

Kansas Statewide Rail Plan



Kansas Department of Transportation

November 2017



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Chapter 1 Role of Rail in Kansas’ Multimodal System

1.1 Introduction

This document was developed by the Kansas Department of Transportation (KDOT) to serve as the Kansas State Rail Plan (SRP). In addition to meeting federal requirements, the SRP is intended to formulate a state vision for railroad transportation in the future and strategies to achieve that vision. With this purpose in mind, the SRP was developed with extensive public participation and involvement by the state’s railroads and rail users.

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 United States. One of the features of the legislation is the requirement that any state seeking federal assistance for either passenger or freight improvements have an updated state rail plan. The legislation further stipulated the minimum content of the rail plans, which was codified in Public Law 110-432.

This SRP is an update of KDOT’s 2011 *Kansas State Rail Plan* and meets the requirements set forth in that legislation and public law, as well as the final State Rail Plan Guidance¹ provided by the Federal Railroad Administration (FRA) in September 2013.

This chapter serves to illustrate the current and proposed future role of rail in Kansas’ multimodal transportation system and describes how the state is organized to provide political, statutory, and financial support for the extensive rail system in the state.

1.2 Kansas’ Goals for its Multimodal Transportation System

Kansas’ vision and goals for its multimodal transportation system are outlined in the Kansas Long Range Transportation Plan (LRTP), of which rail is a key component. The LRTP was last updated in 2008. Overarching themes within the LRTP include:

- Preservation of the existing system
- Enhancing safety and security
- Reducing environmental and community impacts
- Enhancing economic development and competitiveness
- Ongoing outreach to railroads and rail stakeholders

1.2.1 Kansas State Freight Plan

The *Kansas State Freight Plan* was completed in November 2017. The primary purpose of that plan is to serve as a statewide long-range multimodal freight planning document, fully integrated with other state planning initiatives. The *Kansas State Freight Plan* will align with the National Freight Goals to:

¹ <https://www.fra.dot.gov/eLib/Details/L04760>

- Improve the contribution of the freight transportation system to economic efficiency, productivity, and competitiveness.
- Reduce congestion on the freight transportation system.
- Improve the safety, security, and resilience of the freight transportation system.
- Improve the state of good repair of the freight transportation system.
- Use advanced technology, performance management, innovation, competition, and accountability in operating and maintaining the freight transportation system.
- Reduce adverse environmental and community impacts of the freight system.
- Gather stakeholder input from the key areas of system conditions, performance measures, industry trends and issues, solutions and implementation strategies, and a project prioritization process.

The new plan follows the 2009 *Kansas Statewide Freight Study*, which developed a systems-level overview of the extent and performance of the state's multimodal freight system, the commodities moving across it, and the then existing and emerging freight transportation, industry and logistics trends affecting goods movement into, out of, through and within the state.

1.2.2 Kansas Long Range Transportation Plan, 2008-2030

KDOT's *Long Range Transportation Plan* (LRTP) was an evaluation of the then current status and future needs of all modes in the Kansas transportation system, including state highways and the local road network, transit, rail, aviation, and bicycle and pedestrian facilities. The plan complied with federal legislation enacted in 2005 titled "Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users." It updated two previous long range plans developed by KDOT in 1995 and 2002.

While the 2008 LRTP did not set forth a new transportation funding proposal, it did provide a framework for future discussions about a new transportation program. The plan set forth a practical vision of how to maintain and improve the state's multimodal transportation system through 2030. The vision was based on a year-long dialogue with more than 120 Kansans representing many different groups that share a common interest in transportation, including: government officials, both elected and professional staff; the Indian Nations; economic development interests and private businesses within the trucking, agriculture and manufacturing sectors to name a few; transportation planners; and those who provide transportation services.

Stakeholder input led to the identification of three guiding principles for the state's transportation planning and investments:

- Preserve the transportation system
- Make travel safer
- Support economic growth

Specifically, regarding freight and rail transportation, the LRTP recommended:

- KDOT should develop a statewide freight plan that assesses freight-related challenges and investment needs.
- KDOT should improve communication between rail lines and government entities. KDOT should provide a central point of contact that local governments and private sector partners can work with to identify rail issues and develop strategies for addressing them.
- KDOT and stakeholders should expand efforts to mitigate road-rail crossing issues.

In 2010, the Kansas Department of Transportation implemented the new “Transportation Works for Kansas” (T-WORKS) program that was funded by a successful increase in funding through a ¼ cent sales tax. The 10 year \$8 billion transportation program was developed to create jobs, preserve existing infrastructure and provide economic development opportunities.

T-WORKS, was authorized by the state legislature in May 2010 and covers the period from State Fiscal Year (SFY) 2011 through 2020. T-WORKS' primary areas of focus are:

- Preservation of the highway system that is ranked as one of the nation's best.
- A multimodal approach to meeting transportation needs with increased funding to Public Transit (\$100 million), Rail (\$40 million) and Aviation (\$46 million) Programs.
- The leveraging of transportation to further the state's economic goals.

1.2.3 Kansas State Transportation Improvement Program, 2017-2020

In compliance with Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) requirements, KDOT develops the Statewide Transportation Improvement Program (STIP) for Kansas. KDOT updates the STIP annually, providing information on the current federal fiscal year (FFY) plus three subsequent years. Also included are projects anticipated to be obligated during the last quarter of the previous federal fiscal year. The current STIP document provides project information including an index of street and highway projects, regardless of funding source, that are administered by KDOT and that are anticipated to have funds obligated during the years of the STIP. Supplementing the project information is a narrative that provides an overview of KDOT's public transportation program and briefly describes KDOT's public involvement process, project selection process, program financing and fiscal constraint anticipated for the STIP. Additionally, within the narrative are brief descriptions of programs administered by entities other than KDOT. These programs are the Federal Lands & Tribal Transportation programs administered by the Office of Federal Lands Highway and the Bureau of Indian Affairs; Recreational Trails administered by the Kansas Department of Wildlife, Parks & Tourism; and the Transportation Improvement Programs administered by each of the six Metropolitan Planning Organizations (MPOs). Included within the STIP are rail projects administered by KDOT which may include work for rail crossing surfacing, highway-rail crossing safety enhancements, track improvements, crossing reconstruction, etc. For more information about the STIP, the current STIP document may be viewed online at <http://www.ksdot.org/bureaus/burProgProjMgmt/stip/stip.asp>

1.3 The Role of Rail within the Kansas Transportation System

This section briefly describes the evolution of rail in Kansas from its early beginnings to the current system including the evolution of passenger service.

1.3.1 The Early Years

The first operating railroad in Kansas was the five-mile-long Elwood and Marysville Railroad, which was completed in 1859 between Elwood and Wathena.² Elwood is across the Missouri River from St. Joseph, MO, where the Hannibal and St. Joseph Railroad had completed its line westward across the northern tier of Missouri from the Mississippi River in 1857. This initial Kansas line was a westward extension of the Hannibal and St. Joseph.

Soon afterward, the number of railroads serving the state swelled. Between 1860 and 1880, the state's population rose 10 times from 100,000 to almost a million. Railroads served and facilitated this growth in population. By 1878, the following railroads were operating in Kansas³:

- St. Louis-San Francisco Railway
- Atchison, Topeka and Santa Fe Railway
- Elwood and Marysville Railroad
- Kansas Pacific Railroad
- Missouri-Kansas-Texas Railway
- Rock Island Railroad
- Kansas and Neosho Valley Railroad
- Atchison and Pikes Peak Railroad
- Leavenworth, Lawrence and Fort Gibson Railroad
- Northern Kansas Railroad
- Atchison and Nebraska Railroad
- Kansas City St. Joseph and Council Bluffs Railroad
- Missouri Valley Railroad
- Lawrence, Topeka, and Santa Fe Railroad
- Lawrence Southwestern Railroad
- Kansas City and Santa Fe Railroad

1.3.2 The Current System Takes Shape

Many of these early lines were later abandoned or absorbed into larger railroad systems, whose names are generally known to the contemporary reader. By the early 1970s the major rail systems serving Kansas were:

- Atchison, Topeka and Santa Fe Railway (Santa Fe)
- Chicago, Rock Island and Pacific Railroad (Rock Island)
- Union Pacific Railroad (UP)

² <http://kansasheritage.org/research/rr/rrhistory.html>

³ <http://kansasheritage.org/research/rr/raildev.html>

- Missouri Pacific Railroad (MoPac)
- Missouri-Kansas-Texas Railway (Katy)
- Saint Louis-San Francisco Railway (Frisco)
- Kansas City Southern Railway (KCS)
- Burlington Northern Railroad (BN)

Several consolidations of these mainline carriers occurred in the years following the deregulation of the railroads in 1980.⁴ Today, there are just three Class I⁵ rail systems serving the state:

- BNSF Railway, a combination of the Burlington Northern and the Santa Fe railroads.
- Union Pacific Railroad, a combination of UP, MoPac, Katy and segments of the Rock Island that were taken over by Southern Pacific Railroad, which was later absorbed by UP.
- Kansas City Southern Railway, whose north-south mainline runs along the Missouri/Kansas State Line and runs through Kansas for 18 miles in the southeast corner of the state.

These consolidations were attempts to control costs and gain market power. Along with consolidation, the mainline railroads began programs to convert some of their branch lines into independent Class III⁶ railroads, or local, terminal and switching railroads also known as short lines. There are now 11 short line and 3 terminal/switching railroads in the state. These along with the three Class I railroads are profiled in Chapter 2.

Today, the 4,216-mile rail system (shown in **Figure 2.1**) in Kansas plays an essential freight transportation role both within the state and nationally. Kansas' location and position on principal rail corridors provides rail access to every region of the U.S., as well as to Canada and Mexico. Additionally, the Class I railroads operating in Kansas provide access to international ports through the Pacific Ocean and the Gulf of Mexico. Kansas ranks in the top 15 among states in the following categories: total miles of rail (6th); rail tons carried (6th); and rail carloads carried (8th).⁷ Kansas ranks 6th in farm products originating by state.

