; and,
- Providing funding to state and local partners

The Department of Homeland Security provided Freight Rail Security Grants to two Kansas railroads, the Kansas City Terminal Railroad Company and the South Kansas & Oklahoma Railroad, in 2010[28].

The Association of American Railroads, working with Homeland Security and other federal agencies, has organized the Rail Security Task Force. This task force developed a comprehensive risk analysis and security plan for the rail system that includes:

- A database of critical railroad assets;
- Assessments of railroad vulnerabilities;
- Analysis of the terrorism threat; and,
- Calculation of risks and identification of countermeasures.

The railroad sector maintains communications with the U.S. Department of Defense, the U.S. Department of Homeland Security, the U.S. Department of Transportation, the Federal Bureau of Investigation, and state and local law enforcement agencies on all aspects of rail security.

The lead state agency for rail security in Kansas is the Kansas Division of Emergency Management, an arm of the Adjutant General's Office. The Division of Emergency Management requires each county to maintain a disaster agency responsible for emergency preparedness, and coordination in response to disasters. Each county must maintain an Emergency Operations Plan.

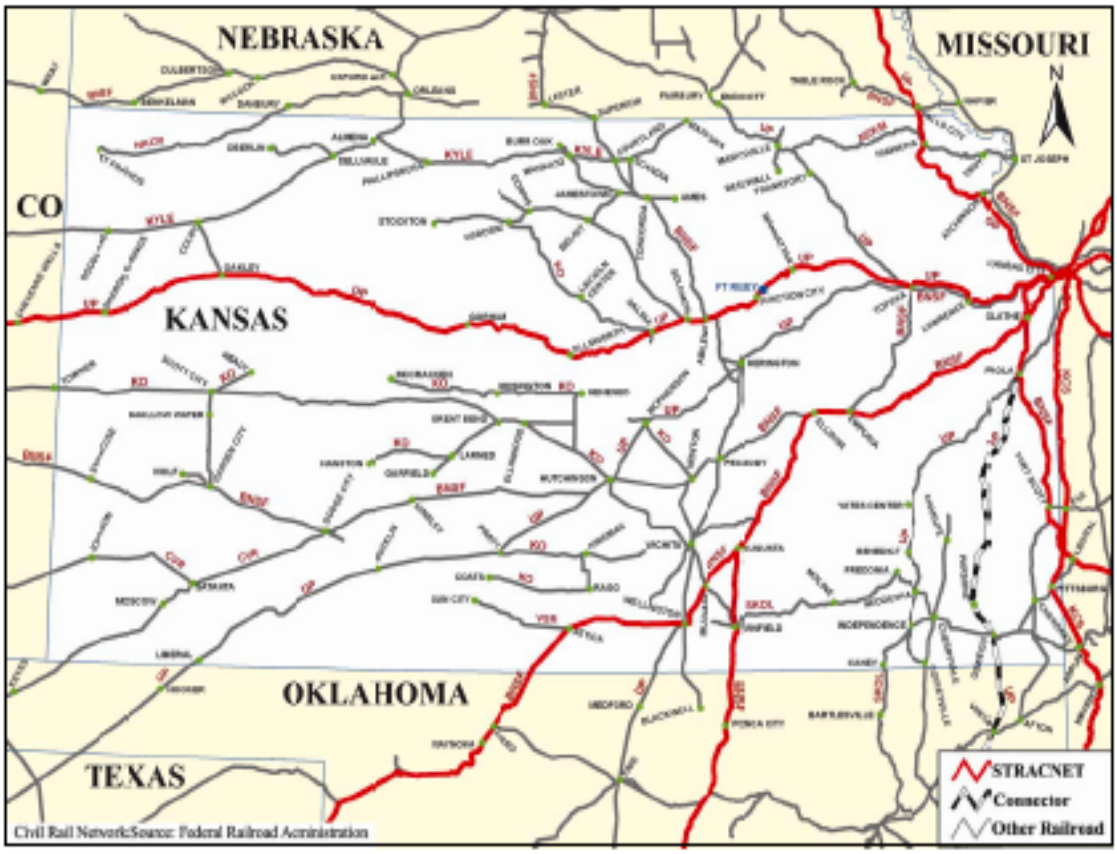
Local emergency plans must address coordination of action for emergency release of hazardous substances at sites and facilities such as shipping terminals and rail yards.

[28] U.S. Department of Homeland Security Grant Programs Directorate Information Bulletin No. 342, May 13, 2010.

8.2.2 Strategic Rail Corridor Network

The U.S. Military Surface Deployment and Distribution Command's Transportation Engineering Agency has identified the national Strategic Rail Corridor Network (STRACNET). STRACNET is comprised of a 32,000 mile interconnected network of rail corridors and associated connector lines most important to national defense. Kansas' STRACNET system is shown in **Exhibit 39**.

Exhibit 39: Kansas STRACNET Map



Source: U.S. Military Surface Deployment and Distribution Command

Fort Riley is identified by the U.S. Military Surface Deployment and Distribution Command as a defense installation requiring rail service.

KDOT works with the Military Surface Deployment and Distribution Command to ensure the strategic nature of these corridors and connecting lines are considered in their planning process.

Chapter 9 – Kansas Rail Freight System Evaluation

The nature and importance of the commodities moved over the Kansas rail freight system require a high level of available capacity and a system infrastructure capable of accommodating the heavy bulk movements which currently dominate rail traffic moving to, from and through the state. Future available rail system capacity and fluid operations will be increasingly important as the growth in high-speed intermodal rail movements, and possibly additional rail passenger services utilize the same lines.

This chapter addresses the existing and projected rail constraints from the freight perspective. Existing constraints have been identified through the stakeholder outreach and interview process, as well as independent analysis of the system. Projected rail constraints have been identified by the major railroads working in cooperation with the Association of American Railroads.

9.1 Existing Constraints on Class I Rail Lines

The congestion points for the Class I railroads in Kansas are generally centered in Kansas City and its vicinity.

Kansas City is recognized as one of the busiest crossroads in the U.S. rail network. Numerous rail mainlines converge near, or at, Kansas City. The Class I railroads consolidate multiple mainline corridors into double tracks or even single tracks, often creating slowdowns and backups which can lead to congestion and safety issues. In some cases the rail lines are or will be approaching their ultimate practical capacity.

Coal trains from the Powder River Basin in Wyoming contribute significant volumes to north, south and east rail flows. Intermodal trains traveling between the West Coast ports and Chicago are another major contributor of rail volume. The increasing volume is creating choke points not only in Kansas City but on approaching rail lines as well. Specific examples of these existing chokepoints include:

- **BNSF Transcon Corridor between Ellinor and Mulvane.** BNSF has relieved congestion on this line by diverting trains via Wichita and Newton. While assisting the fluidity of the flows, this type of diversion adds mileage, time, and cost to the shippers' freight.
- **Marysville Cut-Off and Falls City Subdivision.** Continued increases in coal train traffic moving out of the Powder River Basin will further constrain capacity on these lines.

Although congestion on these corridors could be relieved with the addition of main track or sidings, this will only result in the transference of the congestion to the Kansas City area without also adding terminal capacity in that area.

To address these and other capacity, system velocity, and other operational constraints to the Kansas rail system, and to address specific choke points in the system, the Class I railroads have identified the following future projects in Kansas.

9.2 Proposed Class I Railroad Projects

The major Class I railroads operating in Kansas recognize the strategic value of rail corridors in Kansas, not only with regard to operations within the state but within the larger region and for long-haul intermodal movements. To increase capacity and system velocity as well as mitigate choke points, Class I railroads have identified the following future projects in Kansas:

9.2.1 BNSF Projects

- ***Kansas City Intermodal Facility*** - This new intermodal facility, to be located in southern Johnson County, Kansas, already under development, will increase BNSF's intermodal capacity in the Kansas City area. This facility would replace most of if not all of BNSF's existing intermodal operations at the Argentine Yard in Kansas City, Kansas.
- ***Topeka Subdivision Rail Relay*** - This project will replace existing jointed rail and turnouts on the La Junta Subdivision in Kansas with new, heavier, Continuous Welded Rail (CWR). This project would benefit freight as well as Amtrak passenger service.
- ***La Junta Subdivision Rail Relay*** - This project will replace existing jointed rail on the La Junta Subdivision in Kansas with new, heavier, CWR. The majority of rail to be replaced is west of Wright, KS. The project will benefit Amtrak service as well as freight service.
- ***Emporia Subdivision Capacity Projects*** - A series of track projects will be implemented on the Emporia Subdivision in Kansas between Holliday and Rose Hill. The results will expand capacity on BNSF's Transcon corridor to accommodate future volumes and improve service reliability. The projects consist of double tracking and triple tracking sections through siding connections and installation of powered crossovers.
- ***Fort Scott Subdivision Capacity Projects*** – A series of track projects will be implemented on the Fort Scott Subdivision between Bonita and Fort Scott in Kansas to expand capacity to accommodate future volumes and improve service reliability. The projects consist of extending sidings, double tracking through connecting sidings, and conversion of manual crossovers to powered operation.
- ***Arkansas City Subdivision Capacity Projects*** - A series of track projects will be conducted on the Arkansas Subdivision in Kansas to expand capacity to accommodate future volumes and improve service reliability. The projects consist of double tracking through connecting sidings and siding extensions.
- ***Corridors of Commerce*** – Corridors of Commerce is an initiative which comprises improvements to the BNSF Transcon and the BNSF Midcon (Mid Continent) within Kansas. The Midcon includes portions of the The Texas Line and The Frisco within Kansas. The Corridors of Commerce focuses on projects with public funding participation.

9.2.2 UP Projects

- ***Kansas Pacific Line Upgrade*** – This project will upgrade the infrastructure from jointed to welded rail at three locations and replace ties at nine locations on the Sharon Springs Subdivision, and replace ties at one location on the Salina Subdivision.

- ***Kansas Subdivision Double-track Project*** – The Kansas Subdivision is a strategic corridor for UP and is a primary coal route for southern and eastern coal flows. The project to double-track this line will increase capacity and improve UP's ability to maintain routes between Kansas City and Marysville. These improvements will also relieve congestion on the Falls City Subdivision by creating opportunities to run more westbound trains.
- ***Kansas Subdivision 3rd Mainline Track Project*** – This project will create a new, third mainline west of the Armstrong yard to MP11.2. This improvement will reduce road and terminal train delay as locals and manifest trains work at Muncie. This will allow UP to do a final sort prior to entrance into the Kansas City terminal, thus reducing terminal train delay. This project also provides additional capacity to allow the Kansas City terminal to depart trains at will toward Topeka.
- ***Falls City Subdivision Siding Project*** – This project will consist of a new siding installed between Willis and Shannon, as well as new siding extensions at Shannon, Atchison, and Nearman. Bi-directional capacity will be increased from Reserve to Willis and directional capacity will be increased from Hiawatha to Willis.
- ***Coffeyville Subdivision Double-track Project*** – This project entails the installation of double track from Leeds Junction to Paola.
- ***Parsons Subdivision Signal Upgrade*** – This project consists of installing Automatic Block Signals (ABS) between Paola and Parsons, including the installation of hold signals at the south end of each siding and the north end of the Parsons siding. These improvements will increase UP's ability to run long, fuel-efficient trains, with accompanying reductions in delays and emissions, and it supports economic growth in the key interstate commerce corridor between Kansas City and Fort Worth.
- ***Parsons Subdivision Switch Upgrades*** – This project involves the installation of power switches at five locations at Parsons. These power switches will decrease train processing time and increase speeds on departures and arrivals. This project will also support public mobility through decreased delays at public crossings.
- ***Ringer Siding Extension and Switch Upgrades*** – This project will add power to an existing #14 switch at the south end of the Ringer Siding. Another component of this project will extend the siding at Ringer north from MP 44.9 to MP 44.0, and install a new #15 power switch and control point at the north end of the siding. The project will increase UP's ability to run long, fuel-efficient trains, with accompanying reductions in delays and emissions.
- ***New Topeka Bridge & Willard Connection*** – This project will entail construction of a new bridge over the Kansas River and a new track alignment connecting the Salina Subdivision and the Topeka Subdivision. This new alignment will reduce the distance from Menoken to Maple Hill by 10 miles. The project will also include installation of double-track from Menoken to the cut-off, including upgrading and powering the west leg of the Menoken wye.
- ***Herington Yard Expansion*** – This project involves installing four new run-through tracks west of Herington with a three track mainline yard bypass. The project will improve long-train meet/pass capacity (10,000-foot slots) and allow OKT trains to have separate mainline capacity through the Herington Yard.

- ***Herington Subdivision Signal Upgrade*** – This project will complete installation of a Centralized Traffic Control signal system on the Herington Subdivision between East Pratt and Herington. This project will improve train velocity by reducing train delay associated with meets and passes in this area. Completion of this project will accommodate anticipated growth of trains on the Golden State Route after completion of other capacity improvements on the Sunset Route.
- ***OK&T Route Siding Upgrades*** – This project consists of multiple elements, including extending sidings at Caldwell and Riverdale and constructing new sidings at Aulne, Butler, and Peck. These siding projects will increase the railroad's ability to run long, fuel-efficient trains, with accompanying reduction in delays and emissions.
- ***Falls City Subdivision Switch Upgrade and 18th St. Yard Lead Extension*** – This project will extend the 18th Street Yard lead to the west of West Yard to allow larger cuts of cars to be switched from the west end. Cuts are currently restricted to a small number of cars. The project includes installation of power switches on the left-hand cross-over and a west wye switch to expedite up to 4 to 5 trains per day going to the Falls City Subdivision from the Kansas City Terminal Main Line. Benefits will include an increase in track speed and a reduction of congestion on the main route through Kansas City.
- ***Atchison Bridge Rehabilitation and Upgrade*** – This project will rehabilitate and upgrade the existing Missouri River swing span bridge at Atchison, KS. This bridge will be upgraded to support 286,000 pound carload movements in and out of Atchison.

9.3 Projected Class I Railroad Constraints

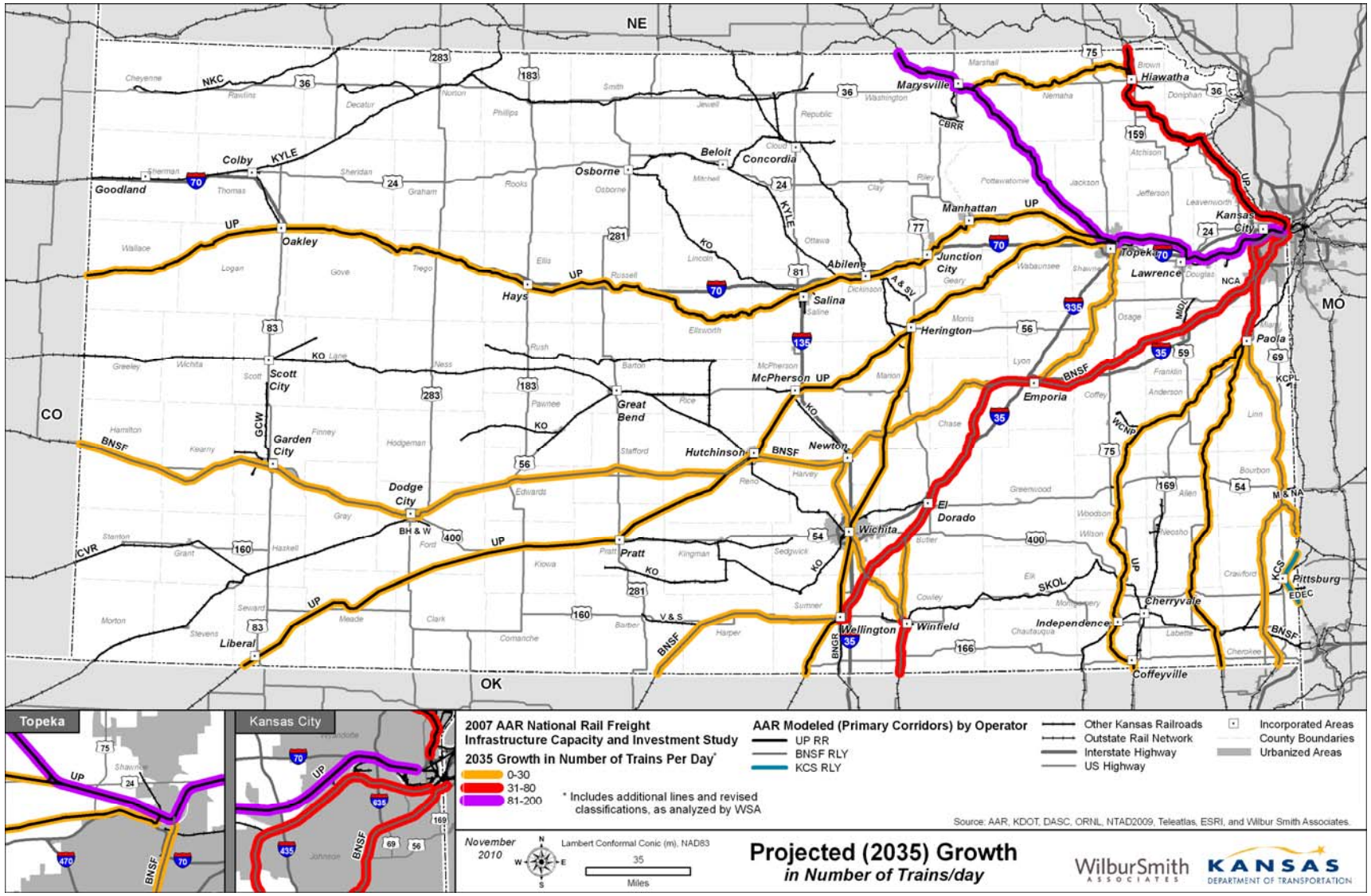
In response to the projected increases in rail demand, the Class I railroads have worked together to identify rail corridors and corridor segments which they estimate will see the greatest increase in volume and where existing and projected capacity constraints will affect the fluidity and reliability required for the rail network to remain competitive. To determine rail mainline system capacity needs for the country, the "National Rail Freight Infrastructure Capacity and Investment Study", published by the Association of American Railroads in September 2007 was developed.