1.3.3 Evolution of Passenger Rail Services

Historically, freight railroads provided intercity passenger rail services in the state. Kansas was served by more than a dozen named trains through the 1950s. Passenger rail ridership declined along with the expansion of the Interstate Highway System, upgrades to other federal and state highways, and the advent of commercial jet passenger service. With the passage of the Rail Passenger Service Act of 1970, the responsibility for providing intercity passenger service fell to the National Railroad Passenger Corporation, also known as Amtrak, which started operations in 1971. By 1972 there were three Amtrak trains, on two routes, providing daily service in Kansas: *The Lone Star* running from Chicago – Houston (one train) and the *Southwest Chief* running from Chicago –

⁴ The Staggers Act of 1980 allowed railroads to enter into service contracts with shippers, thus giving railroads the incentive to reinvent their systems to maximize the potential for profit. Such a rethink on the part of railroads led to consolidations to extend the reach of carriers and to pare costs either by reducing or eliminating redundant services or pruning branch lines or both.

⁵ According to the Association of American Railroads (AAR), Class I railroads had a minimum carrier operating revenue of \$433.2 million in 2011.

⁶ Class III railroads have operating revenue of no more than \$37.4 million.

⁷ Based on 2012 Association of American Railroad statistics for the U.S. and Kansas.

Los Angeles (two trains). In October 1979 Amtrak discontinued the Lone Star service. Today, only the *Southwest Chief*, survives. This service is profiled in Chapter 2.

In terms of potential future passenger rail service implementation, Kansas is not located on any federally designated high-speed rail corridors. However, residents in the northeastern corner of the state could access Chicago via the *Southwest Chief* (through Kansas City, Missouri) and Saint Louis via the *River Runner* (through Kansas City, Missouri)

In 2000, the *Kansas Rail Feasibility Study* analyzed 6 potential passenger rail routes that would connect various Kansas cities with Kansas City, Tulsa, Oklahoma City and Denver. These potential routes would connect, via Kansas City, with the Midwest Regional Rail Initiative (MWRRI). Options to link Kansas City (with several intermediate stops in Kansas) and Amtrak's Heartland Flyer service between Oklahoma City and Fort Worth, were studied in 2010/2011.

1.4 Institutional Structure of Kansas's State Rail Program

1.4.1 State Planning Overview

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

1.4.2 Kansas Department of Transportation

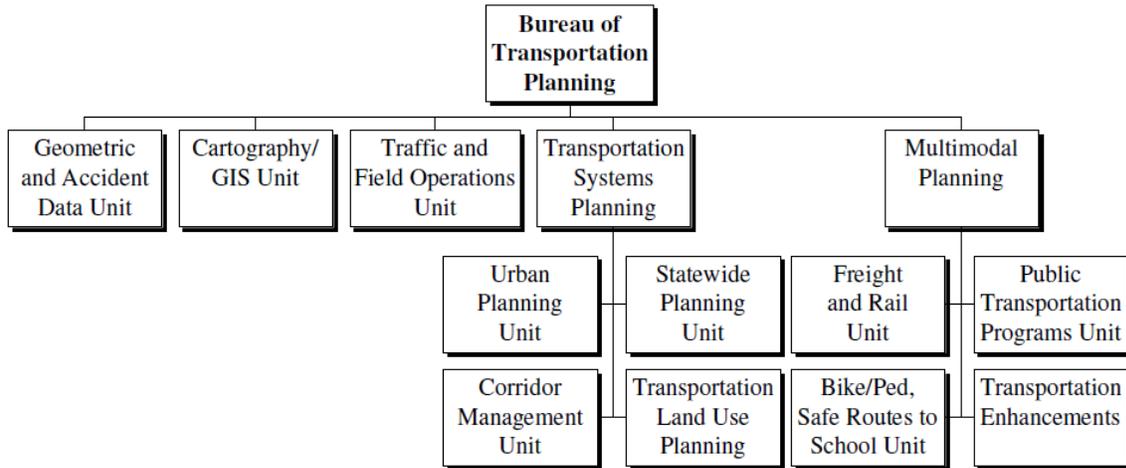
KDOT is responsible for rail planning on behalf of the state of Kansas. KDOT serves as Kansas' State Rail Transportation Authority (SRTA) and the State Rail Plan Approval Authority (SRPAA). Rail-related responsibilities within KDOT are assigned to the Freight and Rail Unit in the Bureau of Transportation Planning. Rail safety responsibilities, including the agency's Grade Crossing Improvement Program, are assigned to the Design-Coordinating Section in the Bureau of Design. A description of these organizations and the rail functions carried out within them follows.

1.4.2.1 KDOT Freight and Rail Unit

Freight and rail planning, coordinating state policy on rail transportation issues, oversight of rail improvement project 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.

The Bureau of Transportation Planning also encompasses the Data/Systems Group which is responsible for collecting, analyzing, and reporting information for the statewide multimodal transportation system. (**Figure 1.1**) The Bureau is also involved in metropolitan planning, long-range planning, and intelligent transportation systems.

Figure 1.1: Bureau of Transportation Planning



Source: KDOT, 2017

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 studies.
- Participating in various KDOT and multi-state agency committees dealing with freight rail, passenger 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 American Association of State Highway and Transportation Officials (AASHTO) Standing Committee on Rail Transportation (SCORT) freight and rail activities.
- Representing KDOT on various freight related committees in the Mid America Association of State Transportation Officials (MAASTO).
- Representing KDOT on the Mid-America Regional Council (MARC) Goods Movement Committee.

- Representing KDOT on the Wichita Area Metropolitan Planning Organization (WAMPO) Goods Movement Freight Roundtable.
- Representing KDOT on the Mid-America Freight Coalition (MAFC).
- Representing KDOT at KC SmartPort.
- Coordinate activities of the Kansas Freight Advisory Committee (KFAC).
- Serve as liaison to other state agencies as it pertains to multimodal freight transportation issues, needs and concerns.
- Serve as liaison to industry organizations as it pertains to multimodal freight transportation issues, needs and concerns.
- Update the Kansas rail crossing inventory data in coordination with railroads operating in Kansas and the Federal Railroad Administration.
- Providing technical assistance, as it pertains to motor carrier, freight rail and passenger rail, for the development of the Statewide Long-Range Transportation Plan.
- Updating and filing, in coordination with the Kansas Highway Patrol (KHP), annual oversize and overweight motor carrier reports with the Federal Highway Administration (FHWA).
- Working with bureaus and units within KDOT that provide motor-carrier statutory and legislation expertise pertaining to oversize and overweight motor carrier issues.

1.4.2.2 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 KDOT's 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.

1.4.3 Other Public Sector Rail Planning in Kansas

Although the Kansas Department of Transportation has primary responsibility for rail planning, policy and project development, other 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:

1.4.3.1 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.

1.4.3.2 Kansas Department of Agriculture

The Kansas Department of Agriculture advocates on behalf of the Kansas agriculture sector and the many farmers, ranchers and businesses that make up this important part of the state's economy. In 2015, production agriculture accounted for over \$17.5 billion in revenue for the state's producers and provided greater than \$26.9 billion in total economic output to the state. Taking into account the entire agriculture, food, and food processing continuum, Kansas producers received \$47.9 billion in 2015, while the total economic impact to the state was nearly \$67.5 billion. The state typically ranks in the top three nationally for production of wheat, grain sorghum and beef. Corn production in Kansas has steadily increased over the last several years. 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 economy.

Although the Department of Agriculture offers no transportation assistance programs, it coordinates with KDOT regarding long-range analyses all freight modes as it pertains to the transport of Kansas agricultural commodities.

1.4.3.3 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 six 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) 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 Metropolitan Topeka Planning Organization (MTPO) is comprised of the urbanized area of Topeka, including a portion of Shawnee County as well as a small portion of Jefferson 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.
- *Flint Hills Metropolitan Planning Organization*
 - The Flint Hills MPO covers portions of Geary, Pottawatomie, and Riley Counties, including the cities of Junction City and Manhattan.

KDOT Freight and Rail Unit staff regularly attend MPO meetings and conferences to give presentations on rail assistance programs and other multimodal freight transportation issues. They also serve on the MARC Goods Movement Committee and the WAMPO Goods Movement Freight Roundtable 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.

1.4.3.4 Local Economic Development Agencies

There are numerous local economic development agencies located throughout Kansas. These agencies 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 Directory⁸ 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.

KDOT's coordination with local economic development agencies has increased in recent years as several local units of government (city and county), in coordination with local economic development agencies are participating in joint funding arrangements for local rail projects. KDOT also coordinates rail planning activities with port authorities (i.e., the City of Pittsburg Port Authority and the Port Authority of the Southwest) on rail issues.

1.5 Federal Funding and Grants

1.5.1 Transportation Investment Generating Economic Recovery (TIGER) Grant

KDOT and its rail partners have been very successful at securing competitive discretionary funding through the Transportation Investment Generating Economic Recovery (TIGER) Grant program. Awards of over \$48 million have been received in the first six years of the program directly aimed at improving freight and passenger rail service in Kansas. In 2015, Kansas was awarded a TIGER VIII grant to participate in an eight-state award to develop a multi-state truck parking availability and information system.

- 2010 TIGER II –This project was for the construction of a new rail yard, a locomotive repair shop, and rail line rehabilitation improvements on the South Kansas and Oklahoma Railroad line. This project was funded with a TIGER grant (\$14.3 million), KDOT funds (\$2.1 million), and SKO Railroad funds (\$3.5 million) for a total of \$19.9 million in improvements.
- 2011 TIGER III – Solomon Rural Rail Infrastructure Improvement rehabilitated 84 miles of rail that was restricted by weight and speed limits allowing the KYLE railroad, which operates on the line, to load full 286,000-pound railcars. The project also included new signage and other safety improvements at 24 at-grade highway-rail crossings. This project was funded with a TIGER grant (\$6.6 million), KDOT funds (\$0.4 million), and Kyle Railroad funds (\$1.2 million) for a total of \$8.2 million in improvements.

⁸ Kansas Economic Development Directory website: <http://www.ecodevdirectory.com/kansas.htm>

- 2014 TIGER VI – The Southwest Chief Route Improvement Project restored bolted rail between Hutchinson, Kansas and Las Animas, Colorado on the BNSF Railway freight line--over which Amtrak's Southwest Chief currently travels--to a much safer and higher performance standard featuring continuously welded rail, new turnouts, and panelized grade crossings. This project was funded with a TIGER grant (\$12.5 million), KDOT funds (\$3.0 million), BNSF Railway funds (\$2.0 million), AMTRAK funds (\$4.0 million) and Local funds (\$300,000) for a total of \$21.8 million in improvements.
- 2015 TIGER VII – Southwest Chief Route Advancement and Improvement Project continued the rehabilitation of the BNSF Railway's La Junta Subdivision to help sustain AMTRAK's Southwest Chief service which provides critical passenger transportation for the rural communities along its route. This project was funded with a TIGER grant (\$15.2 million), KDOT funds (\$1.0 million), Colorado DOT funds (\$1.0 million), New Mexico DOT funds (\$1.0 million), BNSF Railway funds (\$2.0 million), AMTRAK funds (\$4.0 million) and Local funds (\$218,000) for a total of \$24.4 million in improvements.

KDOT is constantly seeking out opportunities to leverage funds to improve the multimodal transportation network throughout Kansas. KDOT, in coordination with the KYLE Railroad have applied for grant funding as described below:

KYLE Railroad Rural Kansas Connectivity Project

The Rural Kansas Connectivity Project will strengthen and improve 207 bridges spanning over 500 miles of track in Kansas and Colorado. Funding made possible through an INFRA grant will allow KYLE Railroad customers to ship in the industry standard 286,000-pound railcar. Currently these customers are forced to use 268,000-pound railcars due to the condition of the bridges along this line. Gaining new transportation efficiencies through higher capacity railcars is critical for Kansas farmers and elevators who rely on affordable and competitive rail transportation to move their goods to market. The total cost of the project is \$9,223,498.

1.5.2 American Recovery and Reinvestment Act (ARRA) of 2009

KDOT also received funds through the American Recovery and Reinvestment Act (ARRA) of 2009. ARRA funding provided some flexibility that allowed Kansas to use some funding for rail projects. KDOT took advantage of the opportunity to assist with over \$2.6 million in ARRA funding for rail capacity improvements to several short line railroads and the City of Hutchinson to provide rail service to the Siemens nacelle production facility.

1.6 State Authority to Grant Funding and Financing

1.6.1 Legislative 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. 75-8025,⁹ 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. 75-5048,¹⁰ enacted in 1991 (and subsequent amendments), 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.

The Kansas Passenger Rail Development Act (K.S.A. 75-5089), which became law on July 1, 2010, allows KDOT to contract with Amtrak and other states to provide supplemental passenger rail service and creates a passenger rail revolving fund to hold and disburse federal rail passenger capital grants and future state contributions.

1.6.2 State Rail Funding in Kansas

Historically, the railroad industry has operated and been financed under private ownership. Until the past 15 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 to the late 1980s with its administration of the federal Local Rail Freight Assistance (LRFA) program. Although federal funding for this program has not been authorized since the early 1990s, its effectiveness led Kansas, and 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. Kansas, like many states, have programs that have evolved from branch line/short line preservation oriented programs to improvement programs that address capacity constraints, clearance restrictions, and to enhance intermodal movements. State supported rail programs have also been

⁹ Kansas Legislature, Statutes, available online at <http://www.kslegislature.org/legsrv-statutes/getStatuteInfo.do>.

¹⁰ Kansas Legislature, Statutes, available online at <http://www.kslegislature.org/legsrv-statutes/getStatuteInfo.do>.

established to participate in economic development initiatives through investments that result in improved rail access or efficiency.

Specific rail funding programs in Kansas are discussed in Chapter 2. Actual funding of projects over the last five years is noted below.

1.6.3 State Provided Funding 2012-2016

KDOT, as well as several local public agencies in the state, has utilized federal and state transportation funding programs for rail infrastructure improvements where they were eligible. The following is a short summary of state and federal rail funding resources utilized for railroad improvements in Kansas in the recent past.

The Kansas State Rail Service Improvement Fund (SRSIF) was originally signed into law in 1999 as a component of the State Comprehensive Transportation Program (CTP). The SRSIF initially provided \$3 million annually for 10 years for low interest loans and grants to railroads and port authorities operating in the state of Kansas. 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. The program also has been expanded to include capacity improvement and economic development projects along with traditional major rehabilitation projects. And, to be more responsive to emerging opportunities, economic development projects will be selected more frequently.

During the CTP and the T-WORKS transportation programs, KDOT provided loans and grants for 64 projects that included rail line rehabilitation, rail replacement, and new construction. Over \$79.6 million dollars have been invested into the Kansas rail system through the loans, grants, and participant matching funds. KDOT has provided loans and grants to nine railroads, two port authorities, three local units of government, and three shippers. In addition, local governments applied for and were awarded funding through Transportation Enhancement funding as described below:

- **Dodge City** – In June 2013, Dodge City was awarded \$258,000 through the Federal Highway Administration's Transportation Enhancement (TE) program for the passenger station rehabilitation work.
- **Lawrence** – In June 2013, Lawrence AMTRAK passenger station was awarded a \$1.2 million FHWA TE grant. The grant covered about 80% of the cost of a building restoration, with the remainder of the funding (\$300,000) coming from the city. The work included the installation of a new roof and heating, cooling and electric systems, and repairs to stone and brickwork, the parking lot and sidewalks.
- **Topeka** – In 2006, BNSF remodeled the passenger station that included new ceiling tile, painting and a water fountain.
- **Hutchinson** - In 2013, ADA improvements were planned for the Hutchinson passenger station, but these improvements are still pending.

1.7 Summary of Freight and Passenger Rail Services, Initiatives and Plans

The rail system in Kansas is comprised of 4,216 route miles. These rail lines carry 6.9 million rail carloads annually. In 2014, rail cars carried 67 percent of the total freight tonnage moved in the state.

A total of three switching/terminal railroads, 11 short line railroads and four Class I's operate within the state. The two largest carriers, UP and BNSF, operate over 2,723 miles of track in Kansas. The Kansas City Southern (KCS), the third Class I railroad in the state, operates over 18 miles and the Norfolk Southern Railway (NS) has two miles of trackage rights in Kansas. Short line railroads, comprised of local railroads or switching/terminal railroads comprise the remaining 1,493 miles of rail line operated in the state. Kansas is home to approximately 23 major freight rail yards and rail facilities. There are three switching/terminal railroads, comprised of 41 miles of track, operating in the state. A detailed description of the Kansas rail freight and passenger network, individual railroads, and rail facilities are provided in Chapter 2.

Intercity rail passenger service in Kansas is provided by Amtrak's Southwest Chief route. The *Southwest Chief* is part of Amtrak's long-distance service network with daily service between Chicago and Los Angeles. The cities of Lawrence, Topeka, Newton, Hutchinson, Dodge City and Garden City are served by this train.

Kansas is a member of 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. While Kansas is not currently included in this initiative, it would benefit from planned connections to the national Amtrak system in the Kansas City region.

A detailed description of all Kansas' proposed passenger and freight rail improvements and planning efforts are provided in Chapters 3 and 4 respectively.

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Chapter 2

Existing Kansas Rail System

2.1 Kansas's Rail Network Description

Kansas is served by a comprehensive rail network comprising a total of 4,216 route miles. The Class I or large railroad network is a 2,723-mile spine which provides long haul service for both in- and out-bound products as well as through traffic. The Class I railroads operating in Kansas are BNSF Railway, Kansas City Southern Railway (KCS), Norfolk Southern Railway (NS), and the Union Pacific (UP) Railroad. BNSF operates 1,142 route miles of track in Kansas and UP operates 1,563 miles. KCS enters and exits the state in its southeastern corner with 18 route miles. The NS has three miles of trackage rights in the metropolitan Kansas City area. There are also 11 Class III railroads and three switching/terminal railroads in the state. These small railroads own an additional 1,493 route miles. **Figure 2.1** displays a map of the Kansas railroad network.

Amtrak provides intercity rail passenger service on one route through the state. Kansas also is served by three tourist/excursion railroads.

2.2 Class I Railroads

There are four Class I railroads, or large railroads, operating in Kansas¹¹. Their route mileages appear in **Table 2.1**. Three of the four own lines in the state, and the fourth operates over trackage rights. The Kansas route miles of the Class I railroads appear below.

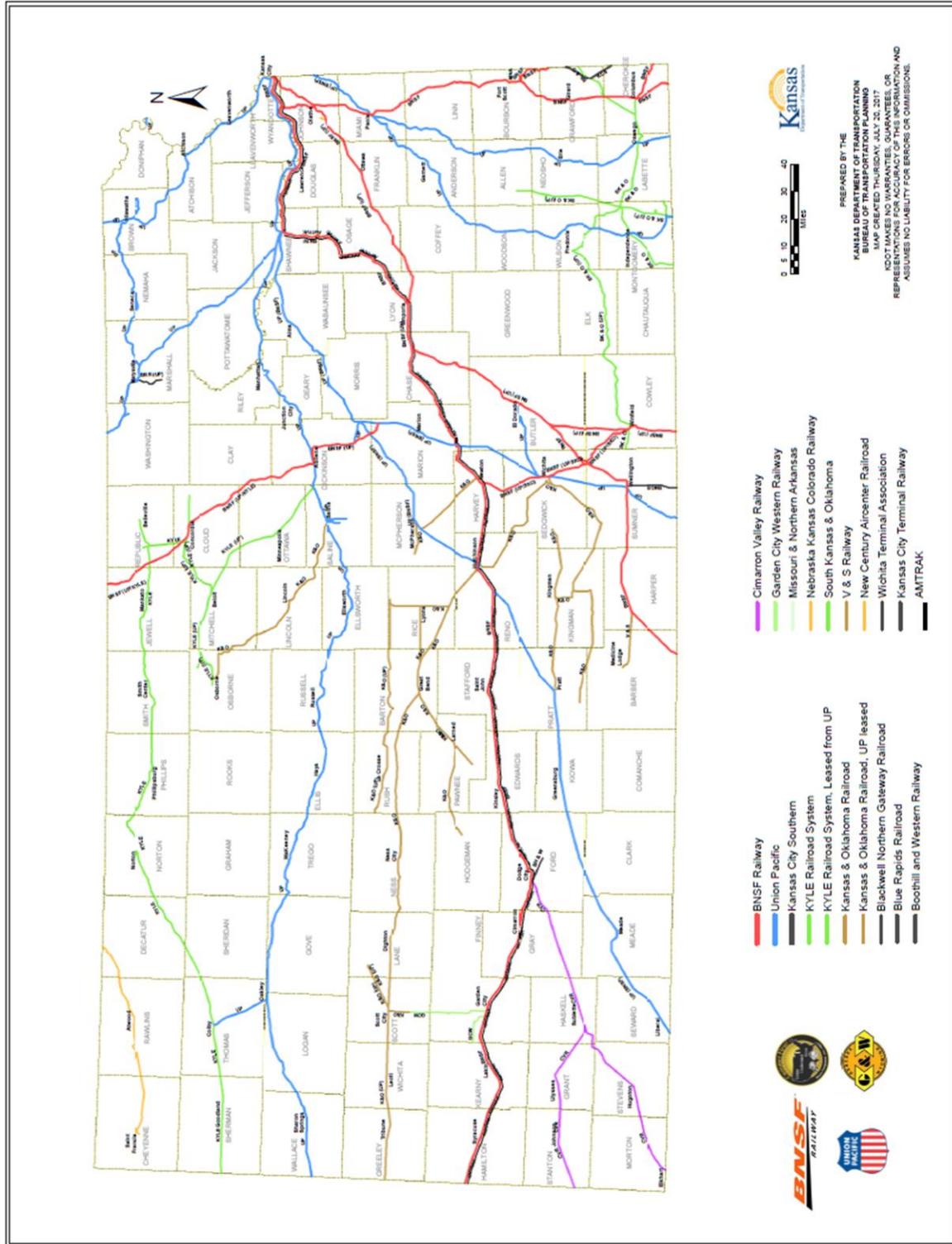
Table 2.1: Class I Railroad Route Mileage in Kansas