The Class I railroads designated Primary Rail Corridors. These corridors were evaluated on the basis of both current rail volumes compared to current capacity and future (2035) volumes compared to current capacity. From this, current and future levels of service from Level A to Level F, similar to that used for the highway system, were assigned to each of the corridors.[29]

Exhibit 40 shows the projected growth rates on Kansas' primary rail corridors. Future growth rates in terms of trains per day for most primary rail freight corridors in Kansas are relatively moderate with projected increases of 0 to 30 daily trains through 2035. A number of north-south corridors across the state, however, are projected to have increases of 30 to 60 trains per day and the UP Kansas Subdivision north of Topeka is projected to experience more than 60 additional trains per day.

[29] Several additional segments associated with the BNSF Midcon Corridors have been evaluated using a similar methodology and volume/capacity data presented elsewhere in this rail plan.

Exhibit 40: Projected Kansas Class I Freight Rail Corridor Growth Rates Through 2035



Source: Wilbur Smith Associates, Association of American Railroads Report, "National Rail Freight Infrastructure Capacity and Investment Study", 2007

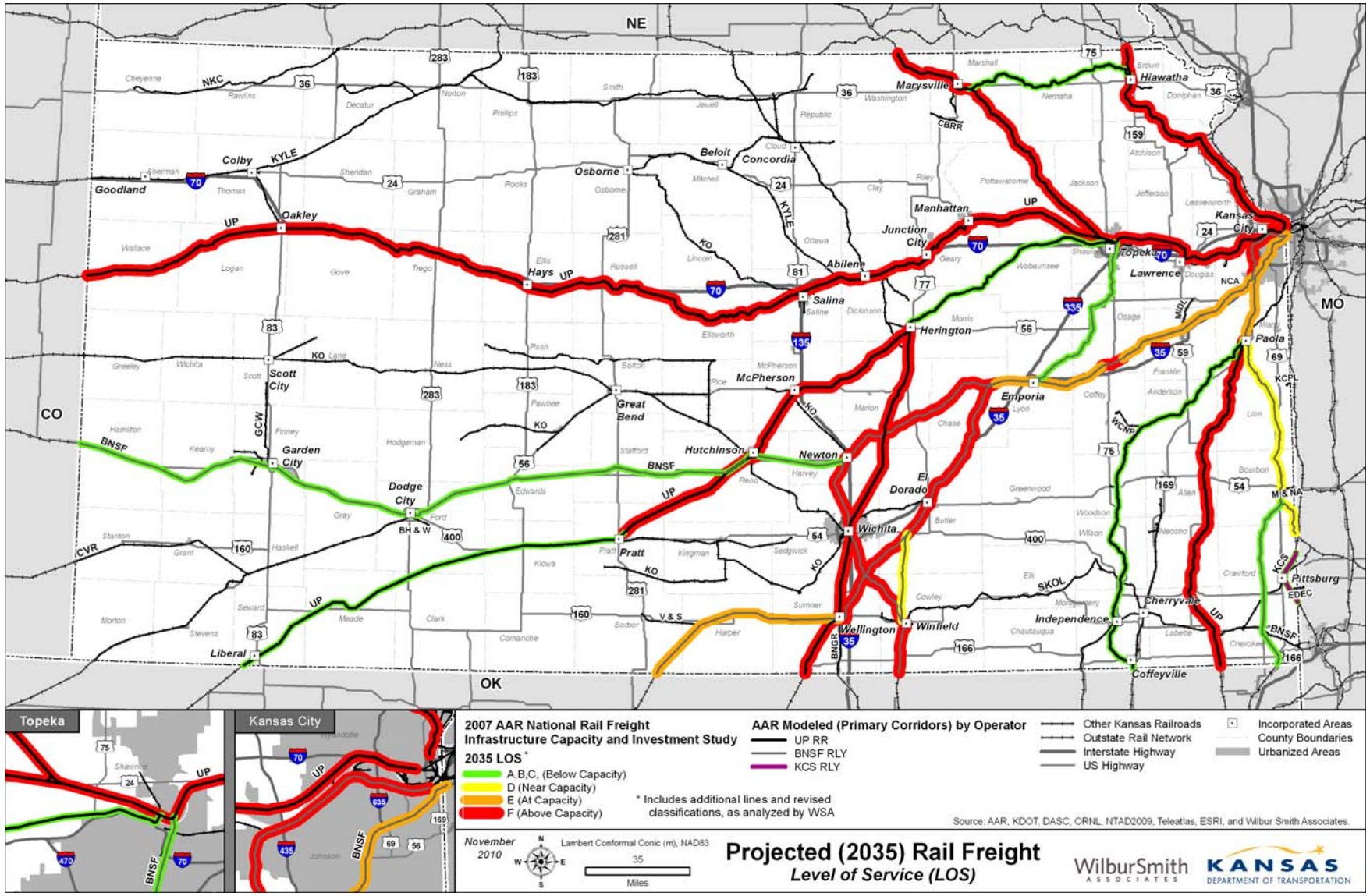
As noted, the National Rail Freight Infrastructure Capacity and Investment Study assessed current corridor capacity to determine congestion levels. This was done by calculating a volume-to-capacity ratio expressed as a level of service (LOS) grade.

LOS grades were generally described as follows:

- LOS Grades A, B, C – Rail volumes are generally below current capacity. Train flows are low to moderate with capacity to accommodate maintenance and recover from accidents.
- LOS Grade D – Rail volumes are near capacity. Train flows are heavy with moderate capacity to accommodate maintenance and recover from accidents.
- LOS Grade E – Rail volumes are at capacity. Train flows are heavy with very limited capacity to accommodate maintenance and recover from accidents.
- LOS Grade F – Rail volumes are above capacity. Train flows are unstable and service breakdown conditions exist.

Exhibit 41 shows the projected level of service on Kansas rail lines in 2035 without significant investment in capacity.

Exhibit 41: Projected 2035 Freight Service Levels – Major Corridors



Source: Wilbur Smith Associates, Association of American Railroads Report "National Rail Freight Infrastructure Capacity and Investment Study", 2007

As noted on the map above, the projected levels of service on most major rail corridors in Kansas are projected to deteriorate to Levels D, E or F without a significant level of investment such as adding track, building or lengthening passing sidings, improving signal systems, and upgrading track to support increased traffic and heavier loads.

9.4 Short Line Railroad Needs

The viability of the short line railroad system in Kansas has been a priority of both the public and private sectors since the deregulation of the railroad industry in the early 1980s. Deregulation reduced the regulatory burden involved for Class I railroads to abandon poorly performing rail lines, but also provided the opportunity for public and private sector alternatives to continue rail services on the lines. Since the advent of deregulation, significant Class I route mileage has converted to short line in Kansas. This growth in the short line railroad sector since deregulation, combined with the financial assistance available from the State Comprehensive Transportation Program's Rail Service Improvement Fund, has also significantly reduced the rail miles abandoned in the State.

Access to short line railroads provides grain shippers with significant transportation cost savings.[30] Economic development officials interviewed around the state also stressed that nearly all economic development proposals require rail access. Short line railroads generally have the land available on their lines, the rail capacity, and the service flexibility required to meet these economic development opportunities. Efforts will continue to expand the opportunities for short line railroad to serve new industries and commodities. The areas for further study will include transloading, containerization of bulk commodities, and the movement of new commodities by rail, such as meat products.[31]

In addition to the economic benefits provided by short line railroads, these railroads also provide a significant benefit to the State's highway system and the traveling public. Studies have also estimated that the Kansas short line railroad system saves the State up to $58 million in highway pavement damage costs annually.[32]

Short line railroad operations are generally constrained by two factors – system chokepoints and infrastructure deficiencies - which reduce operating efficiency and preclude the railroads' ability to accommodate 286,000 pound car loadings. These rail car weight levels are quickly becoming the industry standard.

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[30] Economic Impacts of Railroad Abandonment on Rural Kansas Communities, July 2003, Kansas State University

[31] Transportation Logistics and Economics of the Processed Meat and Related Industries in Southwest Kansas, July 2007, Kansas University Transportation Center

[32] Impact of Kansas Grain Transportation on Kansas Highway Damage Costs, March 2002, Michael W. Babcock and James l. Bunch, Kansas State University and The Impact of Jumbo Covered Hopper Cars on Kansas Short Line Railroads, September 2004, Michael W. Babcock and James Sanderson, Kansas State University.

A rail system chokepoint is any location, junction or situation that delays the efficient movement of rail freight. These chokepoints often impact freight transit times, create congestion, and block highway/rail crossings. These situations can affect not only railroad operations, but can also affect the overall quality of life for communities adjacent to the rail lines.

Infrastructure deficiencies not only lead to inefficient rail operations, but are also a leading factor in rail safety issues. The inability to accommodate larger, heavier freight cars presents these railroads with a competitive threat in that existing rail customers may decide to utilize trucks or move to another location which can provide the heavier rail loadings. Shippers that remain on the rail line may face a competitive disadvantage due to cost inefficiencies resulting from the use of older equipment or under-loaded rail cars.

9.4.1 Short Line Railroad Choke Points

Table 49 lists the short line railroad chokepoints in Kansas identified through rail stakeholder interviews and analysis of the short line rail system.

Table 49: Short Line Chokepoints in Kansas

Location	Issue
Wichita	Limited yard and shipper siding capacities, and limited access to Class I Railroad
Coffeyville	Limited yard capacity and limited access to Class I Railroad
Neodesha	Low speed at US 75 at-grade crossing
Winfield	Limited yard capacity and limited access to Class I Railroad
KYLE main line	Limited passing tracks
Solomon	Main line trackage right access to Class I in Salina
Gardner	Restricted interchange to New Century AirCenter and highway congestion at the US 56 crossing.

Source: Olsson Associates, Short Line Railroad interviews, 2009 – 2010

A more detailed description of the nature of these chokepoints and the negative impacts on both the railroad and affected communities are described below.

- ***Wichita's*** chokepoints affect the efficiency of the Kansas and Oklahoma Railroad's (KO) interconnection with UP and BNSF. The lack of yard and siding capacity and interchange points delay rail traffic by requiring the KO rail traffic to wait and hold to interchange cars. This results in blocked rail crossings within and around Wichita. An ARRA Stimulus project was approved to build a 7,200-foot passing track northwest of Wichita, near Colwich. After completion, this project will greatly improve the KO's operational efficiency. Addressing this congestion will also reduce noise and emissions, thus improving the quality of life for residents living near the rail line.
- The ***Coffeyville*** chokepoint is the result of rail traffic moving over a rail system not designed for the current levels of traffic. Train movements are primarily limited by existing poor track alignment and the lack of rail junctions. The Coffeyville chokepoint has been studied and a conceptual improvement alternative has been suggested by KDOT, although there are many details to be worked out before investigating funding opportunities.
- The ***Neodesha*** chokepoint results from both the UP and KO operating through separate US 75 at-grade crossings and continuing through a low speed diamond just to the north of the highway crossings. The low speed of the train movements across US 75 causes highway traffic congestion and delays. The importance of this blockage is heightened by a new Hospital and Emergency Care Center located to the west of the crossing. Highway congestion and delays limit emergency care access to the residential area of Neodesha which is east of the crossing. Alternatives being studied include track realignment with shared US 75 crossing or a grade separation structure over US 75.
- The chokepoint at ***Winfield*** results from the interconnection between the South Kansas and Oklahoma Railroad (SKOL) and the BNSF being constrained by available yard storage. The current interconnection works well until rail traffic is heavy on either the SKOL or the two BNSF rail lines. The Winfield interconnect impacts SKOL's service to the Wichita market. This chokepoint could also impact the efficiency of the proposed Amtrak Heartland Flyer extension of the Ft. Worth to Oklahoma City service through Winfield to Wichita and continuing to Kansas City.
- The ***Kyle Railroad*** (KYLE) experiences congestion and rail traffic delays due to the lack of sidings or passing tracks long enough to accommodate the unit grain trains that they deliver for interconnection with both the UP and BNSF. Without these siding tracks rail operations are limited to one-way rail traffic. Delays in interconnecting with the Class I railroads also result in blocked grade crossings. A specific chokepoint on this line exists at ***Solomon,*** the UP main line junction with KYLE which provides the KYLE access to UP in Salina via trackage rights.
- The chokepoint at ***Gardner*** results from operational limitations in the interchange of rail traffic between BNSF and the New Century AirCenter Railway. These switching delays also result in blockages of the US 56 crossing.

Despite the problems listed above, it has been determined that both the short line and Class I railroads communicate well and work to have interconnections operate as efficiently as possible as the interchange of traffic is important to both entities. At many locations, however, significant improvements in efficiency will require investment in infrastructure improvements.

9.4.2 Short Line Railroad Infrastructure Needs

The short line railroad industry in Kansas has identified the number one priority and largest need to be the capability to handle 286,000 pound (286K) rail cars, which are the current standard for Class I rail systems. Over half of the Kansas short line system is limited to 263,000 pound (263K) car loadings. This requires the use an outdated fleet of 263K rail cars or loading the 286K rail cars 23,000 pounds light. Both scenarios increase the freight rate for Kansas shippers, predominately those shipping grain to national and international markets.

The main limiting factor to accommodate 286K is the weight of rail (pounds per three foot section). For some sections of the short line system upgrading rail weights to 90 pound rail will be sufficient while other higher volume portions will require 115 pound rail.

Other factors, such as the condition of the ties and ballast and the number of substandard open span bridge structures, will affect the total cost of upgrade. In 2007, the Kansas T-LINK Task Force estimated that a public investment of $200 million would be required to address the state's short line industry needs. A large portion of this would be required to upgrade lines to the 286K standard.