Class I Carriers	Main Line Owned	Lines Leased to Class III	Miles Operated Excluding Trackage Rights*
BNSF	1,142	0	1,142
Kansas City Southern	18	0	18
Norfolk Southern*	0	0	0
Union Pacific	1,563	313	1,563
Class I Total	2,723	313	2,723

* Norfolk Southern has 3 miles of trackage rights in Kansas

¹¹ U.S. Class I railroads are line haul freight railroads with operating revenue of \$475.75 million.

Figure 2.1: Kansas Freight Rail Network



2.2.1 BNSF Railway

BNSF has 11 subdivisions in Kansas. The BNSF rail system in Kansas is portrayed in **Figure 2.2**. Each corridor carries substantial through freight as well as origin and termination service for shippers and receivers in Kansas. In 2016, BNSF hauled nearly 4.1 million carloads in Kansas.

BNSF's Transcontinental (Transcon) corridor connects Chicago to Los Angeles and Oakland, California. It stretches across Kansas on the Emporia and Panhandle Subdivisions between Kansas City and Kiowa. It is neither 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. The Kansas segment of the Transcon is approximately 305 miles in length. Approximate rail traffic ranges from 60 to 80 trains per day, depending on the rail segment. **Table 2.2** provides additional information on each BNSF subdivision in Kansas.

The 11 BNSF subdivisions in Kansas are profiled in Appendix A.

Table 2.2: BNSF Subdivision Information

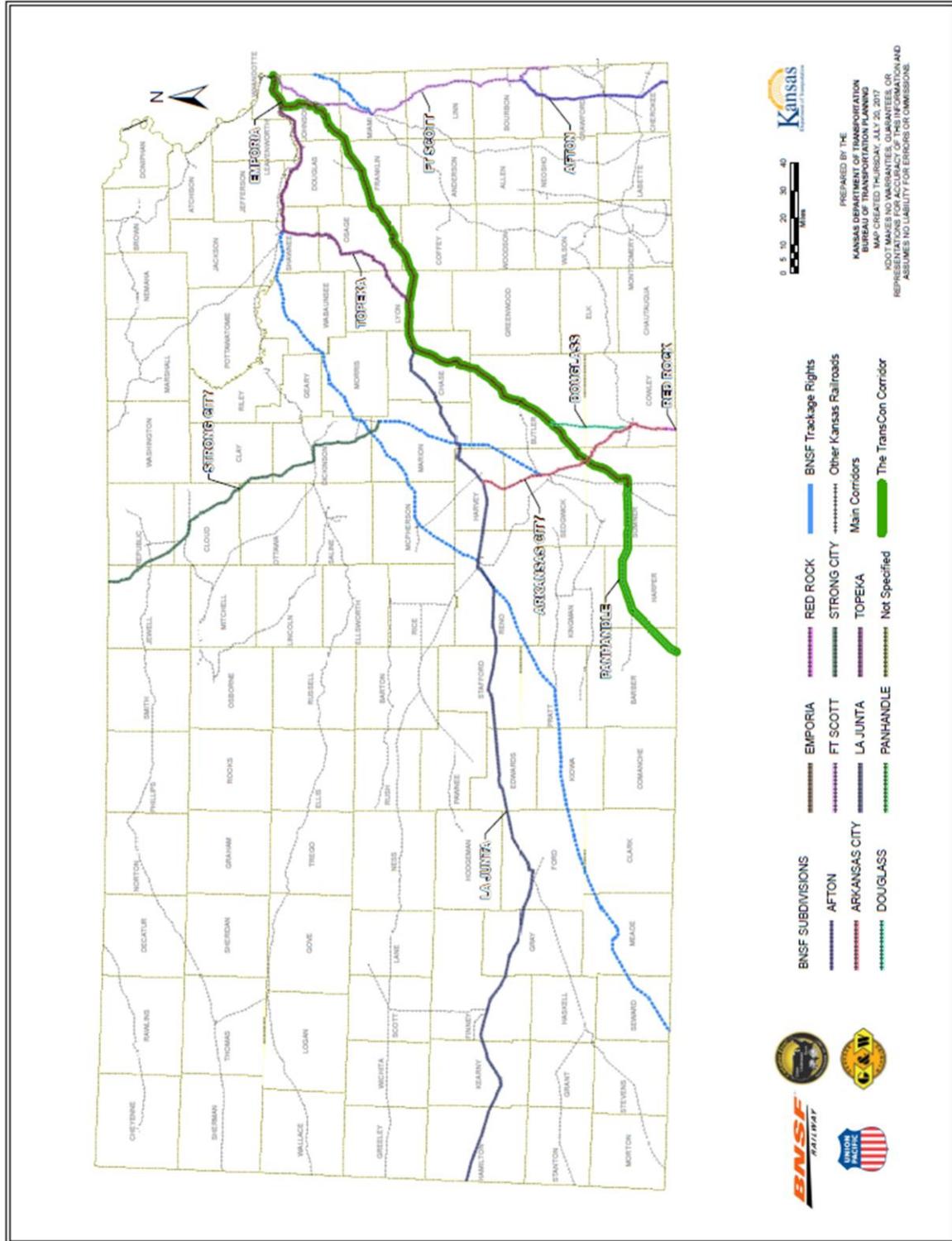
Subdivision	Track Miles (Approx.)	Average Trains per Day	Commodities Transported (minimum 1 train per day)
Afton	83	12	Coal and Merchandise
Arkansas City	78	31	Coal, Grain, Intermodal, Merchandise
Douglass	31	10	Coal, Grain, Intermodal, Merchandise
Emporia	239	81	Coal, Grain, Intermodal, Merchandise
Fort Scott	199	18	Coal, Grain, Merchandise
La Junta			
Ellinor-Newton	61	34	Grain, Intermodal, Merchandise, Amtrak
Newton-Dodge City	168	6	Grain, Merchandise, Amtrak
Dodge City-Las Animas, CO	184	6	Merchandise, Amtrak
Panhandle	313	58	Grain, Intermodal, Merchandise
Red Rock	260	25	Coal, Grain, Intermodal, Merchandise
St. Joseph	207	43	Coal, Grain, Merchandise
Strong City	151	5	Coal, Grain, Merchandise
Topeka	110	7	Merchandise, Amtrak

Source: BNSF, 2016

2.2.1.1 BNSF Line Capacity Conditions in Kansas

BNSF adds capacity to its network in response to volume driven customer demand to eliminate constraints and bottlenecks. Line capacity expansion projects are programmed on the BNSF network in Kansas in the 2020-2021 timeframe between Wellington and Ellinor. The timing of execution of these projects could be moved up or pushed back depending on demand.

Figure 2.2: BNSF Rail Network in Kansas



2.2.1.2 BNSF Weight and Clearance Restrictions in Kansas

BNSF's network in Kansas is capable of carrying maximum loaded car weights of 286,000 pounds. BNSF has no clearance restrictions on its network in Kansas.

2.2.1.3 BNSF Capital Spending in Kansas

BNSF capital spending in Kansas totaled \$189 million in 2014, \$182 million in 2015, and \$160 million in 2016. For 2017, BNSF has planned capital expenditures of \$125 million in Kansas.

2.2.2 Kansas City Southern

2.2.2.1 KCS Corridor in Kansas

There are two KCS subdivisions in Kansas, and these subdivisions are part of KCS's one principal north-south route. The KCS rail system in Kansas is portrayed in **Figure 2.3**. The line follows the Kansas and Missouri border southward from Kansas City (mostly in Missouri) and crosses into Kansas northeast of Pittsburg. The line exits Kansas southeast of Pittsburg continuing into Missouri. KCS moved 269,000 carloads in 2016. The two KCS subdivisions are profiled in Appendix A.

2.2.2.2 KCS Line Capacity Conditions in Kansas

KCS reported that the capacity on the two subdivisions in Kansas is adequate for providing for fluid conditions for the planned traffic volumes.

2.2.2.3 KCS Weight and Clearance Restrictions in Kansas

KCS's network in Kansas is capable of carrying maximum loaded car weights of 286,000 pounds. KCS has no clearances restrictions on its network in Kansas.

2.2.2.4 KCS Capital Spending in Kansas

KCS does not release capital spending figures per state. However, the railroad said that there are no major improvements outside of routine maintenance planned for its subdivisions in Kansas.

2.2.3 Norfolk Southern Railway

NS has trackage rights on three miles of track in Kansas, specifically in the Kansas City area. The NS intermodal facility for the metropolitan Kansas City area is located in Kansas City, Missouri.

Figure 2.3: KCS Rail Network in Kansas



2.2.4 Union Pacific Railroad

2.2.4.1 UP Main Corridors in Kansas

Several of the subdivisions are aligned into corridors. UP has six principal corridors in and through Kansas as described below. There are 13 UP subdivisions in Kansas. The UP rail system in Kansas is portrayed in **Figure 2.4**. 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.

Overall, UP hauled nearly 2.2 million carloads in Kansas. The top five UP commodities shipped out of Kansas by volume in 2016 included wheat and flour, grain, assembled autos, fertilizer, and cement and materials. The top five UP commodities received to Kansas by volume in 2016 included coal, assembled autos, cement and materials, industrial chemicals, and stone/gravel.

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 approximately 455 miles. Traffic between Topeka and Kansas City can be as many as 60 trains per day.

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 approximately 173 miles. 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 40 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 is not currently equipped with CTC. It is approximately 445 miles. 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 approximately 96 miles. Approximate rail traffic per day is 20 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 and general carload freight. The OK&T is single-track and is mostly not signaled. It is approximately 125 miles. 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 approximately 142 miles south from Paola, while the Katy line is approximately 160 miles between the Kansas/Oklahoma border and Paola. Between Paola and the Kansas/Missouri border in Kansas City the line is approximately 42 miles. The Missouri Pacific line primarily carries traffic into Arkansas and the Southeast, whereas the Katy line primarily carries Texas and Mexico traffic.

The 13 UP subdivisions are profiled in Appendix A.

2.2.4.2 UP Line Capacity Conditions in Kansas

Generally, UP's infrastructure in Kansas is able to handle the demand. However, UP is planning a major upgrade to its lines in Willard (the Willard Cutoff), inclusive of new alignment connecting the Salina Subdivision and the Topeka Subdivision and a new bridge over the Kansas River. The improvement will have the effect of reducing 8 route miles between Menoken and Maple Hill and boosting line capacity.

2.2.4.3 UP Weight and Clearance Restrictions in Kansas

UP's network in Kansas is capable of carrying maximum loaded car weights of 286,000 pounds or more. UP has no clearance restrictions on its network in Kansas.

2.2.4.4 UP Capital Spending in Kansas

Union Pacific's planned investment covers a range of initiatives: \$43 million to maintain railroad track and \$12 million to maintain bridges in the state. Key projects planned this year include:

- \$13 million investment in the rail line between Topeka and Herrington to replace 102,740 railroad ties and install 53,137 tons of rock ballast.

- \$4.8 million investment in the rail line between Junction City and Salina to replace 33,828 railroad ties and install 327 tons of rock ballast.

In general, and not specific to Kansas, UP expects capital spending to average around 16 to 17 percent of revenue over its planning horizon, assuming business conditions warrant and that potential new laws or regulations do not impact its ability to generate sufficient returns on these investments. From 2012 to 2016, Union Pacific's capital investment reached more than \$425 million in Kansas.

2.3 Class III Railroads

Class III railroads are also known as local, terminal and switching railroads. Class III carriers providing line haul services are known as short lines. Class III railroads are small railroads that provide connections for their shippers to the Class I railroads and the national rail system. There are 11 short lines and three terminal and switching railroads in Kansas. During 2016, short line railroads in Kansas hauled a total of 156,140 carloads versus 144,392 in 2015, an 8 percent increase. The railroads and their mileages appear in **Table 2.3**. A brief description of these railroads follows the table.

Table 2.3: Class III Railroad Route Mileage in Kansas

Class III Railroads (Short Lines)	Main Line Owned	Lines Leased from Class I	Miles Operated Excluding Trackage Rights
Blackwell Northern Gateway Railroad	18		18
Blue Rapids Railroad	10		10
Boot Hill & Western Railroad	10		10
Cimarron Valley Railroad	179		179
Garden City Western Railroad	45		45
Kansas & Oklahoma Railroad	554	166	720
Kyle Railroad	282	139	421
Missouri & Northern Arkansas		8	8
Nebraska, Kansas, Colorado Railway	62		62
South Kansas & Oklahoma	267		267
V & S Railway	25		25
Switching and Terminal Railroads			
Kansas City Terminal (Switching service by KAW River Railroad)	27		27
New Century AirCenter Railway	5		5
Wichita Terminal Association and Wichita Union Terminal	9		9
Class III Total	1,493	313	1,806

2.3.1 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). The railroad's main source of revenue is from rail car storage fees (Figure 2.5).

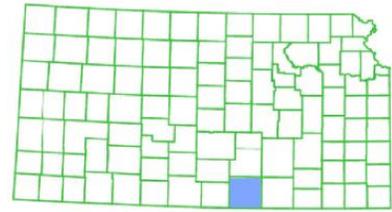


Figure 2.5: Blackwell Northern Gateway Rail Network in Kansas



2.3.2 Blue Rapids Railroad

The Blue Rapids Railroad (BRRR) is a 10-mile line running south from Marysville to the Georgia Pacific Gypsum processing facility at Bestwall near Blue Rapids (**Figure 2.6**). The BRRR moves 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. Current volume (2016) is 500 carloads average per year of finished plaster products on this line. The BRRR does not own any locomotives or rolling stock. It relies on the Union Pacific to perform the switching of railcars once or twice per week.

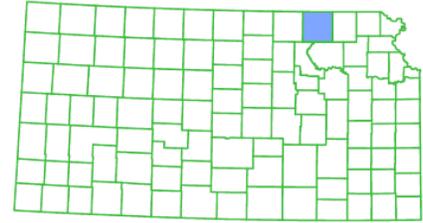
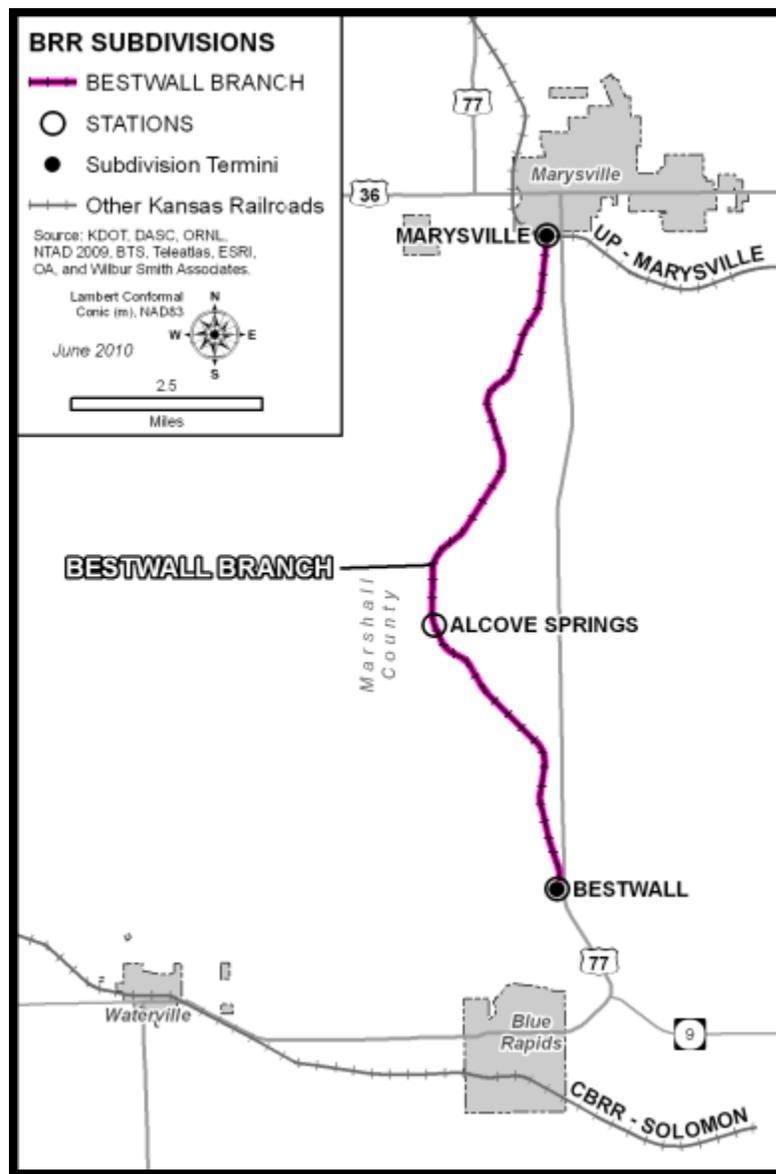


Figure 2.6: Blue Rapids Rail Network in Kansas



2.3.3 Boot Hill and Western Railway

The Boot Hill and Western Railway (BH&W) was created from parts of the former Chicago, Rock Island & Pacific Railroad that connected Dodge City to Bucklin, Kansas (**Figure 2.7**). The railroad's current revenue is generated from rail car storage fees. There were no carloads moved over this 10-mile line in 2016.

The BH&W interchanges with BNSF Railway at Dodge City.

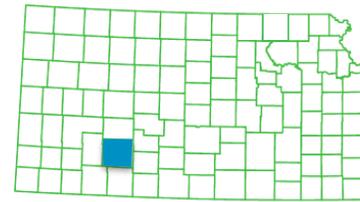
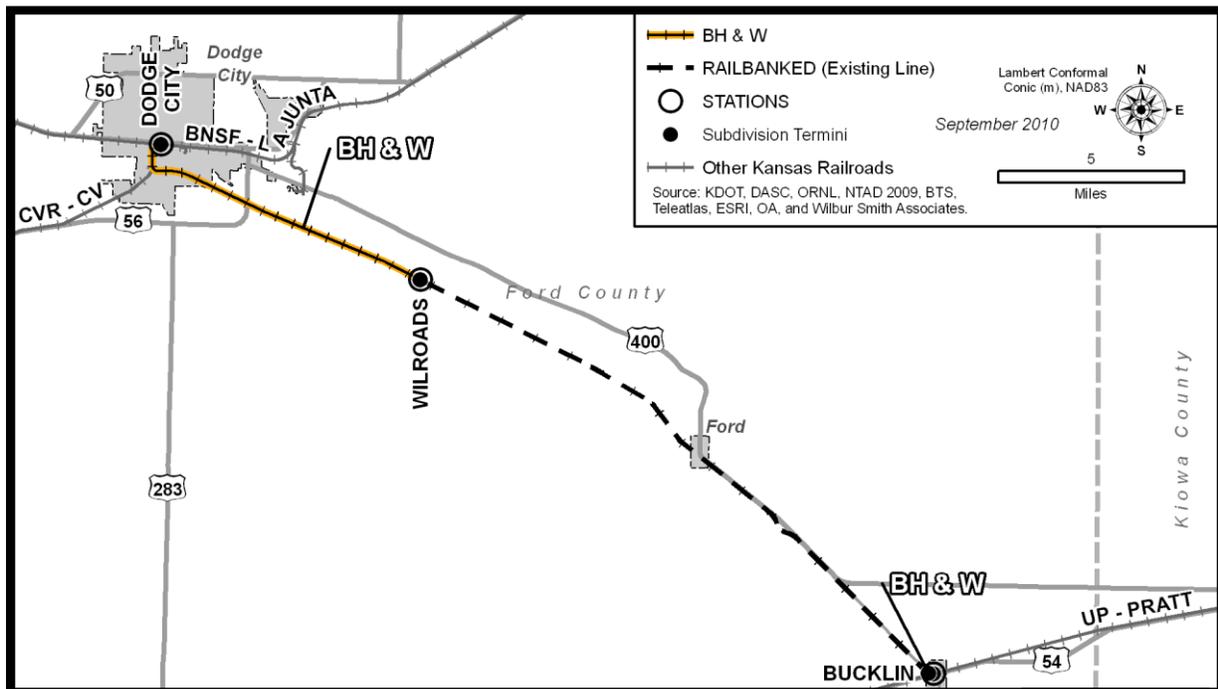
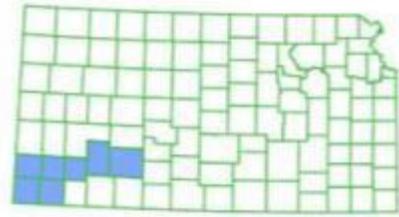