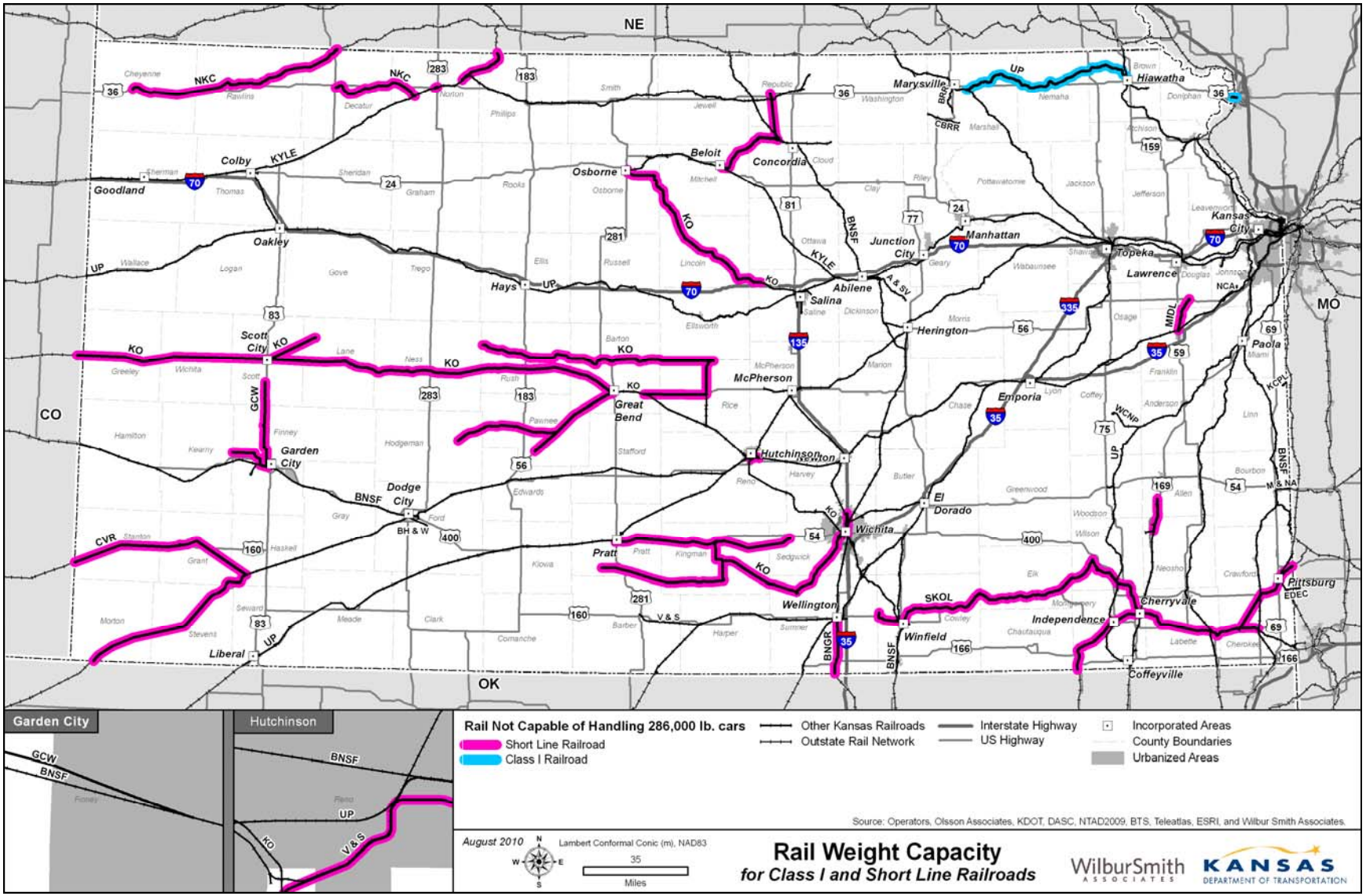
Information collected from short line railroads during the development of this Plan resulted in an estimated need for 748 miles of short line railroad track requiring rail replacement and 105 bridges needing upgrading to handle 286K rail car loadings.

Short line railroad mileage in Kansas which cannot accommodate 286K carload weights is shown on **Exhibit 42**.

An additional short line railroad issue in Kansas is the efficiency, and possible loss, of service to local grain elevators. This is due to service limitations caused by the short length of siding tracks. Lengthening sidings to accommodate 10 to 15, or more, hopper cars would lead to increased efficiencies in receiving, loading and shipping grain. Additional siding capacity can be accomplished by relocating switches and siding track extensions. Sidings with marginal 60 pound rail generally require a total rebuilding of the siding.

The number and location of shuttle train grain elevators (unit loader) was cited as a benefit to the overall rail system and shippers in Kansas. However, a counter argument is they are a threat to short line systems as it may be more economical for shippers to truck from a local elevator on their rail line to a unit loader off their rail line. Lengthening sidings at shuttle train grain elevators will help to offset any economic disadvantage to rail as compared to trucking to a unit loader.

Exhibit 42: Rail Weight Capacity of Short Line Railroads



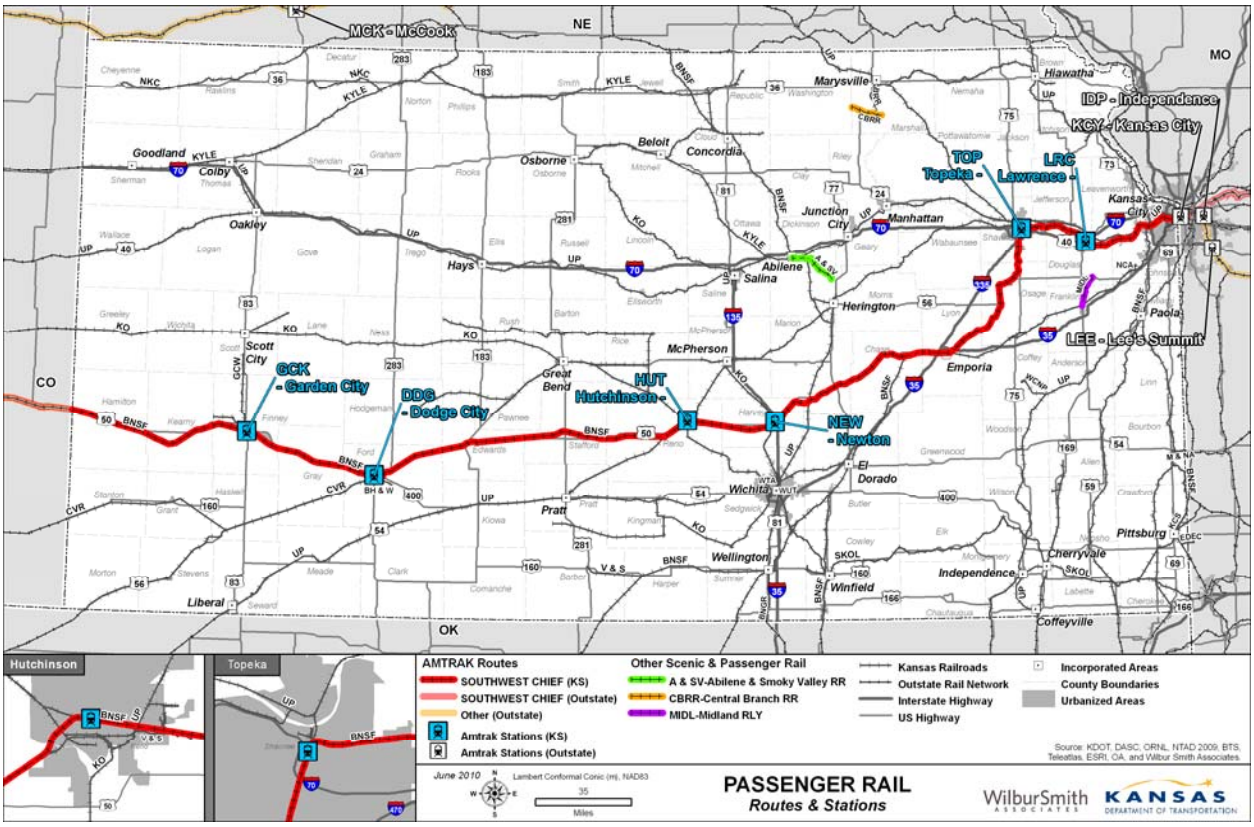
Source: 2009 Kansas Statewide Freight Study

Chapter 10 – Rail Passenger Service in Kansas

Intercity passenger rail service in Kansas is currently limited to Amtrak's long-distance Southwest Chief service which extends between Chicago and Los Angeles. The Southwest Chief provides one daily eastbound and one daily westbound trip through Kansas.

Excursion passenger service is also offered on two tourist railroads. **Exhibit 43** displays these passenger routes in and through Kansas and stations served.

Exhibit 43: Passenger Rail Services in Kansas

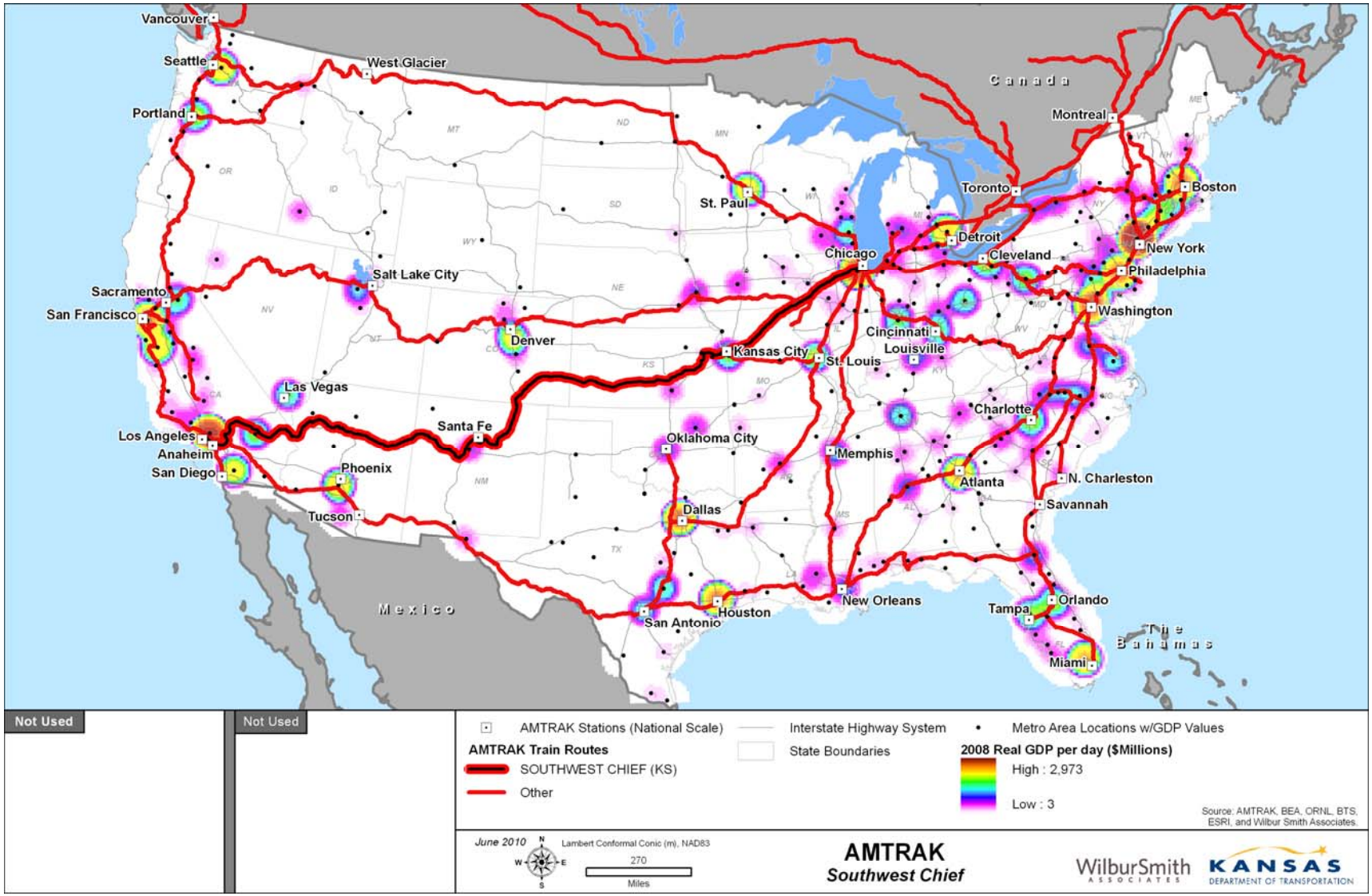


Source: Amtrak, KDOT and WSA

10.1 Amtrak Rail Passenger Operations

The National Passenger Rail Corporation, commonly known as Amtrak, was created by Congress in 1971 and is the sole provider of intercity passenger rail service in the United States. Amtrak operates on approximately 21,000 miles of rail and serves over 500 stations in 46 states. In federal fiscal year 2009 (Oct. 2008-Sept. 2009), Amtrak provided service to over 27 million passengers throughout the U.S. This marked a five percent decrease from FY 2008 ridership, ending six consecutive years of positive growth. On average, about 74,000 people ride nearly 300 Amtrak trains per day. A map of Amtrak's national rail system and national population centers is shown on **Exhibit 44**.

Exhibit 44: Amtrak National Passenger Rail System and Southwest Chief Alignment



Source: Amtrak and WSA

Amtrak operates three types of service: long-distance; corridor/state supported; and, Northeast Corridor service. Amtrak also operates commuter service on a contract basis for four major commuter networks and provides contract maintenance and dispatching service to several others throughout the country.

Amtrak's long-distance routes provide critical intercity service to many rural communities. Amtrak operates 15 long-distance routes over 18,500 miles serving 39 states including Kansas, which is served by the Southwest Chief. Long-distance trains generally consist of overnight sleeper cars, coaches, and dining cars. In 2008, Amtrak's long-distance trains carried approximately 4.2 million passengers, with an average trip distance of 626 miles.

Amtrak's corridor and state-supported routes cover over 6,000 route miles in 23 states. Many states support these routes by contributing state funds for operating losses. States contributed approximately $164 million in FY 2008 for corridor services. Notable regional examples of state-supported corridors are the Missouri River Runner, which provides two round trips daily between Kansas City and Saint Louis, and the Heartland Flyer which operates daily between Oklahoma City and Fort Worth.

10.2 Southwest Chief Service in Kansas

Amtrak's Southwest Chief serves six stations along approximately 463 miles of BNSF-owned track within the State of Kansas. Travel time from Kansas City to Garden City is typically 7 hours and 50 minutes barring any delays. The distance and schedule travel times between Kansas stations are listed on **Table 50**.

Table 50: Southwest Chief Mileage and Travel Time within Kansas

Segment	Miles	Travel Time (h:mm)
Kansas City - Lawrence	40	1:37
Lawrence - Topeka	26	0:37
Topeka - Newton	135	2:16
Newton - Hutchinson	33	0:35
Hutchinson - Dodge City	120	2:00
Dodge City - Garden City	50	0:45
Garden City - Colo. St. Line	68	
Total:	463	7:50

Source: Amtrak

The Southwest Chief continues eastbound past Kansas City through Missouri and Illinois before terminating in Chicago. Westbound trips continue past the Kansas-Colorado state line to stops in Colorado, New Mexico, Arizona, and California before terminating at Los Angeles's Union Station.

Connections to other Amtrak and Thruway Motorcoach services exist at Kansas City's Union Station, just past the state line in downtown Kansas City, Missouri.

Southwest Chief trains typically consist of two to three locomotives, one baggage car, one Superliner transition dorm, two Superliner sleeping cars, a Superliner dining car, a Superliner lounge car, and three Superliner coach cars. However, the train consist may be changed to accommodate peak demand by adding additional coach cars. A typical Southwest Chief train consist is shown in **Exhibit 45**.

Exhibit 45: Typical Southwest Chief Train Consist

10.2.1 Southwest Chief Schedule Through Kansas

Amtrak operates two daily Southwest Chief trains, the No. 3 and No. 4, between Chicago and Los Angeles. Both the eastbound and westbound trains serve six stations in Kansas: Garden City, Dodge City, Hutchinson, Newton, Topeka, and Lawrence. Trains run across the state in the late night/early morning hours. **Table 51** displays the daily schedule for both trains.

Table 51: Southwest Chief Schedule for Kansas Stations

# 3 – Westbound (Read Down)	Stop	# 4 – Eastbound (Read Up)
10:45 PM	Kansas City, MO	7:24 AM
11:52 AM	Lawrence	5:47 AM
12:29 AM	Topeka	5:18 AM
2:45 AM	Newton	2:59 AM
3:20 AM	Hutchinson	2:19 AM
5:25 AM	Dodge City	12:27 AM
6:21 AM	Garden City	11:17 PM

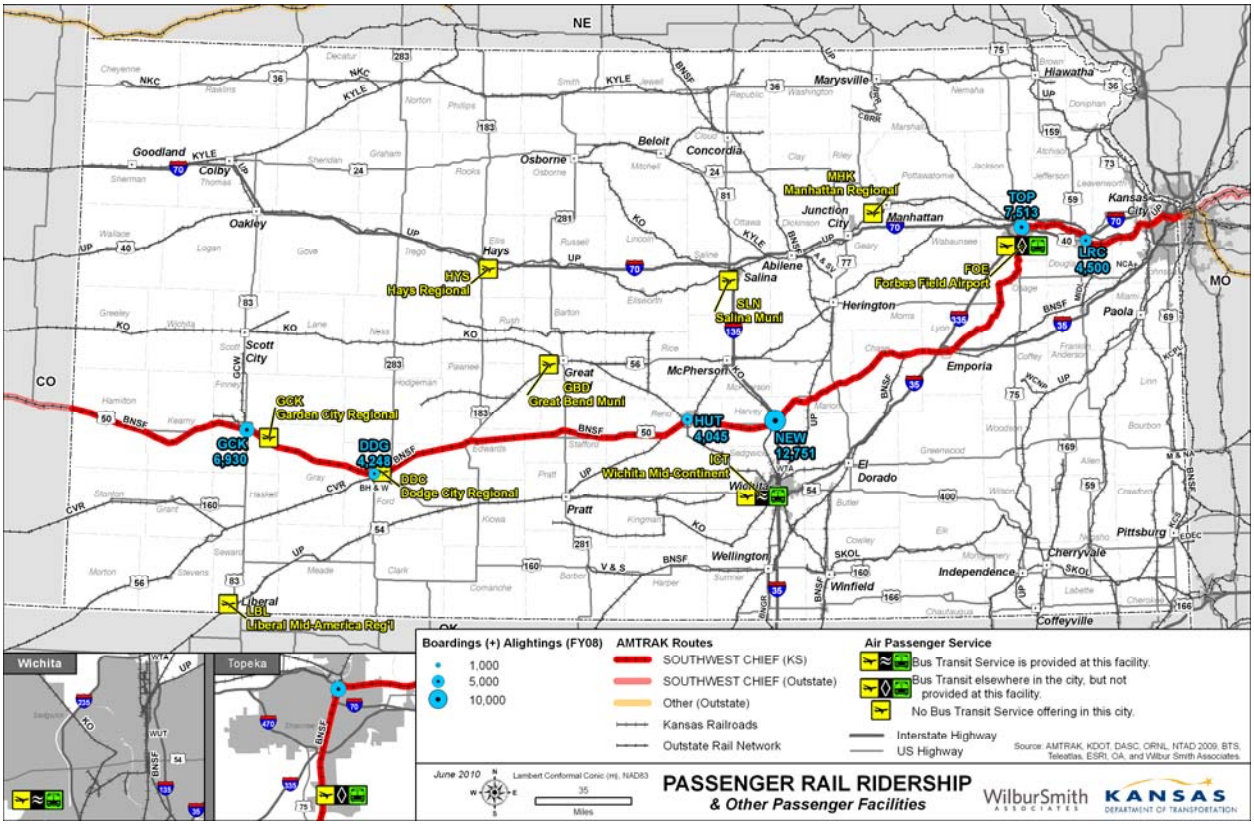
Source: Amtrak

10.2.2 Southwest Chief Ridership

In federal fiscal year 2009, nearly 40,000 Southwest Chief passengers boarded or alighted at Kansas stations. **Exhibit 46** shows the Amtrak stations and ridership in Kansas. Total ridership

in the state increased 15 percent from 2005 through 2009. Amtrak ridership in Kansas peaked in 2008 at over 41,000 riders, with a spike in gasoline prices likely contributing to the increase, before returning to near-2007 levels in 2009. Ridership generated by Kansas stations in FY 2009 accounted for approximately 13 percent of the Southwest Chief's total annual ridership of 318,025[33].

Exhibit 46: Southwest Chief Ridership in Kansas



Source: Amtrak and WSA

Table 52, and **Exhibit 47** and **Exhibit 48** show three distinct tiers of Southwest Chief ridership in Kansas and the percent of ridership change from 2005 to 2009. Of the six stations in Kansas, Newton is consistently in the top tier, with over 12,000 passengers boarding or alighting in 2009. Newton's high ridership is driven by its close proximity to Wichita, the largest city in Kansas. Because there is no Amtrak service in Wichita, passengers must travel 25 miles to the north to access the Southwest Chief at Newton. Topeka and Garden City comprise the second tier with approximately 7,000 to 8,000 annual riders. Hutchinson, Dodge City, and Lawrence stations generate the lowest ridership at approximately 4,000 to 4,500 passengers per year.

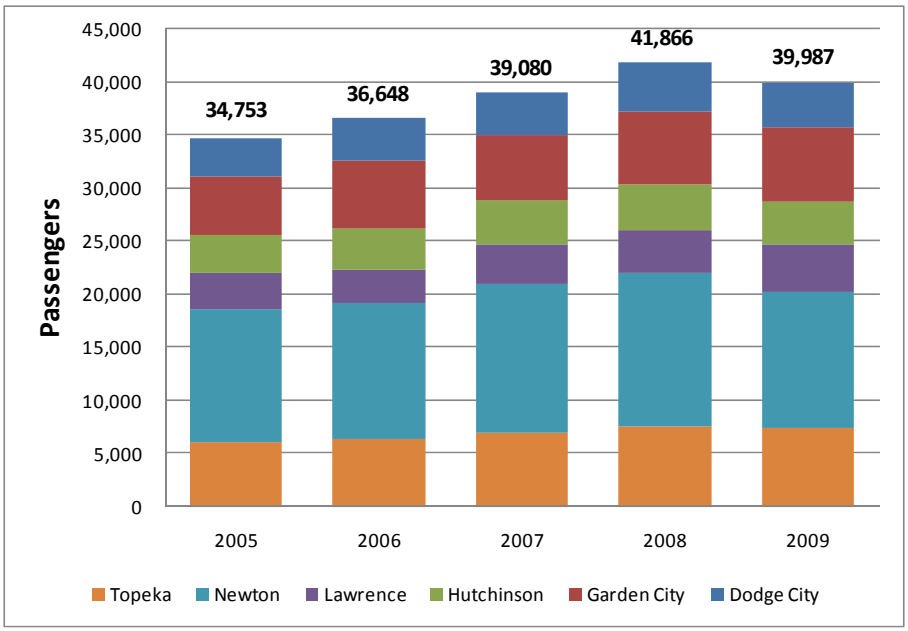
[33] Amtrak State Fact Sheets 2005 - 2009

Table 52: 2005 – 2009 Southwest Chief Kansas Ridership by Station

Station	2005	2006	2007	2008	2009	% Change (2005 – 2009)
Dodge City	3,559	4,084	4,063	4,612	4,248	19%
Garden City	5,523	6,287	6,166	6,840	6,930	25%
Hutchinson	3,632	3,858	4,056	4,289	4,045	11%
Lawrence	3,347	3,244	3,732	4,008	4,500	34%
Newton	12,580	12,772	14,126	14,563	12,751	1%
Topeka	6,112	6,403	6,937	7,554	7,513	23%
Total	34,753	36,648	39,080	41,866	39,987	15%

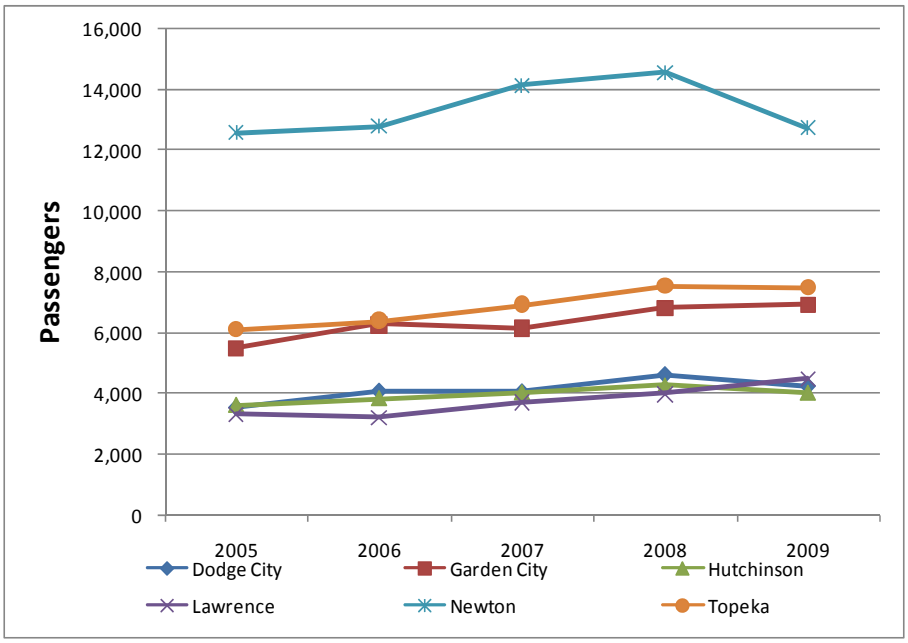
Source: Amtrak

Exhibit 47: 2005 – 2009 Southwest Chief Kansas Ridership by Station



Source: Amtrak

Exhibit 48: 2005 – 2009 Southwest Chief Kansas Boardings and Alightings by Station



Source: Amtrak

10.2.3 Southwest Chief Fare Revenue

Fare revenues generated by the six Kansas Amtrak stations totaled over $4 million in FY 2009, a six percent decrease from FY 2008. This decrease is commensurate with the decline in ridership from 2008 to 2009. Newton station generated the greatest revenues in 2009, accounting for over one-third of the State's total fare revenues, with over $1.3 million in tickets sold. Hutchinson generated the lowest fare revenues, with approximately $416,000 in FY 2009. Stations in Kansas produced 11 percent of the Southwest Chief's total ticket revenues of approximately $38 million in FY 2009[34]. Ticket revenue for Kansas stations are shown in **Table 53** and **Exhibit 49**.

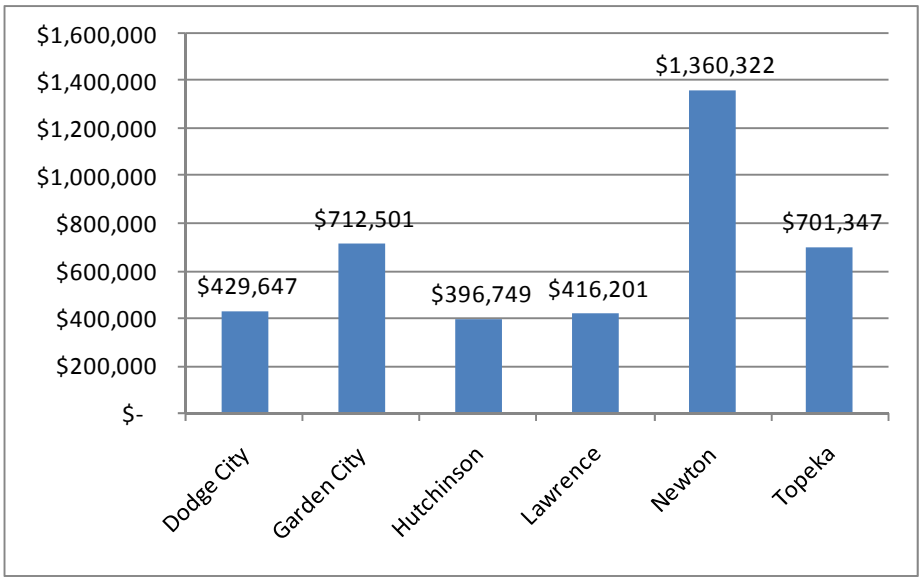
Table 53: 2009 Southwest Chief Kansas Ticket Revenues by Station

Station	FY 2009 Ticket Revenues
Dodge City	$429,647
Garden City	$712,501
Hutchinson	$396,749
Lawrence	$416,201
Newton	$1,360,322
Topeka	$701,347
Total	$4,016,767

Source: Amtrak

[34] Amtrak State Fact Sheet 2009

Exhibit 49: 2009 Southwest Chief Kansas Ticket Revenues by Station



Source: Amtrak

10.2.4 Southwest Chief Ridership and Cost Performance

The Southwest Chief provided 318,025 trips in FY 2009 at a cost of $96 million, an average cost per passenger of $302. Total fare revenue along this long-distance route was just over $38 million, or 40 percent of the total operating budget. Total revenues for the route, including fare revenue and ancillary revenue such as on-board concessions and advertising, totaled $41.8 million. The operating subsidy for the Southwest Chief, which is the difference between total costs and total revenue, was $54.2 million, or approximately $170 per passenger.

By comparison, the average long-distance Amtrak route provided approximately 277,000 trips in FY 2009 at an average operating cost of $26.7 million. The average cost per passenger was approximately $250 and the average subsidy per passenger was $146.

A comparison of ridership and cost performance between the Southwest Chief service and all Amtrak long distance routes are provided in **Table 54** and **Table 55**.

Table 54: FY 2009 Southwest Chief Ridership and Cost Performance

Route	Ridership	Total Costs	Fare Revenue	Total Revenue
Southwest Chief	318,025	$96,000,000	$38,033,503	$41,800,000
Long-distance Service Average	277,195	$64,864,286	$26,680,081	$28,821,429
Percent Difference	13%	32%	30%	31%

Source: Amtrak

Table 55: FY 2009 Southwest Chief Cost and Subsidy Metrics

Route	Cost per Passenger	Average Fare	Subsidy Per Passenger	Farebox Recovery
Southwest Chief	$302	$120	$170	40%
Long-distance Service Average	$250	$96	$146	40%
Percent Difference	17%	19%	15%	0%

Source: Amtrak

10.2.5 Southwest Chief On-Time Performance

In FY 2009, Amtrak's Southwest Chief on-time performance (OTP) was 85.2 percent along the entire route, a 30 percent increase over FY 2008[35]. This increase in on-time performance is likely attributed to the decline in freight traffic resulting from the economic downturn. The reduced volume along the BNSF transcontinental corridor allows for fewer service interruptions and delays.

Of the delay causes citied by Amtrak in March 2010, train interference was responsible for approximately 26 percent of delays, the majority of which are attributable to BNSF Railway (91 percent). An additional 25 percent of delays were due to operational conflicts, while signal and track issues were responsible for 24 percent of delays.[36]

10.2.6 Southwest Chief Stations in Kansas

Kansas' intercity passenger rail network currently serves six stations along the Southwest Chief corridor. Three stations (Topeka, Newton, and Garden City) have attended ticketing offices, while the remaining three (Lawrence, Hutchinson, and Dodge City) do not. In addition to functioning as passenger depots and boarding/alighting platforms, many of these stations are cultural and economic assets to the communities they serve. Several stations have been acquired by local governments or developers in an effort to restore these historic structures and utilize their surplus space for public and private purposes. A short description of each station served by the Southwest Chief, including recent station improvements undertaken by Amtrak with American Recovery and Reinvestment Act (ARRA) funds[37] follows.

Lawrence

The Lawrence Amtrak station (**Exhibit 50**) is located northeast of the central business district at 7th and New Jersey Streets. The single-story depot opened in 1956 and is owned by BNSF Railway. The City of Lawrence, however, is currently negotiating to purchase the station which would allow the use of federal grant funding sources to finance its restoration. KDOT recently

[35] Amtrak Monthly Performance Report, October 2009

[36] Amtrak website-Route Performance

[37] Amtrak Fact Sheet, Fiscal Year 2009, State of Kansas

received an $87,563 grant under the FRA High-Speed Intercity Passenger Rail (HSIPR) Program to complete preliminary engineering and final design work to restore the station.

Current station infrastructure improvement projects include platform rehabilitation/replacement and ADA-compliance upgrades, which are being financed with ARRA funds at a total cost of $619,000.

The Lawrence station does not have a staffed ticket office or baggage attendant/checked baggage service. Station hours are Midnight to 6:15 AM.

Exhibit 50: Lawrence Amtrak Station

Source: HDR field survey

Topeka

Topeka's Amtrak station (**Exhibit 51**) opened in 1950, and is owned by the BNSF Railway. The station is located at 5th and Holliday, just east of downtown Topeka. Recent renovations, which were implemented with $614,000 of ARRA funding, include a new wheelchair lift and ADA-compliant tactile edging along the length of the station platform.

The Topeka station is staffed between Midnight and 8:00 AM.

Exhibit 51: Topeka Amtrak Station

Source: HDR field survey

Newton

Newton's Amtrak station (**Exhibit 52**) is located in downtown Newton at 5th and Main Streets. The current station building is owned by Crossroads Lumber Company, while the track and platform are owned by BNSF Railway. The station, which is listed on the National Register of Historic Places, was constructed in 1930 and currently shares space with several other tenants, including law offices and shops.