Figure 2.7: Boot Hill and Western Rail Network in Kansas



2.3.4 Cimarron Valley Railroad

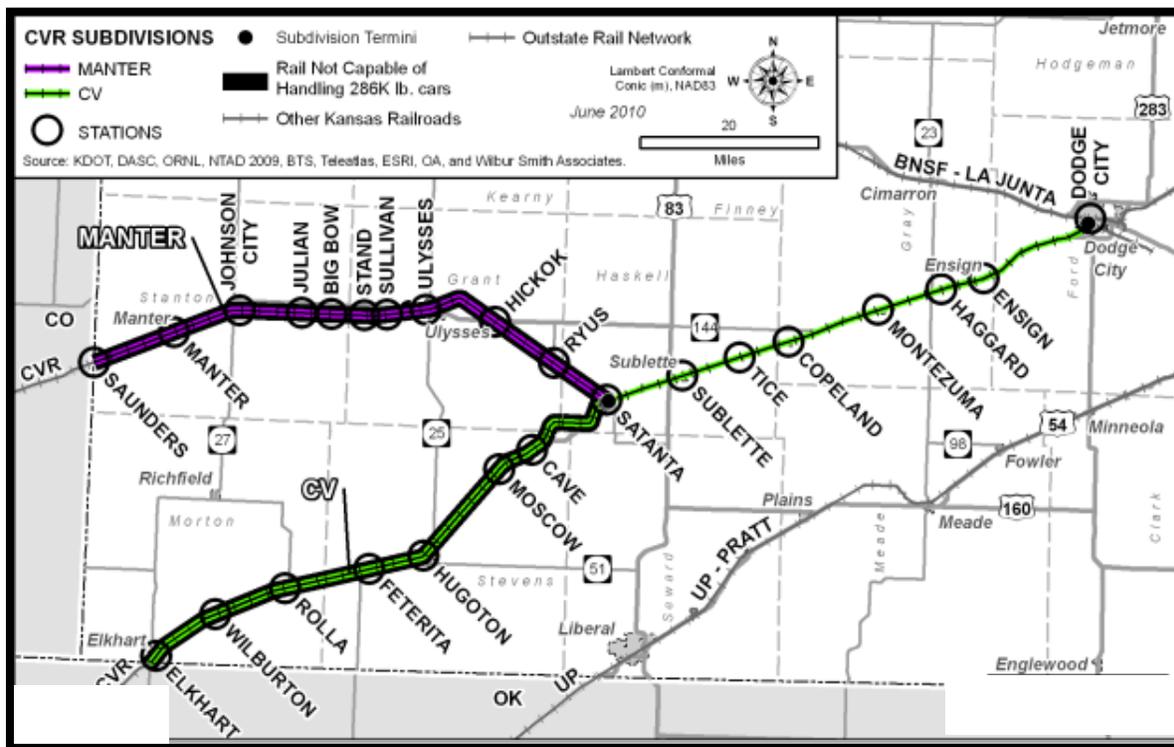
The Cimarron Valley Railroad (CVR) is a subsidiary of the Western Group, located in Ogden, Utah (**Figure 2.8**). The Western Group owns six other railroads and a construction company. The CVR operates in the southwestern corner of Kansas. Its line runs southwest from Dodge City to Satanta where the 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 are frequently added during grain season to accommodate harvest. The CVR owns 179 miles of track in Kansas.



The CVR has 20 employees in Kansas and includes a car repair shop at Satanta, Kansas.

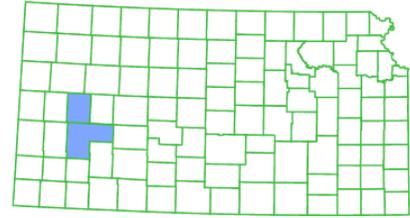
Primary commodities shipped on this line include grain and grain-related products. Secondary commodities shipped include fertilizer, soy bean meal, carbon black, chemicals, and miscellaneous shipments. The CVR handled over 14,400 carloads in 2016.

Figure 2.8: Cimarron Valley Rail Network In Kansas



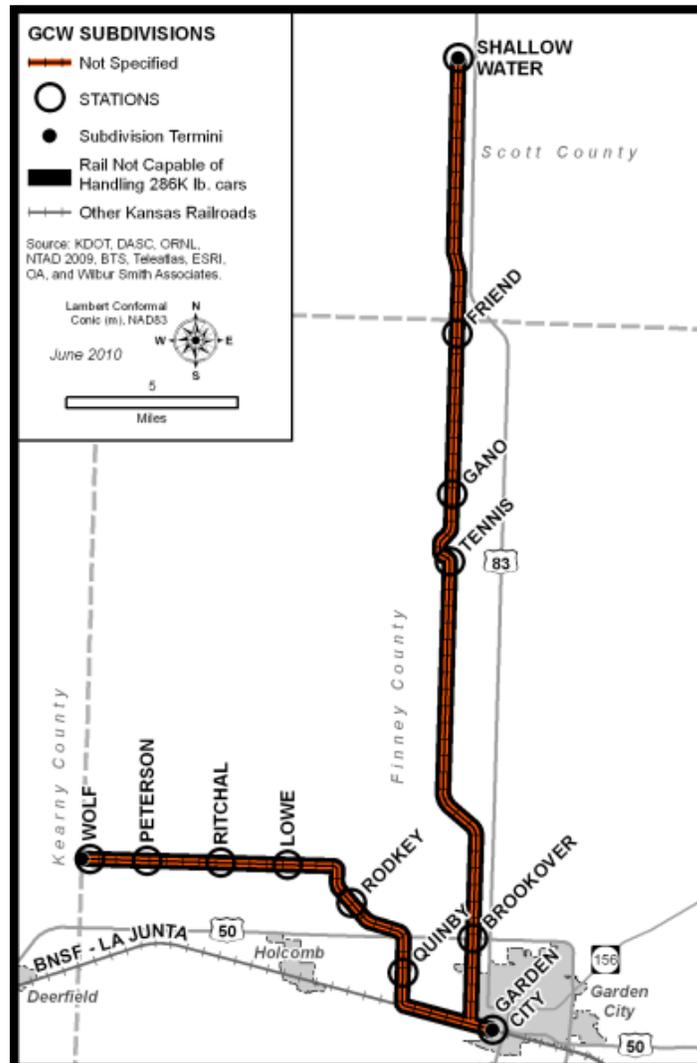
2.3.5 Garden City Western Railway, Inc.

Garden City Western (GCW) has been in business since 1916, serving the agricultural market of southwestern Kansas by connecting Garden City to Wolf (**Figure 2.9**). The rail line's customers ship 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 2016, the railroad handled approximately 1,460 carloads on their 45 miles of rail lines. Currently, the GCW has three full-time employees.



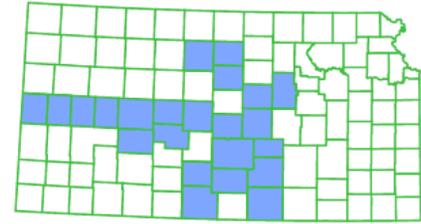
GCW's corporate parent, Pioneer Railcorp, located in Peoria, IL, is a short line railroad holding company which owns 23 rail operations in 13 states with over 600 miles of track serving over 100 customers, including some of the largest industrial corporations in the United States.