The Newton station serves the highest volume ridership of any Amtrak station in Kansas due to its proximity to Wichita, located 25 miles to the south. Recent ARRA-funded renovations include new wheelchair lifts and related ADA-improvements totaling $70,000.

The Newton Station is open and staffed by one attendant between Midnight and 8:00 AM.

Exhibit 52: Newton Amtrak Station

Source: HDR field survey

Hutchinson

Hutchinson's Amtrak station (**Exhibit 53**) is located at 2nd and Walnut Streets in downtown Hutchinson. The current station was built in 1954 and is owned by a private party. The track and adjacent platform are owned by BNSF Railway. The facility is shared with a restaurant, which is closed off from the passenger waiting area during station hours.

The station received approximately $100,000 worth of ADA upgrades including a new wheelchair lift and tactile edging along the length of the platform through ARRA funding.

The Hutchinson station is unattended and does not provide ticketing or baggage services.

Exhibit 53: Hutchinson Amtrak Station

Source: HDR field survey

Dodge City

The Dodge City Amtrak station (**Exhibit 54**) is located at East Wyatt Earp Blvd. and Central Avenue in downtown Dodge City. The original two-story building was constructed in 1898, and underwent an $11 million renovation between 2000 and 2002. The effort to preserve the 45,000-square foot depot was jointly funded by the Kansas Department of Transportation, USDOT, Dodge City, and private donors. The building, which is owned by the City of Dodge City, was placed on the National Register of Historic Places in 2000. The track and platform are owned by BNSF railway. The building houses a variety of uses in addition to the Amtrak lobby including meeting spaces and a theater.

The Dodge City station received $79,200 of ARRA funds for ADA upgrades including wheelchair lifts and crossing improvements.

The Dodge City station is unattended and does not provide ticketing or baggage services. A shuttle between the station and the Boot Hill area is operated by the Dodge House Hotel.

Exhibit 54: Dodge City Amtrak Station

Source: HDR field survey

Garden City

The Garden City station (**Exhibit 55**) is located at 7th and Fulton Streets in downtown Garden City. The depot is owned by the City of Garden City and was built in 1907. In 2002, the City initiated an $800,000 renovation of the structure which was jointly funded through federal grants and local contributions. The Garden City station also received $27,000 in ARRA grant funding for ADA improvements including a new wheelchair lift.

Garden City station has a staffed ticket office and provides baggage assistance.

Exhibit 55: Garden City Amtrak Station

Source: HDR field survey

Table 56 provides details for each station's infrastructure and amenities.

Table 56: Kansas Amtrak Station Inventory

Location	Lawrence	Topeka	Newton	Hutchinson	Dodge City	Garden City
Owner	BNSF Railway	BNSF Railway	Crossroads Lumber, Inc.	James L. Strawn	City of Dodge City	City of Garden City
Address	413 E.7th Street Lawrence, KS 66044	500 SE Holliday Place Topeka, KS 66607	414 N. Main Street Newton, KS 67114	N. Walnut Street & E. 3rd Avenue Hutchinson, KS 67501	Central Avenue & Wyatt Earp Street Dodge City, KS 67801	100 N. 7th Street Garden City, KS 67846
Platform Type	Single	Single	Double with crossings	Single	Double with crossings	Single
Length	950'	725'	1150'	900'	1070'	680'
Construction	Asphalt/Concrete	Concrete	Asphalt/Concrete	Concrete	Asphalt/Concrete	Cement Pavers
Shelter	Partial Awning	Fully-Covered Platform	Partial Awning	Partial Awning	-	-
Lighting	Fully-Lit	Fully-Lit	Unlit	Unlit	Fully-Lit	Fully-Lit
Amenities	-	Benches	-	-	Benches	Benches
Passenger Safety	Yellow Safety Line	Yellow Safety Line	Yellow Safety Line	Yellow Safety Line	Wooden Edging	Tactile Paver Strip
ADA	-	-	-	--	-	Fully-Accessible
Depot Hours	Midnight - 1 AM; 5:15 AM - 6:15 AM	Midnight - 8:00 AM	Midnight - 8:00 AM MON-TUE; 1:30 AM - 4:00 AM WED-SUN	N/A	11:45 PM - 12:45 AM; 5:15 AM - 6:15 AM	6:00 AM - 9:00 AM; 10:00 PM - Midnight
Seating Capacity	~10	~25	~40	~16	~25	~25
Restrooms	No	Yes	Yes	Yes	Yes	Yes
Vending	No	Yes	Yes	No	No	Yes
Ticket Counter	No	Yes	Yes	No	No	Yes
Telephones	Payphone	Payphone	Payphone	Payphone	Payphone	Courtesy Phone
Shared Uses	Attached to Freight Office	Attached to Freight Office	Shared Office, Public Space	Shared with Restaurant	Shared Office, Public Space	Attached to Freight Office
Short Term Parking	~10 Spaces	~28 Spaces	Limited On-Street 2-hours	~15	~5 Spaces	~36 Spaces
Long Term Parking	~8 Spaces	~10 Spaces	Available at Nearby City Lot	~20	~75 Spaces	
ADA Parking Facilities	1 Designated Space; No ramp	1 Designated Space w/ ramp	N/A	1 Designated Space; No ramp	5 Designated Spaces w/ full ramps	1 Designated Space w/ ramp

Source: HDR field survey

10.2.7 Proposed Improvements to Southwest Chief Stations

As part of the American Recovery and Investment Act of 2009 (ARRA), Kansas rail passenger stations received over $1 million for station improvements. These improvements include Americans with Disability Act (ADA) enhancements under the Accessible Stations Development Plan, such as wheelchair lifts, tactile platform edging, and signage/informational kiosks. The goal of the Accessible Stations Development Plan is to achieve 100 percent ADA compliance at each Amtrak station across the country.

According to the 2009 "Report on Accessibility and Compliance with the Americans with Disabilities Act of 1990", Kansas stations generally received ADA compliance scores of 21 to 79 percent for station structures, platforms, and pathways. Dodge City, Newton, and Topeka received scores of less than 20 percent for platform compliance. Station enhancements aimed at achieving ADA compliance goals are described in **Table 57**.

Table 57: ARRA-funded ADA Compliance Projects

Informational Kiosks	Cost	Notes
Dodge City	$11,000	
Hutchinson	$11,000	
Lawrence	$10,000	
Newton	$11,000	
Topeka	$11,000	
Subtotal:	$54,000	
Mobility First		
Dodge City	$79,200	Wheel Chair (WC) Lift; upgrades to platform crossing; tactile platform edging
Garden City	$27,000	WC Lift; upgrades to metal fencing
Hutchinson	$14,000	WC Lift
Lawrence	$9,000	
Newton	$70,000	WC Lift; upgrades to platform crossing; parking lot striping
Topeka	$14,000	WC Lift
Subtotal:	$213,200	
Platform		
Lawrence	$600,000	New ADA-compliant 550' platform
Hutchinson	$75,000	ADA-compliant tactile edging along platform
Topeka	$100,000	ADA-compliant tactile edging along platform
Subtotal:	$1,002,200	
TOTAL:	$1,269,400	

Source: Amtrak Fact Sheet, FY 2009, Kansas

10.2.8 Southwest Chief Intermodal Connections

Four of the six stations in Kansas have opportunities for intermodal connections to local fixed-route transit operators. Lawrence, Topeka, Hutchinson, and Garden City all have local transit systems which provide fixed route service within their respective communities (**Table 58**). However, the scheduled arrival and departure times of the Southwest Chief trains do not fall within these providers' current hours of operation.

Table 58: Potential Intermodal Connections at Kansas Amtrak Stations

Station	Potential Intermodal Connections
Lawrence	Lawrence Transit - "T"
Topeka	Topeka Metropolitan Transit
Newton	-
Hutchinson	Reno County Area Transit - Currently Shared Transfer Center
Dodge City	City of Dodge City demand response service
Garden City	City Link Transit

Source: HDR

10.3 Intercity Rail Passenger Service as a Component of Kansas' Intercity Travel Network

The Southwest Chief is one component of the intercity passenger network in Kansas, which includes the highway system, intercity bus, and airports. Intercity passenger coverage is typically greatest between the major population centers of the state along the I-70 and I-35 corridors.

10.3.1 Kansas Highway System

The vast majority of intercity person trips within Kansas are made utilizing the state's highway network. Kansas' highway network encompasses approximately 140,000 miles, ranking third in the nation. Kansas has approximately 630 miles of Interstate highways, 236 miles of which are owned and operated by the Kansas Turnpike Authority.

10.3.2 Kansas Intercity Bus Service

Amtrak's Thruway Motorcoach service, which is operated by Jefferson Lines in Kansas, operates between Kansas City and Oklahoma City via Tulsa. Additionally, Greyhound Lines, Inc. and its regional subsidiaries provide intercity bus service between the following cities throughout Kansas:

- Chanute
- Coffeyville
- Emporia
- Hays
- Independence
- Iola
- Junction City
- Lawrence
- Salina
- Topeka
- Wichita

Intercity bus service in Kansas is typically limited to the interstate highway network, thus preventing coverage in the sparsely-populated southwest part of the state. While there has been an effort by the private sector to study the feasibility of service between Garden City and Wichita, only limited service currently exists between Garden City and Dodge City, which is operated by Trail Way Busline, LLC. Until regular passenger service is established in this part of the state, Amtrak remains the only viable intercity passenger service to connect the southwest region to population centers in the south-central and northeast regions.

In November, 2010 new intercity bus services will begin with two round trips daily between Salina and Wichita and one round trip between Wichita and Pueblo, CO.

10.3.3 Kansas Air Service

There are seven commercial service airports in Kansas:

- Dodge City Regional Airport
- Garden City Regional Airport
- Hays Regional Airport
- Liberal Mid-America Regional Airport
- Manhattan Regional Airport
- Salina Municipal Airport
- Wichita Mid-Continent Airport

Of these airport locations, only Dodge City and Garden City have Amtrak service. Both airports provide two daily flights to Kansas City and four daily flights to Denver. Flight times from

Garden City and Dodge City to Kansas City are 1 hour 52 minutes and 1 hour 20 minutes, respectively. Wichita's Mid-Continent Airport serves the Newton/Wichita market; however, because there are currently no daily flights to Kansas City, it is not considered a competing intra-state service.

With the exception of a connection to Thruway Motorcoach service at Kansas City, there are no intermodal connections between air and bus services and passenger rail in Kansas. Development of new intermodal connections is critical to enhancing the passenger travel network within the State.

10.4 Freight Rail and Passenger Rail Integration Issues

There are several areas where freight and passenger transportation need to be integrated.

10.4.1 Track Maintenance

Passenger train speeds, if greater than freight train speeds, and passenger ride quality require more demanding tolerances for rail gauge, vertical and horizontal alignment, rail profile, tie and fastener condition and quality, and more frequent inspection.

Accordingly, track maintenance costs can increase substantially when passenger trains are overlaid onto an otherwise freight-only rail line. Obtaining the desired maximum speed for passenger trains can often require a major upgrade of a track structure that is otherwise adequate for freight. In addition to upgrades, there are on-going increased maintenance costs to maintain the track to that higher speed regime.

10.4.2 Track Capacity

Passenger trains, if operated at greater than freight train speeds, consume substantial, disproportionate amounts of main track and siding capacity compared to freight trains. This is due to overtakes of slower freight trains, requirements to maintain fixed and inflexible schedules against freight traffic that is highly variable with regard to time, and the need for station stops. Accordingly, infrastructure quantity of both main track and sidings must often be substantially increased. Railway train-control systems, grade-crossing signaling systems, communications systems, and equipment defect detection systems must also be upgraded.

10.4.3 Operations Design and Management

Passenger trains require disproportionate attention to strategic and tactical planning, and day-to-day operation, than freight trains. This is due to their requirement for schedule adherence, passenger safety and comfort, and contingency response. In general, passenger train operations require dedicated management that foresees potential problems and conditions, develops advance planning, executes plans, and provides real-time oversight of performance, execution, and passenger communications. These skill sets require railroad operations knowledge but also specialized knowledge and expertise.

10.4.4 Southwest Chief Integration Issues

The Southwest Chief's historically low on-time performance is due to many of the factors above, but also due to many factors outside of the control of rail operations in Kansas.

The Southwest Chief's current routing is over a heavy volume freight line, east of Hutchinson to Emporia, and its performance is subject to track maintenance, capacity, and operations issues which accompany heavy volume freight lines. Future projections also point to increased capacity problems over portions of the route in the future. Addressing these issues in a manner which improved passenger service without negatively impacting the level of freight service would entail a significant level of public investment.

The nature of long-distance services, however, such as the Southwest Chief expose passengers to performance problems which may be remote to their portion of the trip. In the case of the Southwest Chief, any issues which occur over the 1,802 route miles outside the State of Kansas will likely negatively impact their trip.

KDOT will continue to work with BNSF and request federal funding assistance where appropriate to address passenger-freight integration issues with the purpose of improving passenger service reliability as well as the level of freight service over the route.

10.5 Excursion Railroad Services in Kansas

In addition to Amtrak's intercity rail passenger service, two short line railroads offer rail passenger excursion service. These services are described below.

10.5.1 Abilene and Smokey Valley Railroad

The Abilene and Smokey Valley Railroad (A & SV) is a non-profit excursion train that runs from Abilene's historic Rock Island Depot to Enterprise, approximately 4.5 miles to the east. At Enterprise, passengers have the opportunity to board the Silver Flyer Rail Bus which travels an additional 12 miles to the end-of-line at Woodbine. On-board activities include dinners catered by local restaurants and narrated charter excursions.

The train is in operation on weekends in May, September, and October. Between Memorial Day and Labor Day the train operates Wednesday through Sunday.

10.5.2 Midland Railroad

The Midland Railroad runs from Baldwin City to Ottawa along 11 miles of restored track. This excursion service runs from Memorial Day weekend through October on Thursdays, Saturdays, Sundays, and Holidays. Charter trips are operated on Fridays throughout the operating season (June through October) and special event trips are scheduled on weekends throughout the year.

The Midland Railway Historical Association provides a program for scouting-type organizations. A Railroading Weekend is a Midland-only experience provided by their Train-Camp Program.

Under this program, scouts can experience first-hand work with track and equipment and can work towards earning a railroad merit Boy Scout badge. Volunteers operate the Midland Railway and memberships are available. The Railway has numerous special events throughout the year and provides insight to historic train operations with its historic depot.

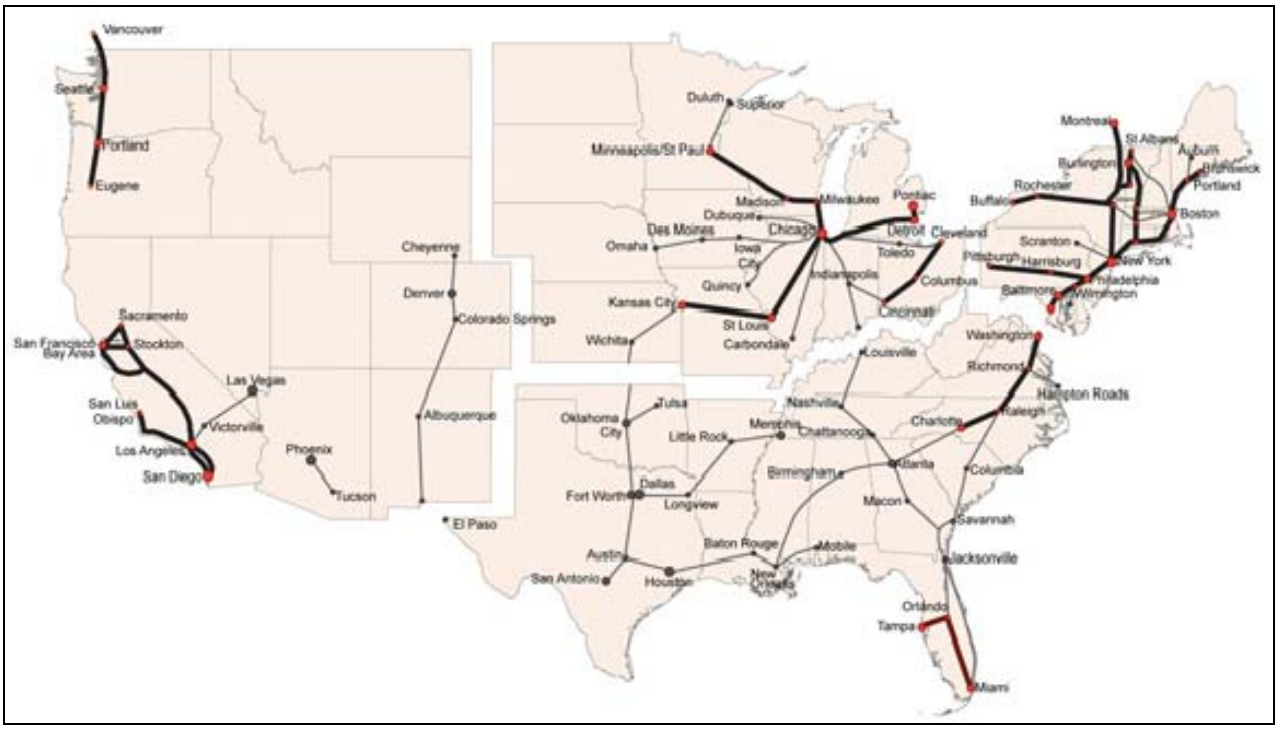
Chapter 11 – Proposed Rail Passenger Service in Kansas

Recent federal intercity passenger rail initiatives, including the Passenger Rail Investment and Improvement Act of 2008 (PRIIA), and the passenger rail-related initiatives included in the American Recovery and Reinvestment Act (ARRA) represent a substantial shift in the national passenger rail policy framework.

PRIIA, and the preceding DOT Appropriations Act of 2008, established Federal-State partnerships for intercity passenger rail corridor development by making competitive grants available to states and groups of states. The PRIIA also authorized three new Federal intercity rail capital assistance programs described in Chapter 3.

Expanding on the legislative foundation established by the PRIIA, the High-Speed Intercity Passenger Rail Program (HSIPR), which was introduced in the federal *Vision for High-Speed Rail in America* document, set the initial guidelines for allocating rail passenger funds based on applicant goals and stages of project development. The HSIPR defines priority corridors (**Exhibit 56**) for passenger rail development, including the Kansas City – Wichita – Oklahoma City corridor.

Exhibit 56: National HSIPR Project Map



Source: FRA

11.1 Kansas' Approach to Intercity Rail Passenger Initiatives

Kansas has taken a three-step approach to this change in rail passenger policy and the availability of increased federal funding to improve and expand the rail passenger mode. The components of this approach are:

- Apply for available federal capital improvement grants to improve existing rail passenger service in Kansas, and for planning funds to conduct feasibility and service performance analyses of proposed rail passenger service expansion plans;
- Expand the State's involvement in regional rail passenger planning and development and address the State legislative and regulatory requirements necessary to plan, implement, and finance multistate rail intercity passenger initiatives; and,
- Conduct the necessary studies and analyses of specific passenger service initiatives for the purpose of identifying the related public benefits, estimated ridership, service costs and revenues, and other information necessary to qualify and compete for federal funding and justify the expenditure of State matching capital funds and continuing system operating costs.

These activities are described in more detail below.

11.1.1 Seek Federal Funds for Rail Passenger Improvements and Planning

In August 2009, KDOT submitted three grant applications totaling $17.85 million to the Federal Railroad Administration for funding under the High Speed Intercity Passenger Rail Program (HSIPR). The first application requested $7.6 million for track improvements on the Southwest Chief route between Emporia and Barclay using economic stimulus funds from ARRA. The track improvements requested increase the average operating speed of passenger trains over that segment.

The second application requested $250,000 to prepare a Service Development Plan (SDP) for intercity rail passenger service between Kansas City, Oklahoma City, and Fort Worth. The SDP is intended to serve as a detailed, comprehensive business and operations plan for implementing the proposed service. KDOT committed $250,000 toward the cost of the study, half of which was committed by the Oklahoma DOT. This application was accepted, and KDOT has initiated the SDP. This plan will further analyze the proposed expansion of Amtrak's Heartland Flyer service from Oklahoma City to Newton and new daytime service between Kansas City and Ft. Worth. In addition to Oklahoma, KDOT is also coordinating with the Departments of Transportation of Missouri and Texas. The SDP is expected to be completed by late summer or early fall of 2011.

An additional funding application requested $10 million for signal and crossing upgrades between Newton and the Kansas/Oklahoma state line in anticipation of expanded rail passenger service between Newton and Oklahoma City.

While Kansas was approved for the $250,000 in grant funding to undertake the SDP, it was not a recipient of any capital grants.

The state also applied for and received a grant of $87,563 to improve and restore the Amtrak Station in Lawrence as part of the HSIPR program. The state will apply for future grants under the HSIPR program.

11.1.2 Participate in Regional Intercity Rail Passenger Planning

The federal Intercity Passenger Rail Service Corridor Capital Assistance Program provides financial assistance to eligible states, groups of states, Interstate Compacts, and public agencies. The FRA emphasizes coordination between regions and the availability of local and state funding when evaluating HSIPR grant applications. This emphasis on regional and multi-state coordination regarding improvements and extensions of intercity rail passenger service behoove states to increase the level of planning coordination between bordering states and states within their region, and to address any legislative or regulatory barriers which could preclude or delay rail passenger service across state borders.

The recent "Kansas Passenger Development Act" passed by the Kansas legislature will enhance the State's competitiveness for HSIPR grants. The Act includes the establishment of a revolving fund for intercity passenger rail financing and authorization of interstate compacts for passenger rail development. The State will continue to work toward establishing funding streams for intercity rail passenger service and developing relationships with neighboring states to better position itself for future grant solicitations. Kansas is already coordinating with Oklahoma with regard to grant applications and development of the Heartland Flyer Service Development Plan. This coordination effort will extend to Texas and Missouri as the initiative evolves.

In 2010, the Kansas Legislature also approved the "Midwest Interstate Passenger Rail Commission Membership Act". This Act authorizes Kansas to join the Midwest Interstate Passenger Rail Commission which advocates for passenger rail improvements in the Midwest Region.

The Commission sponsored the Midwest Regional Rail Initiative (MWRRI), which is a cooperative effort between Amtrak, the Federal Railroad Administration, and nine Midwestern states - Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Nebraska, Ohio, and Wisconsin - to develop a regional passenger rail network that achieves speeds up to 110 mph. The 2004 Midwest Regional Rail System Executive Report defined the vision and operational characteristics of this proposed system (**Exhibit 57**).

While Kansas is not currently included in this initiative, it would benefit from planned connections to the regional system at Kansas City. Additionally, the Executive Report defined feeder bus service connecting several Kansas cities, including Topeka and Leavenworth, to Kansas City.

Exhibit 57: Midwest Regional Rail Initiative Network

Source: Midwest Regional Rail Initiative

11.1.3 Analyze Potential New Passenger Rail Services and Corridors

In 2000, KDOT commissioned a study to assess the feasibility of six potential passenger rail corridors in the state:

- Kansas City – Ft. Scott – Tulsa
- Kansas City – Lawrence – Topeka – Wichita
- Kansas City – Lawrence – Topeka – Hays – Denver
- Kansas City – Lawrence – Topeka – Wichita – Perry – Tulsa
- Kansas City – Lawrence – Topeka – Wichita – Oklahoma City
- Kansas City – Lawrence – Topeka

Three scenarios were tested for each alternative:

1. A Base Case, with no improvements to existing infrastructure;
2. A level of infrastructure improvements necessary to support 79-mph operating speeds; and,
3. A level of infrastructure improvements necessary to support 100-mph operating speeds.

These scenarios, along with assumptions regarding frequency, were used to develop capital and operating costs for each corridor. Based on the results of these analyses, an economic analysis was completed to assess the viability of each corridor and the state and federal subsidies required for implementation.

The study concluded that none of the corridors, unless funded via state and federal resources, could justify passenger rail service. However, it was noted that if capital was indeed available, the Kansas City – Topeka - Wichita corridor was best-suited for development, as it would generate the greatest ridership and require the least amount of subsidy. The study also noted that even greater financial performance would be realized if the corridor was incorporated into the greater Midwest Regional Rail System. Finally, none of the other corridors were deemed adequate to support intercity rail, as the population densities were too low in those areas of the State.

11.2 Proposed Kansas City - Oklahoma City - Fort Worth Corridor

The Kansas City – Oklahoma City – Fort Worth corridor was identified by the Kansas Department of Transportation (KDOT) as a potential passenger rail route, linking the major population centers in Kansas and Oklahoma to the Dallas-Fort Worth metroplex. The service would utilize existing rail right-of-way for the entirety of the route, operating over BNSF, Kansas City Terminal, and Union Pacific tracks. The segment from Newton to Kansas City would share track with the current Southwest Chief Amtrak service.

Passenger rail service existed along this corridor until 1979, when service was discontinued in an effort to reduce system-wide Amtrak operating losses. Though the Southwest Chief was rerouted to preserve service at Lawrence and Topeka, service to Wichita and Oklahoma City was eliminated. Amtrak's Heartland Flyer service was established in 1999, funded primarily by the State of Oklahoma, to provide service between Oklahoma City and Fort Worth. In 2006, Texas entered into an agreement with Oklahoma to provide joint funding (50/50 match) for the Heartland Flyer.

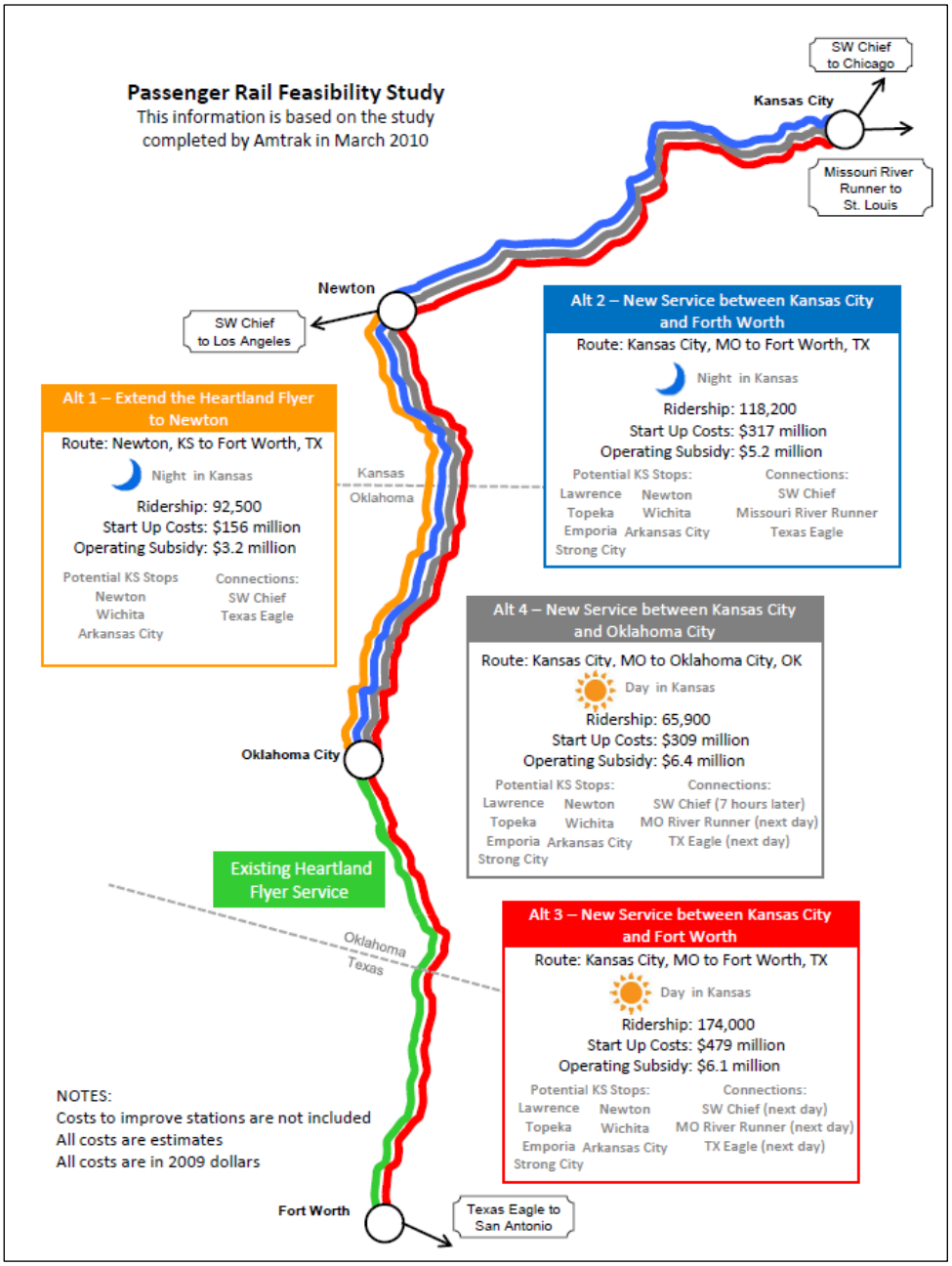
11.2.1 Proposed Alternative Alignments

The Feasibility Report of Proposed Amtrak Service Kansas City, Missouri-Oklahoma City, Oklahoma to Fort Worth, Texas, prepared by Amtrak and published in March 2010, evaluates the operational and financial viability of this potential new state-supported passenger rail corridor. Four alternatives were examined as part of this study:

- ***Alternative 1: Newton, Kansas - Fort Worth, Texas (overnight service)*** - This alternative extends the existing daily Heartland Flyer service from Oklahoma City to Newton, where it will connect with the existing Southwest Chief.
- ***Alternative 2: Kansas City, Missouri - Ft. Worth, Texas (overnight service)*** - This alternative extends the Heartland Flyer service from Oklahoma City to Kansas City, creating a new overnight service between Ft. Worth and Kansas City. This route will provide connections to the Southwest Chief at Kansas City and Newton, and the Missouri River Runner at Kansas City.
- ***Alternative 3: Kansas City, Missouri - Ft. Worth, Texas (daylight service)*** - This alternative would be a new daily daytime service between Kansas City and Fort Worth. It will not provide connections with either the Southwest Chief or Heartland Flyer. As this service will not replace the current Heartland Flyer, frequencies will be doubled along the Fort Worth – Oklahoma City segment.
- ***Alternative 4: Kansas City, Missouri - Oklahoma City, Oklahoma (daylight service)*** - This alternative would provide a new daily daytime service between Kansas City and Oklahoma City. The service would not connect with the Heartland Flyer or Southwest Chief.

These alternatives are portrayed in **Exhibit 58**.

Exhibit 58: Proposed Kansas City - Oklahoma City - Fort Worth Alternative Alignments



Source: Amtrak

11.2.2 Station Locations

Three of the four alternatives proposed in the Amtrak Feasibility Study include seven stops within the State of Kansas, including three stations which are currently served by the Southwest Chief (Lawrence, Topeka, and Newton). The four new stations are Emporia, Strong City, Wichita, and Arkansas City. New stations proposed in Oklahoma include Ponca City, Perry, Guthrie, and Edmond. Collectively, this corridor contains a population of approximately 6.7 million, of which 1.7 million (25 percent) reside in Kansas.

Table 59 details the population of the cities that are proposed station stops.

Table 59: Population of Proposed Kansas Station Stops

Station	2008 Population
Lawrence	90,520
Topeka	123,446
Emporia	26,380
Strong City	527
Newton	18,133
Wichita	429,608
Arkansas City	11,070

Source: Amtrak

11.2.3 Projected Ridership

Ridership forecasts developed for the Amtrak Expansion Feasibility Study ranged between 92,500 and 174,000 annual passengers (**Table 60**). These projections are based on the scheduling assumptions presented in the report, population size and demographics of the cities to be served, level of service, trip duration, and competing modes of intercity transportation. All projections are based on 2009 assumed levels of demand.

Table 60: Projected Ridership for Study Alternatives

Alternative	Projected Ridership
Alt 1: Newton – Ft. Worth	92,500
Alt 2: KC – Fort Worth (Night)	118,200
Alt 3: KC – Fort Worth (Day)	174,000
Alt 4: KC – OKC (Day)	65,900

Source: Amtrak Passenger Rail Feasibility Study Alternatives

11.2.4 Projected Costs and Revenues of New Routes

The projected start-up costs of the alternatives for the Kansas City – Oklahoma City – Ft. Worth corridor range from $155.8 million to $479.1 million. This includes both the capital outlay (track, grade crossings, rolling stock) and mobilization costs (staffing and training) required for service implementation. Differences in start-up costs are primarily attributed to the capital costs associated with constructing new main line track and acquisition of rolling stock. It should be noted that despite identical route mileage proposed for Alternatives 2 and 3 the capital costs are approximately $160 million greater for the daytime alternative (Alternative 3). This cost difference is due to the additional rolling stock required to accommodate the ridership projected for the daytime alternative, as well as the additional track miles required to serve the freight and passenger traffic forecast for the corridor.