Figure 2.9: Garden City Western Rail Network in Kansas



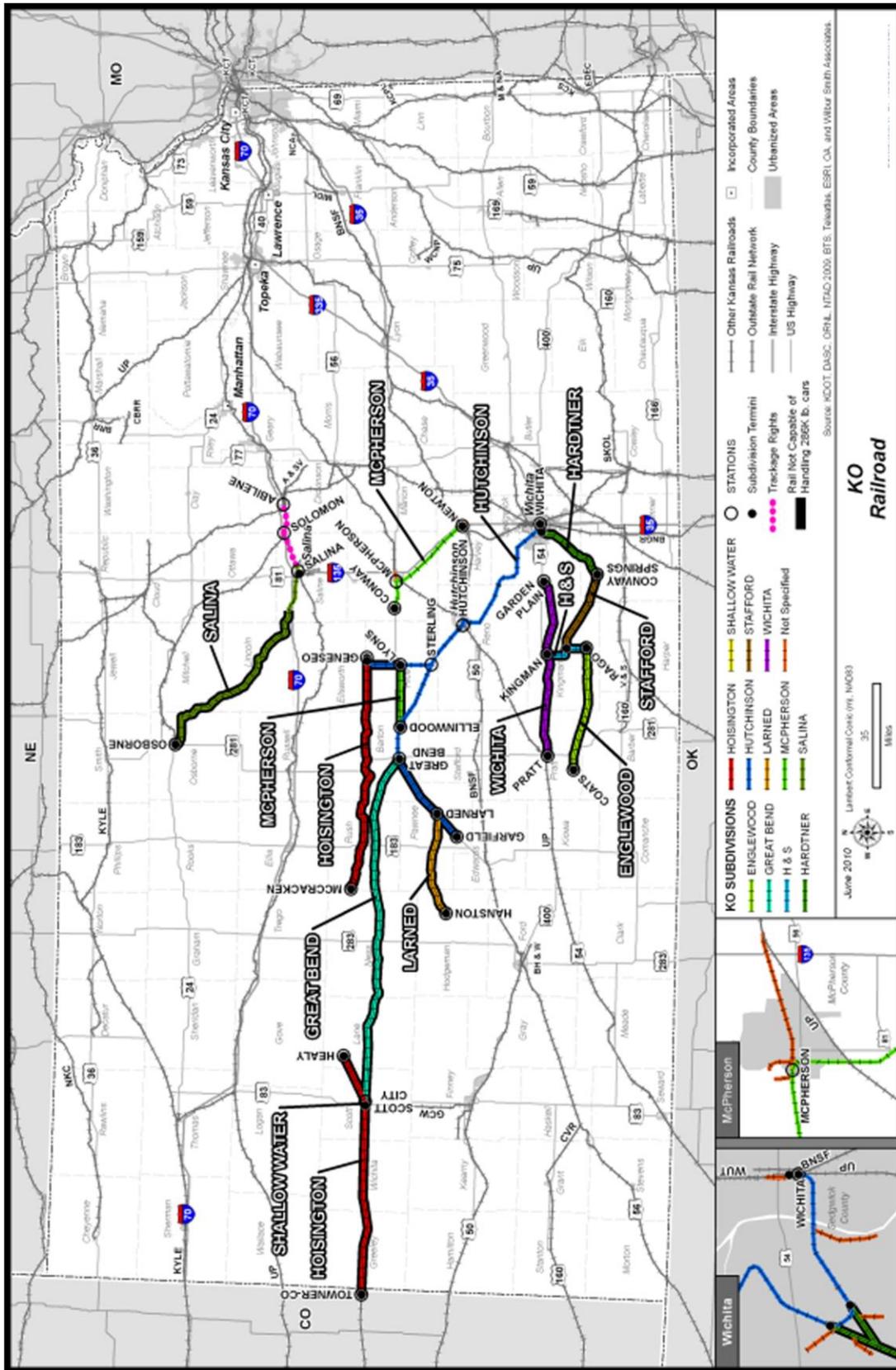
2.3.6 Kansas and Oklahoma Railroad

The Kansas and Oklahoma Railroad (KO) is a subsidiary of WATCO Companies, Inc. (WATCO), a Pittsburg, Kansas, based company (**Figure 2.10**). As of 2015, WATCO owned and operated 35 railroads nationwide, including the KO, South Kansas and Oklahoma Railroad (SKOL), and Kaw River Railroad (KAW) in Kansas. The WATCO national network covers 5,053 miles of track and ships more than half a million carloads annually.



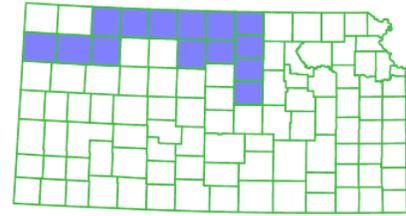
WATCO purchased the KO on June 29, 2001. The KO operates over 720 track miles in three directions, making it one of the largest short lines in the industry. It originates in Wichita and extends to the Colorado state line. It owns 554 miles of track in Kansas and has 166 miles of leased track from UP lines. In Kansas, the KO owns 39 locomotives. It has access to 1,282 freight cars; 471 owned and 812 leased. In 2016, the KO transported just over 45,000 carloads of agricultural and industrial products, such as corn, wheat, fertilizers, lumber, cement, sand, and rock in Kansas. KO has 103 employees in Kansas.

Figure 2.10: Kansas and Oklahoma Rail Network in Kansas



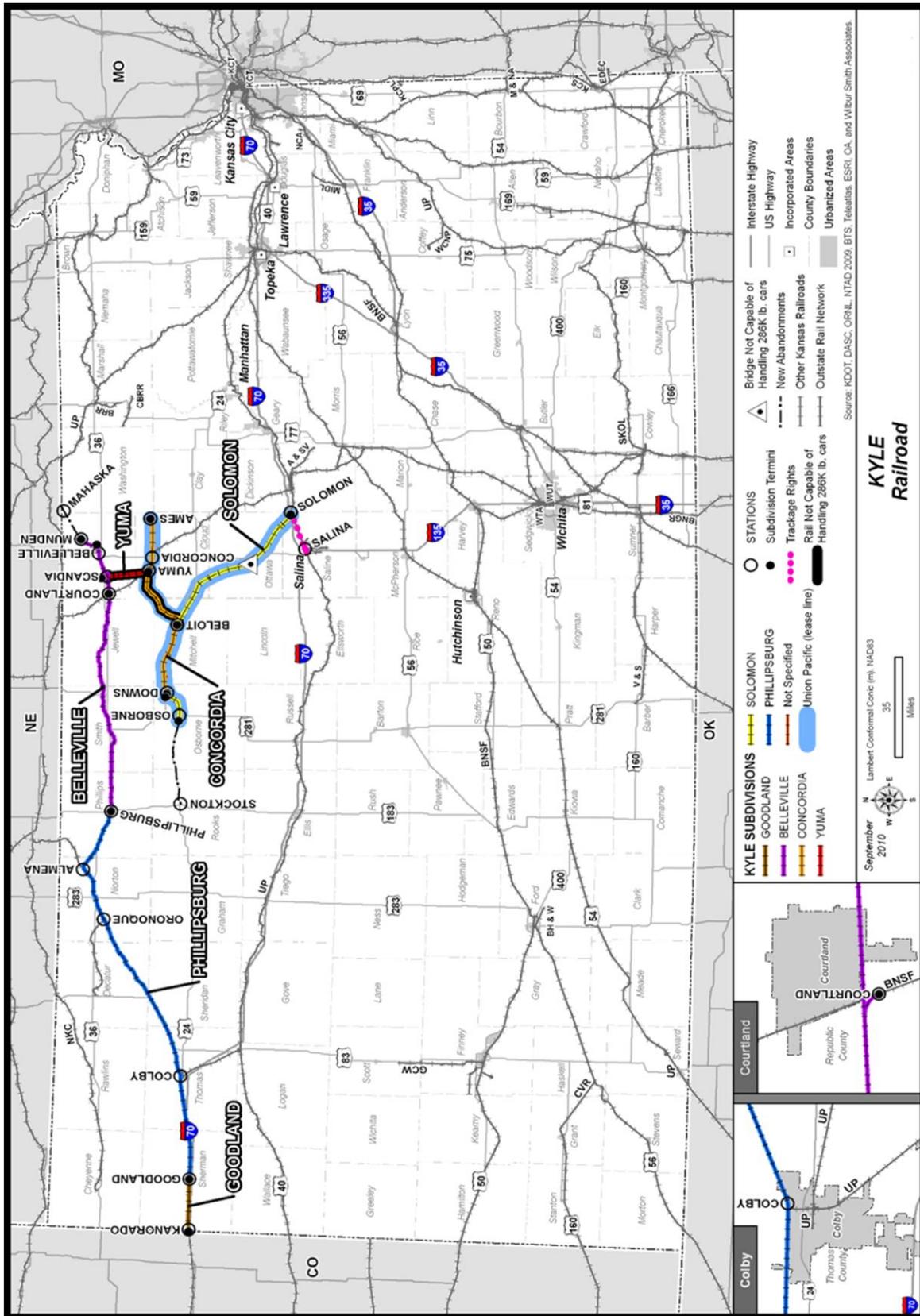
2.3.7 KYLE Railroad Company

The Kyle Railroad (KYLE) is wholly-owned subsidiary of Genesee & Wyoming Inc. (G&W), located in Darien, CT, that owns or leases 121 freight railroads organized into 10 operating regions with approximately 7,200 employees and more than 2,800 customers (**Figure 2.11**). G&W's eight North American regions serve 41 U.S. states and four Canadian provinces, and include 114 short line and regional freight railroads with more than 13,000 track-miles.



In Kansas, the KYLE Railroad operates 421 route miles in the northwestern/north central section of the state of which 139 miles are under a lease agreement with the UP Railroad. It operates an additional 87 miles in Colorado. The KYLE is based in Phillipsburg, Kansas, where extensive locomotive and repair shops are maintained. Other on duty locations are in Concordia and Goodland, KS. KYLE's freight is primarily based with agricultural products, chemicals, granules, petroleum products and other products. The KYLE handled approximately 24,100 carloads during 2016 and employs 57 Kansans.

Figure 2.11: Kyle Rail Network in Kansas



2.3.8 Missouri and Northern Arkansas Railroad

The Missouri and Northern Arkansas Railroad (M&NA), owned by Genesee and Wyoming (GW), located in Darien, CT, leases eight miles of UP line in Kansas (**Figure 2.12**). Currently there is no freight moving on this line, which lies between Fort Scott, Kansas, and the state line a few miles to the west of Nevada, Missouri.