Annual operations and maintenance (O&M) costs range from $5.9 million to $8.4 million per year. These figures include all costs associated with the day-to-day operations of the new service

and are based on the projected frequency of service, equipment, crew size, and level of on-board amenities.

Projected annual fare revenues for the alternatives range from $2.7 million to $6.1 million per year, and are presented in 2009 dollars. These estimates are for ticket revenues only, and do not include any ancillary revenues that could be realized such as advertising and on-board concessions.

The annual subsidy required for operations, which is the difference in O&M costs and projected fare revenues, ranges between $3.2 million and $8.1 million per year.

Projected ridership and financial summaries for each alternative are shown in **Table 61**.

Table 61: Projected Ridership, Revenue, Cost and Subsidy Levels

Alternative	Ridership	Projected Annual Fare Revenue (2009 $ mil)	Projected Start-Up Costs (Capital plus Mobilization) (2009 $ mil)	Projected Annual O&M Cost (2009 $ mil)	Subsidy Required (O&M minus Fares) (2009 $ mil)
Alt 1: Newton – Fort. Worth	92,500	$2.7	$155.8	$5.9	$3.2
Alt 2: KC – Fort Worth (Night)	118,200	$5.2	$317	$10.4	$5.2
Alt 3: KC – Fort Worth (Day)	174,000	$6.1	$479.1	$14.1	$8.1
Alt 4: KC – OKC (Day)	65,900	$2.1	$309.1	$8.5	$6.4

Source: Amtrak Passenger Rail Feasibility Study Alternatives

The projected operating cost per passenger for the alternatives range from approximately $64 per passenger to $128 per passenger. In comparison, the average cost per passenger in 2009 for Amtrak's 26 state-supported and short corridor routes is approximately $73. Additionally, the fare recovery ratio (fares/operating costs) for the four alternatives range from 25 percent to 50 percent compared to the average of 44 percent for state-supported routes nationally.[38]

Table 62 displays the fare recovery ratio and cost per passenger for each alternative in comparison to the Amtrak average for these metrics.

Table 62: Projected Fare Recovery and Cost per Passenger

Alternative	Fare Recovery	Cost Per Passenger
Alt 1: Newton – Fort. Worth	46%	$63.78
Alt 2: KC – Fort Worth (Night)	50%	$87.99
Alt 3: KC – Fort Worth (Day)	43%	$81.03
Alt 4: KC – OKC (Day)	25%	$128.98
Amtrak Corridor/State Supported Average	44%	$72.95

Source: Amtrak Passenger Rail Feasibility Study Alternatives

[38] Amtrak Route Performance Report, 2009

A subsequent report by the EDR Group found that the benefits for Kansas of Alternative 1 would be $8 million, and the benefits of Alternative 3 would be $14 million.[39] The service would yield positive benefits in terms of vehicle operating costs and emissions. However, because the service would be slower than other modal alternatives, such as driving or flying, the impact on passenger value of time would be negative.

11.2.5 Projected Capital Improvement Requirements

In order to accommodate current and future passenger and freight demand, capital improvements to the existing BNSF rail infrastructure for the proposed route will be necessary. As part of the Amtrak Expansion Feasibility Study, field assessments were conducted to physically evaluate the rail infrastructure and computer simulations were run to determine the capacity required for the additional passenger service assuming 100 percent on-time performance.

Table 63 details the capital improvements required to accommodate the proposed levels of service for each alternative. However, these figures do not include station development costs or a maintenance facility. It is assumed that local jurisdictions will be responsible for funding any station upgrades or development required to accommodate new passenger service.

Table 63: Facility Costs for Amtrak Passenger Rail Feasibility Study Alternatives

Alternative	New Main Track Cost ($ mil)	Grade Crossing Improvements Cost ($ mil)	Layover Facility (Newton)	Total Track and Crossing Costs ($ mil)
Alt 1: Newton – Fort. Worth	26.6 miles, $106	$8	$300,000	$114.30
Alt 2: KC – Fort Worth (Night)	66.7 miles, $266	$8		$274
Alt 3: KC – Fort Worth (Day)	92.2 miles, $405	$8		$413
Alt 4: KC – OKC (Day)	60.8 miles, $243	$8		$251

Source: Amtrak

11.2.6 Passenger and Freight Integration Issues on Proposed Passenger Routes

Freight railroads, as private, for-profit corporations, have established conditions and coordination arrangements required to allow passenger service to operate over their infrastructure. These conditions include:

- Rail safety must be paramount;
- Freight railroads hosting passenger service must be provided with a reasonable return on investment;
- The quality of freight railroad service must not be jeopardized; and,
- Freight railroads must be adequately protected from liability.

[39] Impacts of Amtrak Service Expansion in Kansas, Economic Development Research Group, Inc., June 2010.

Coordination arrangements between freight and passenger rail services must also be clearly defined between each party. Common goals for the integration of freight and passenger operations could include:

- Increased corridor capacity;
- Increased train speeds and reduced travel time;
- Improved reliability and on-time performance;
- Optimized maintenance costs;
- Improved right-of-way conditions; and,
- Improved safety and security

Providing adequate capacity, improved speed, reliability and on-time performance, optimized maintenance costs place demands on the host freight railroads.

The integration issues that would be involved in introducing the proposed Kansas City - Oklahoma City - Fort Worth passenger operations on the existing BNSF freight railroad lines entail both operational and physical constraints. These issues will require that additional resources be provided to reduce the impacts of these constraints upon both freight and passenger operations. Based on Amtrak's study of the proposed route from Kansas City to Ft. Worth, the following constraints were identified on six BNSF segments within Kansas.

- **Kansas City to Holliday (13.5 miles)** – The proposed services would require passenger trains to traverse the Argentine freight yard area. As discussed earlier in this plan, Argentine Yard is BNSF's eighth busiest intermodal facility and largest freight car classification yard. In addition to these activities, the Argentine Yard is utilized for fueling, inspection services, and crew changes.
- **Holliday to Emporia (113 miles)** – This line segment suffers from short siding lengths and long distances between sidings. With the introduction of additional passenger services, passenger trains will often be required to be moved to the sidings as longer freight trains will not fit in them. The physical layout of this segment provides challenges for operating passenger trains against freight trains in the opposite direction and would not allow the passenger trains to pass freight trains running in the same direction.
- **Emporia to Ellinor (13.4 miles)** – BNSF Newton and Augusta route trains merge at Ellinor. The operational challengers of integrating passenger trains into this high volume freight traffic pattern would provide capacity and operational challenges at this location.
- **Ellinor to Newton (60.4 miles)** and **Newton to Arkansas City (78.1 miles)** – These segments see high freight traffic levels moving toward Kansas City. In addition, Union Pacific trains must be integrated on a 1.5 mile track segment over which BNSF operates through Wichita. The introduction of passenger service would lead to increased capacity and operational challenges.

These infrastructure improvements have been included in Kansas' Long-Range Rail Capital Investment Program displayed in Appendix B.

11.2.7 Projected Economic Impacts of the Proposed Passenger Routes

Based on the projected ridership, capital and operational costs, and other related data included in Amtrak's *Feasibility Report of Proposed Amtrak Service: Kansas City-Missouri-Oklahoma City, Oklahoma to Fort Worth, Texas* report, KDOT sponsored an independent analysis of the likely economic impacts related to each of the four service alternatives.[40]

The economic impacts were analyzed from four perspectives: travel savings by prospective Amtrak riders; the general public in terms of the benefit/cost ratio of each alternative; the economy of Kansas in terms of wages, jobs, and sales; and, the Kansas state and local governments in terms of net changes in revenue and expenditures.

Passenger Benefits

From the prospective passengers' perspective, benefits were estimated in terms of passenger savings, vehicle and operational savings, and the monetary value of the safety and environmental benefits of using the rail mode over other modes of transportation. These benefits were calculated for the entire route and then apportioned for those benefits realized within Kansas. The monetary value of the benefits for the proposed first year of service (2014) is shown in **Table 64**.

Table 64: Estimated Passenger Benefits from Amtrak Service Expansion

Benefit Type	Alt. 1	Alt. 2	Alt. 3	Alt.4
Passenger Savings	($ 2,273,274)	($ 4,688,552)	($ 5,383,718)	($ 2,526,594)
Vehicle/Operating Savings	$11,618,630	$16,698,261	24,627,861	8,835,743
Value of Safety Benefits	$2,517,409	$3,149,430	4,720,435	1,710,709
Value of Emission Reductions	$404,841	$503,192	756,709	274,358
Total Passenger Benefits	$12,267,607	$15,662,330	$24,721,287	$8,294,216
Benefits to Kansas Residents	$8,060,340	$9,936,588	$14,368,735	$5,267,099

Source: EDR Group

The analysis of passenger benefits shows that the rail passenger alternatives cost less and are safer than other available modes. The negative passenger savings figures are a result of a negative value of time for passengers as the proposed rail service is slower than other modes.

Societal Benefits vs. Costs

This analysis was performed by comparing the passenger benefits to project costs over the life of the project. Benefits and costs were calculated from 2014 to 2030 and compared in terms of the present value of each over the time period.

[40] Impacts of Amtrak Service Expansion in Kansas, Economic Development Research Group, Inc., June 2010

The benefit/cost ratios are based on direct benefits and do not include secondary economic growth from project construction and operation. The results of this analysis are shown in **Table 65**.

Table 65: Benefit/Cost Results of Amtrak Service Expansion (2014-2030)

Metric	Alt.1	Alt.2	Alt.3	Alt.4
Present Value of Costs ($mil)	$234.14	$408.43	$582.31	$412.41
Present Value of Benefits ($mil)	$98.96	$103.83	$173.42	$56.63
Net Present Value ($mil)	($135.18)	($304.60)	($408.89)	($355.78)
Benefit/Cost Ratio	0.42	0.25	0.30	0.14

Source: EDR Group

None of the alternatives analyzed generate a positive societal net present value or benefit/cost ratio (ratio >1). The benefit/cost ratio related to operation of the service indicated that for each dollar of cost, the benefits range from 14 to 42 cents of return.

Kansas Economic Benefits

This analysis measures the economic benefits to the State of Kansas of the proposed projects' startup construction, ongoing operations and maintenance, passenger diversion from other modes of transportation and the incremental consumer spending related to new, induced trips. The economic impacts were measured in terms of jobs generated and the monetary value of economic output, economic value added, and the value of wages. These impacts were calculated for the construction, operation and maintenance, travel savings, and tourism aspects of the service alternatives out to the year 2030.

Table 66 provides the results of this analysis.

Table 66: Economic Benefits of Proposed Amtrak Expansion

Impacts	Measures	Alt. 1	Alt. 2	Alt. 3	Alt. 4
Construction	Jobs Value ($m)	351 $78.3	1257 $280.6	1339 $299.0	1129 $252.1
Service Operation and Maintenance	Jobs Value ($m)	0 $0	0 $0	97 $26.2	58 $15.8
Travel Savings	Jobs Value ($m)	133 $26.2	181 $36.0	248 $49.3	103 $20.5
Tourism Spending	Jobs Value ($m)	15 $1.7	18 $2.0	24 $2.7	10 $1.2
Total 2030 Impact	Jobs Value ($m)	148 $106.2	200 $318.6	370 $377.2	171 $289.6

Source: EDR Group

There are no Service Operation and Maintenance jobs and economic value related to Alternatives 1 and 2 as it is assumed that operations and maintenance would continue to be served by the

existing the Heartland Flyer maintenance facility in Fort Worth, TX. For Alternatives 3 and 4 it is assumed that 50 percent of operating costs will be spent in a facility located in Kansas City.

Impacts to Kansas Governmental Entities

This analysis involves determining the return on investment of the proposed rail passenger expansion from the perspective of the Kansas state and local government entities. The estimated return from the State perspective is sensitive to the source of funding for the rail infrastructure costs and rolling stock purchases. To account for this sensitivity, the analysis was conducted on the basis of best case, middle, and worst case scenarios.

The best case scenario assumed that 80 percent of the required infrastructure costs and rolling stock purchases would be procured with federal funds. The middle scenario assumed that no federal funds would be procured and all costs would accrue to Kansas based on the in-state portion of new service track-miles. The worst case scenario assumed that no federal funds would be procured and all costs related to the service expansion would accrue to Kansas.

The revenues used in this analysis are tax receipts associated with the economic impacts in Kansas discussed earlier. The costs and revenues were phased in based on when they occur during the project life cycle. Costs include infrastructure costs, rolling stock purchases, mobilization costs and net operating losses. A discount rate of 2.5 percent was applied to determine the present value of all costs and revenues.

The result of this analysis, in terms of the estimated return on investment (ROI) for each alternative out to 2030, is presented in **Table 67**.

Table 67: Estimated Return on Investment for Proposed Amtrak Expansion

Scenario	Metric	Alt. 1	Alt.2	Alt.3	Alt.4
Best Case	Present Value of Revenues ($mil)	$11.5	$25.7	$39.3	$25.8
	Present Value of Costs ($mil)	$69.6	$130.9	$136.3	$143.9
	Net Present Value ($mil)	($58.0)	($130.9)	($97.0)	($118.1)
	Revenue/Cost Ratio	0.166	0.196	0.288	0.179
Middle Case	Present Value of Revenues ($mil)	$11.5	$25.7	$39.3	$25.8
	Present Value of Costs ($mil)	$104.1	$295.4	$314.3	$298.9
	Net Present Value ($mil)	($92.5)	($269.7)	($275.0)	($273.1)
	Revenue/Cost Ratio	0.111	0.087	0.125	0.086
Worst Case	Present Value of Revenues ($mil)	$11.5	$25.7	$39.3	$25.8
	Present Value of Costs ($mil)	$137.9	$323.4	$394.6	$337.8
	Net Present Value ($mil)	($126.4)	($297.7)	($355.3)	($312.0)
	Revenue/Cost Ratio	0.084	0.079	0.100	0.076

Source: EDR Group

This analysis shows that none of the alternatives generate a positive return for the State of Kansas. In the best case scenario, Alternative 3 recovers 29 cents for every dollar invested. In the worst case scenario, Alternative 2 recovers about 8 cents for every dollar invested.

11.3 Summary

KDOT has undertaken and sponsored significant analysis of the feasibility of expanding Amtrak service in the State, specifically with regard to the proposed expansion of the Heartland Corridor service. KDOT has also undertaken an expansive outreach effort aimed specifically at soliciting and including public input into the analysis. KDOT will continue its work on these efforts to identify the most effective and cost-efficient alternative and will also continue its efforts to identify and procure the funding required to meet the costs required to implement and maintain service over the long term.

Chapter 12 – Kansas Rail Investment Programs

The federal Passenger Rail Investment and Improvement Act of 2008 requires State Rail Plans to include a Short-Range Rail Investment Program which comprises rail capital projects to be considered for the next five years and a Long-Range Investment Program which comprises rail capital projects to be considered for years 6 through 20 which are expected to be undertaken or supported in whole by the State.

The following describes Kansas' rationale for the Short and Long – Range Investment Programs as well as a short description of the process and quantitative tool utilized to determine project benefits and prioritize projects for inclusion in the programs.

12.1 Short-Range Rail Investment Program

Rail projects included in the initial Kansas Short-Term Investment Program are listed in Appendix A.

The projects listed in Appendix A and Appendix B have been evaluated for assistance based on an evaluation of their respective benefits and the availability of funding. Current short-term projects can be funded from the Kansas State Rail Service Improvement Program, the State's Grade Crossing Improvement Program, or other federal or local funding sources.

The Short-Range Rail Investment Program currently includes short line rehabilitation projects and rail-highway grade crossing projects. Short line rehabilitation projects are projects which involve the upgrading of short line railroad lines, facilities, or connections to new industries. Work typically includes upgrading or replacing rail, replacing ties, and repairing or upgrading bridges, as well as construction of yards or sidings. The purposes of these projects can include ensuring continued service on the rail line, upgrading rail lines to accommodate 286,000 pound gross weight car loadings, upgrading tracks to a higher FRA track classification, improving yard capacity, or providing access to new customers. These projects are typically funded by the Kansas State Rail Service Improvement Program, but due to stimulus and other funding made available, a significant amount of federal, local government, and private railroad funds are being utilized for short line railroad improvements in the current program

Highway-rail grade crossing projects are funded through the federal Section 130 program or the State Grade Crossing Program.

12.2 Long-Range Rail Investment Program

Kansas has identified its Long-Range Investment Program to be those projects necessary to implement intercity rail passenger improvement or expansion projects, including project improvements on the State's Class I railroad system, and other potential short line railroad project improvements identified during the analysis of the rail system undertaken during the State Rail Plan development process.

KDOT will review and revise the Long-Range Investment Plan as necessary based on future project identification, evaluation, timing, and allocation of state resources. As potential state and federal funding sources are identified, and the project evaluation methodology is applied to newly identified projects, projects will be added or revised as appropriate.

The projects Kansas has identified for its initial Long-Range Rail Investment Program are included in Appendix B.

12.3 Project Evaluation Process

As part of the State Rail Plan development process, KDOT adopted a quantitative tool capable of monetizing the benefits and costs of rail projects. This tool is designed to evaluate the public benefits to be derived from public investment in rail projects.

Project costs are compared to the monetized benefits to determine whether the project represents an efficient use of public funds. The evaluation tool uses a net present value methodology of assessing benefits, such that a stream of future benefits are discounted to a current time period using an assumed discount rate.

The tool is primarily intended to evaluate and prioritize rail projects against other rail projects. It represents a planning level assessment. The tool does not provide the sole means by which rail projects are evaluated or prioritized. Projects are also assessed by a range of other criteria, including qualitative assessments and consistency with established KDOT policies for funding.

The nature of the benefits that are quantified, as well as many of the data sources that are used in the model, are largely based on the U.S. Department of Transportation's Notice of Funding Availability for TIGER Discretionary Grants published on June 17, 2009, in the U.S. Federal Register Vol. 74, No. 115. The TIGER grant application guidelines are assumed to represent the most current views of the USDOT on evaluating rail projects. In general, benefits are quantified along the following criteria:

- **State of Good Repair:** The tool considers the extent to which the proposed projects return transportation infrastructure to a state of good repair. Of particular emphasis is to estimate the project's impact on the future costs of maintaining transportation infrastructure.
- **Economic Competitiveness:** The tool considers the extent to which the proposed project promotes the efficiency of the transportation system. These benefits include changes to logistics costs, including the likely impacts on transportation operating expenses as well as inventory carrying costs. Where applicable and appropriate, the model also considers employment and economic growth that would result from the project.

- **Safety:** The safety benefits of proposed rail line improvement projects are monetized. Generally, the model assesses project implications for risks of death, injury, and monetary loss. The changes in risks are multiplied by monetary values applied to death, injury, and average monetary loss per accident.
- **Sustainability:** The impact of projects on air emissions are assessed and monetized. Changes in pollutants are forecasted and multiplied by the costs of the pollutants.

The evaluation tool is designed to address six broad categories of rail projects that public agencies would be asked to fund. These six categories include: branch line/short line rehabilitation projects; rail-highway grade crossing projects; rail terminal development projects; rail mainline capacity enhancement projects; rail commuter projects, and rail intercity passenger service projects.

KDOT has analyzed short line projects included in the Short-Range Rail Investment Program using the branch line/short line component of the evaluation tool. Grade crossing projects have been, and will continue to be, evaluated and selected on the basis of KDOT's customized accident exposure rating process developed in 2000.

Long-range investment program rail terminal, mainline or intercity rail passenger projects will be evaluated with their respective tool components or through other means for consideration of inclusion in the short-range program as funding becomes available.

Chapter 13 – Appendix A: Short-term and B: Long-term

Appendix A: Short Range Investment Program

Project Name	Project Description	Project Benefits	Cost ($millions)
Cimarron Valley Railroad Track Rehabilitation	Replace rail between Elkhart and Ulysses; replace crossties and ballast from Dodge City to Satanta, Satanta to Elkhart, and Satanta to Manter. Estimated project completion date is Fall, 2013.	Provides for higher speeds and carload weights allowing more efficient operations	Total $15.0 ($5.0 KDOT, $5.0 PA of the SW, $5.0 CVR)
South Kansas and Oklahoma RR Switching Yard	Construct a new rail switching yard north of Cherryvale, KS. Estimated project completion date is November 2011.	Provides for more efficient switching operations and eliminates grade crossing highway congestion.	Total $2.703 ($0.916 KDOT, $1.787 SK&O)
South Kansas and Oklahoma RR Track Rehabilitation	Replace crossties and ballast between Sherwin and Cherokee lost as a result of flooding, as well as lining and surfacing of track structure. Estimated project completion date is December 2010.	Rehabilitates track impacted by flood damage.	Total $0.507 ($0.405 FRA, $0.102 SK&O)
City of Hutchinson Industrial Siding	Construct a rail siding connecting the BNSF RR to the Siemens Energy Plant in the City of Hutchinson. Estimated project completion date is December 2010.	Provides rail access to a large industrial customer.	$0.845 ARRA
Grade Crossing Rehabilitation – Cowley Co.	Upgrade the SKO Harter St. crossing in Winfield from cross bucks to flashing lights with gates. Estimated project completion date is 2011.	Upgrades crossing from passive to active warning system.	$0,25 Sec. 130
Grade Crossing Rehabilitations – Montgomery Co.	Upgrade the SKO US 160 crossing south of Cherryvale from flashers only to flashers and gates, and the UP 3900 Rd. crossing north of Sycamore from cross bucks to flashers and gates. Estimated completion date is 2011.	Upgrades the level at active warning system at one location, and from passive to active warning system at one location.	$0.51 Sec. 130
Grade Crossing Rehabilitation – Neosho Co.	Upgrade the SKO Ash St. crossing in Chanute from flashers only to flashers and gates. Estimated completion date is 2011.	Upgrades the level of the crossing's active warning system.	$0. 26 Sec. 130
Grade Crossing Rehabilitations – Labette Co.	Upgrade the SKO 4th St. and Ohio St. crossings in Oswego from flashers only to flashers and gates. Estimated completion date is 2011.	Upgrades the level of active warning system at two crossing locations.	$0.56 Sec. 130
Grad Crossing Rehabilitations – Barton Co.	Upgrade the SKO Washington St. crossing in Great Bend from flashers only to flashers and gates, and Pine St. crossing in Great Bend from cross bucks to flashers and gates. Estimated completion date is 2011.	Upgrades the level of active warning system at one crossing location and from passive to active warning system at one location.	$0.50 Sec. 130

Project Name	Project Description	Project Benefits	Cost ($millions)
Grade Crossing Rehabilitations – Sedgwick Co.	Upgrade SKO 2nd Ave., Andale, Ohio St., Mount Hope, and 151st St., Colwich crossings from cross bucks to flashers and gates. Upgrade KO 61st St., Andale and Dodge Ave., Athenian St., and St. Paul St. crossings in Wichita from flashers only to flashers and gates. Estimated completion date is 2011.	Upgrades the level of active warning system at four locations and from passive to active warning system at three locations.	$17.0 Sec. 130
Grade Crossing Rehabilitations – Reno Co.	Upgrade KO Kansas Ave., Haven and Maple St., Hutchinson crossings from flashers only to flashers and gates. Estimated completion date is 2011.	Upgrades the level of active warning system at two crossing locations.	$0.44 Sec. 130
Grade Crossing Rehabilitation – Lane Co.	Upgrade KO K-23 Main St, crossing in Dighton from flashers only to flashers and gates. Estimated completion date is 2011.	Upgrades the level of active warning system at one crossing.	$0.25 Sec. 130
Grade Crossing Rehabilitation – Lyon Co.	Upgrade BNSF 150th St. crossing east of Neosha Rapids from cross bucks to flashers and gates. Estimated completion date is 2011.	Upgrades crossing from passive warning to active warning system.	$0.35 Sec. 130
Grade Crossing Rehabilitation – Osage Co.	Upgrade BNSF 293rd St. crossing SW of Quenemo from cross bucks to flashers and gates. Estimated completion date is 2011.	Upgrades crossing from passive warning to active warning system.	$0.35 Sec. 130
Grade Crossing Rehabilitation – Butler Co.	Upgrade BNSF 120th St. crossing south of Cassoday from cross bucks to flashers and gates. Estimated completion date is 2011.	Upgrades crossing from passive warning to active warning system.	$0.35 Sec. 130
Grade Crossing Elimination – Atchison Co.	Close the UP Congress St. crossing in Lancaster. Estimated completion date is 2011.	Eliminates crossing exposure at one crossing location.	$0.0075 Sec. 130
Grade Crossing Rehabilitation – Miami Co.	Upgrade UP 271st St. crossing NE of Paola from cross bucks to flashers and gates. Estimated completion date is 2011.	Upgrades crossing from passive warning to active warning system.	$0.30 Sec. 130
Grade Crossing Rehabilitation – Anderson Co.	Upgrade UP NE 2000 Rd. crossing NE of Garnett from cross bucks to flashers and gates. Estimated completion date is 2011.	Upgrades crossing from passive to active warning system.	$0.32 Sec. 130
Grade Crossing Rehabilitation – Allen Co.	Upgrade UP Utah Rd. crossing south of Mildred from cross bucks to flashers and gates. Estimated completion date is 2011.	Upgrades crossing from passive to active warning system.	$0.25 Sec. 130
Grade Crossing Rehabilitation – Coffey Co.	Upgrade UP 9th St. crossing in Leroy from cross bucks to flashers and gates. Estimated completion date is 2011.	Upgrades crossing from passive to active warning system.	$0.30 Sec. 130
Grade Crossing Rehabilitation – Riley Co.	Upgrade UP Delaware St. crossing in Manhattan from cross bucks to flashers and gates. Estimated completion is 2011.	Upgrades crossing from passive to active warning system	$0.225 Sec. 130
Grade Crossing Rehabilitation – Saline Co.	Upgrade UP Niles Rd. crossing east of New Cambria from flashers only to flashers and gates.	Upgrades the level of active warning system at one crossing location.	$0.275 Sec. 130
Grade Crossing Rehabilitation – Ellsworth Co.	Upgrade UP Kansas Ave. crossing in Kanopolis from cross bucks to flashers and gates.	Upgrade the level of active warning system at one crossing location.	$0.25 Sec. 130

Project Name	Project Description	Project Benefits	Cost ($millions)
Grade Crossing Rehabilitations – Ellis Co.	Upgrade UP Yocemento Rd. west of Hays and 130th Ave. east of Ellis crossings from cross bucks to flashers and gates.	Upgrade the level of active warning systems at two crossing locations.	$0.46 Sec. 130
Grade Crossing Rehabilitations – Logan Co.	Upgrade UP CR 450 east of Oakley and "A" St. in Winona crossings from cross bucks to flashers and gates.	Upgrade the level of active warning systems at two crossing locations.	$0.48 Sec. 130
Grade Crossing Rehabilitations – Marion Co.	Upgrade UP Sixth St. in Lincolnville and Sunrise Rd. north of Marion crossings from cross bucks to flashers and gates.	Upgrade the level of active warning systems at two crossing locations.	$0.51 Sec. 130
Grade Crossing Rehabilitation – Seward Co.	Upgrade UP CR 2 southwest of Liberal from cross bucks to flashers and gates.	Upgrade the level of active warning system at one crossing location.	$0.28 Sec. 130
Grade Crossing Rehabilitation – Pratt Co.	Upgrade UP NE 120th and 140th Ave. crossings northeast of Preston from cross bucks to flashers and gates.	Upgrade the level of active warning systems at two crossing locations.	$0.56 Sec. 130
Grade Crossing Rehabilitation – Jackson Co.	Upgrade UP 118th Rd. northwest of Delia from cross bucks to flashers and gates.	Upgrade the level of active warning system at one crossing location.	$0.225 Sec. 130

Appendix B: Long Range Investment Program

Project Name	Project Description	Project Benefits	Cost ($millions)
South Kansas and Oklahoma RR Track Upgrade	Upgrade 69 miles of track infrastructure. Target date for completion 2011-2016.	Provide for more efficient operations and accommodate 286,000 lb. carloads.	Not determined
Kansas and Oklahoma Railroad RR Track Upgrade	Upgrade 126 miles of track infrastructure. Target date for completion 2011-2016.	Provide for more efficient operations and accommodate 286,000 lb. carloads.	Not determined
Kyle Railroad Track Upgrade	Upgrade 24 miles of track infrastructure. Target date for completion 2011-2016.	Provide for more efficient operations and accommodate 286,000 lb. carloads.	Not determined
Cimarron Valley Railroad Track Upgrade	Upgrade 115 miles of track infrastructure. Target date for completion 2015-2030.	Provide for more efficient operations and accommodate 286,000 lb. carloads.	Not determined
Boot Hill and Western RR Track Upgrade	Upgrade 28 miles of track infrastructure. Target date for completion 2015-2030.	Provide for more efficient operations and accommodate 286,000 lb. carloads.	Not determined
Garden City Western RR Track Upgrade	Upgrade 30 miles of track infrastructure. Target date for completion 2015-2030.	Provide for more efficient operations and accommodate 286,000 lb. carloads.	Not determined
Double-Track BNSF Arkansas and La Junta Subdivisions	Construct new track between and OK border to accommodate extension of Amtrak Heartland Flyer Service. Extend of new track required is dependent on service alternative chosen. Target completion date 2015-2030.	Provide additional capacity and upgrades necessary for safe passenger operations.	$18.0-178.0 Not determined
Purchase Rolling Stock for Heartland Flyer Service	Purchase locomotives, passenger coaches and food service cars to accommodate expanded Heartland Flyer Service. Target completion date 2015-2030.	Provide adequate equipment to meet passenger mobility and safety needs.	$20.0-30.0 Not determined
BNSF Arkansas and La Junta Subdivision Grade Crossing Improvements	Upgrade grade crossings between Newton and OK border to safely accommodate expanded Heartland Flyer Service. Target completion date 2015-2030.	Upgrade crossing warning and timing equipment to accommodate higher speed trains.	$4.0 Not determined
Kansas and Oklahoma RR Sawyer Expansion	Extend existing 10-car siding to 25-car capacity at the Farmers Coop in Sawyer.	Increase operating efficiency and industrial development potential.	$0.244 Not determined
Kansas and Oklahoma RR Alexander Expansion	Extend existing siding at Mid-States Farmers Coop at Alexander from 4- railcar to 15-railcar capacity.	Increase operating efficiency and industrial development potential.	$0.198 Not determined
New Century Railroad Track Rehabilitation	Replace ties, rail and ballast.	Increase operating efficiency.	$0.30 Not determined
Hutchinson and Northern Railway Industrial Siding	Construct a new industrial siding from the mainline to the Salt City Business Park.	Increase industrial development potential.	$1.044 Not determined
Mid-States Port Authority Siding	Construct a siding between the Port and the Kyle RR for the Ag Valley Co-op Grain Shuttle Shipping Facility.	Increase operating efficiency and industrial development potential.	$0.555 Not determined

Project Name	Project Description	Project Benefits	Cost ($millions)
Leavenworth County Port Authority Industrial Siding	Construct a rail spur between the UP and the Port Authority	Increase industrial development potential.	$4.571 Not determined
Blackwell Northern Gateway RR Track rehabilitation	Upgrade track infrastructure between Wellington and Rome.	Increase operating efficiency and safety.	$0.30 Not determined
Kansas City Terminal Rwy. Kansas Ave. Corridor Revitalization	Upgrade track and crossings on the Kansas Ave. corridor in Wyandotte	Increase operating efficiency and safety.	$0.646 Not determined
Garden City Western RR Yard Rehabilitation	Upgrade yard track and ties.	Increase operating efficiency and safety	$0.204 Not determined
Kansas and Oklahoma RR Frontier Siding Extension	Extend existing siding at Sedgwick.	Increase capacity and rail flow in Wichita area.	$0.643 Not determined
Wichita Terminal Efficiency and Expansion Project	Rehabilitate and construct new trackage at 21st St. in Wichita Terminal.	Increase capacity and operational efficiency.	$0.215 Not determined
El Dorado Industrial Park Rail Spur	Create a rail spur between UP and the El Dorato Industrial Park.	Increase industrial development potential.	$1.849 Not determined