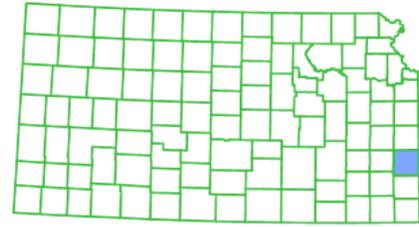
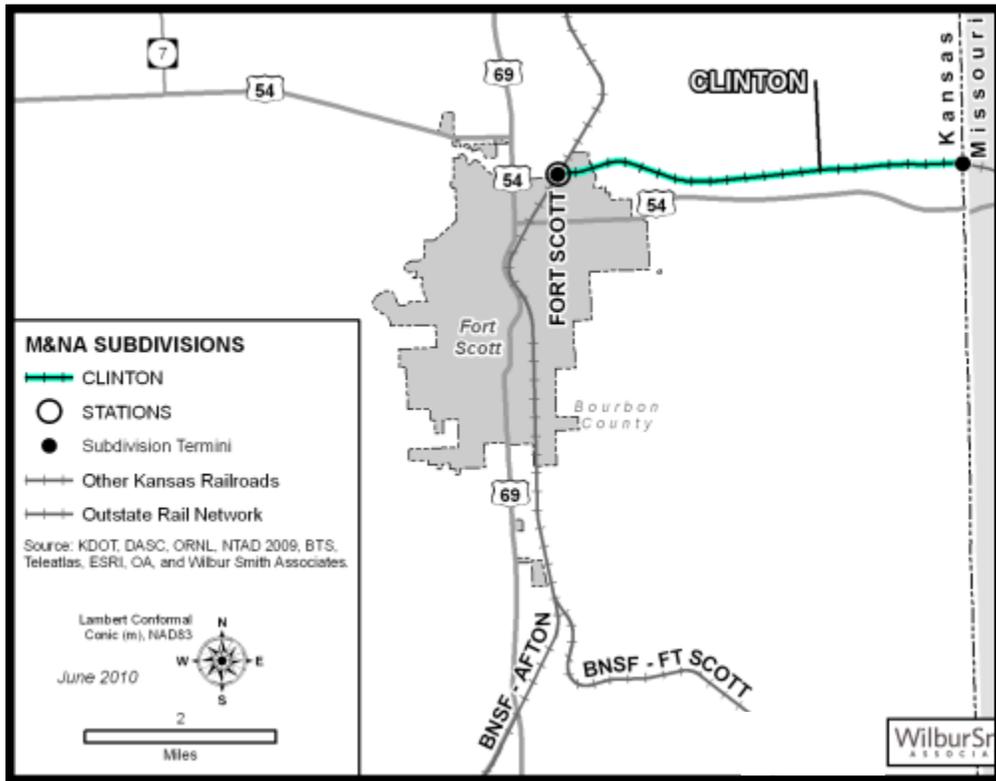
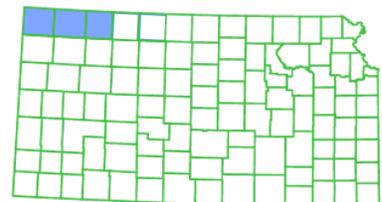


Figure 2.12: Missouri and Northern Arkansas Rail Network



2.3.9 Nebraska Kansas Colorado Railroad

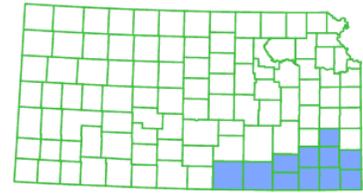
The Nebraska, Kansas, Colorado Railway, Inc. (NKCR), owned by Omnitrax, located in Denver, CO, has a branch line in northwest Kansas. This line connects St. Francis to Orleans, NE. NKCR recently abandoned 45 miles of their Oberlin Subdivision but will have 62 miles of track on the St. Francis Subdivision in place for car storage.



2.3.10 South Kansas and Oklahoma Railroad

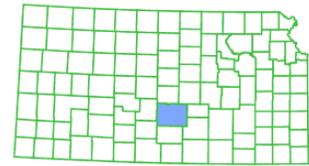
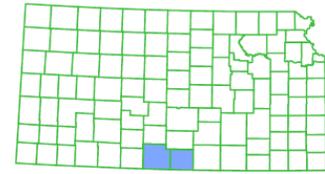
The South Kansas and Oklahoma Railroad (SKOL) is a subsidiary of WATCO Companies, Inc. (WATCO), a Pittsburg, Kansas based company (**Figure 2.13**).

The SKOL, purchased in 1987, was the first short line railroad operated by WATCO. The SKOL operates 267 route miles in Kansas, originating from Cherryvale and serves customers primarily in southeastern Kansas and northeastern Oklahoma. Traffic consists of agricultural and industrial products such as corn, wheat, fertilizers, lumber, cement and sand. The SKOL handles the most traffic of any short line railroad in Kansas. During 2016 the SKOL transported over 68,800 carloads and have 90 employees.



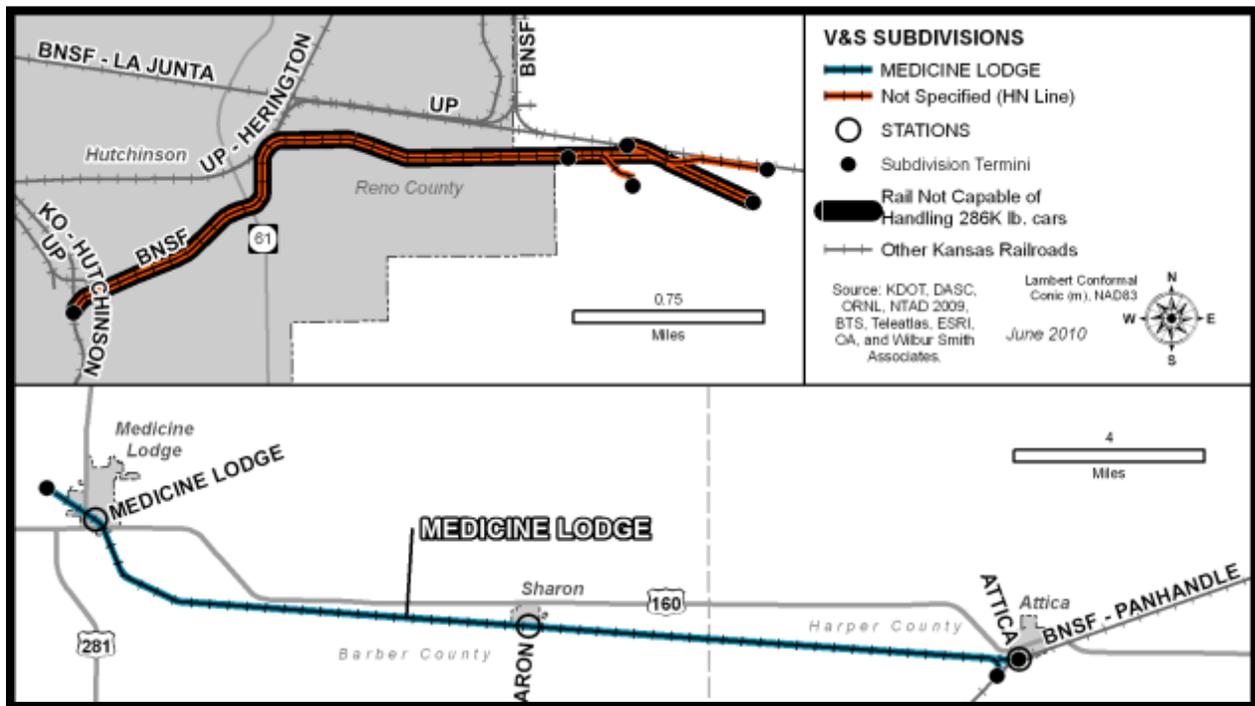
2.3.11 V&S Railway LLC

V&S Railway operates two separate rail lines in Kansas (**Figure 2.14**). 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 Hutchinson. The V & S Railway connects with the BNSF Railway at Attica and Hutchinson, as well as with the UP and Kansas and Oklahoma in Hutchinson. The V&S moved approximately 850 carloads in 2016 on its 25 miles of rail lines.



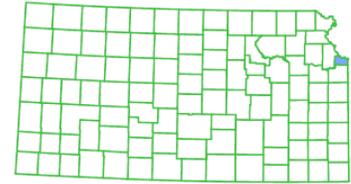
In November 2005, the Hutchinson and Northern Railroad (HN) was purchased by Pacific Western Railway. In January 2006 V & S Railway LLC began operating the railroad on behalf of Pacific Western Railway. In May 2006, V&S acquired the 3.5-mile line in Hutchinson, and currently operates the line in conjunction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

Figure 2.14: V&S Railway Rail Network in Kansas



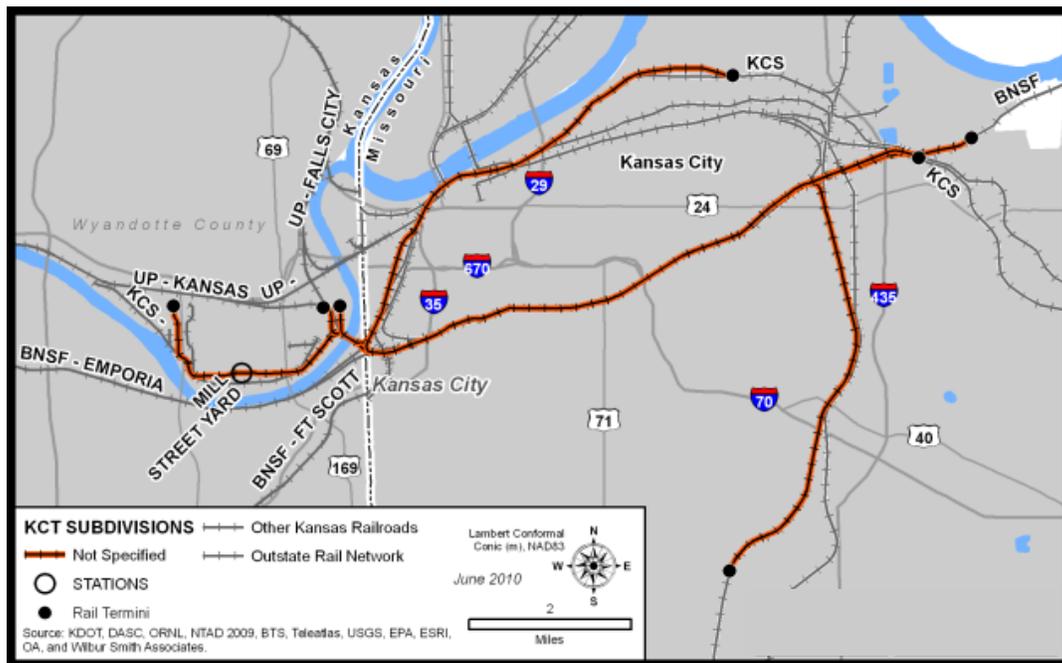
2.3.12 Kansas City Terminal Railway Company

The Kansas City Terminal Railway Company (KCT) and its subsidiaries, founded in 1906, is a joint facility operation which serves the railroads that operate in Kansas City, Kansas and Missouri (**Figure 2.15**). The KCT provides dispatching and switching services for trains in and out of the metropolitan Kansas City area, with approximately 3 route miles in Kansas. The company is owned by the UP, BNSF, KCS, NS, and Iowa, Chicago & Eastern Railroad, which are the primary customers and users of the KCT's facilities.



In 1992 the KCT's maintenance of way activities were contracted to BNSF. 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. In 2016 the KCT switched over 17,800 cars.

Figure 2.15: Kansas City Terminal Rail Network in Kansas

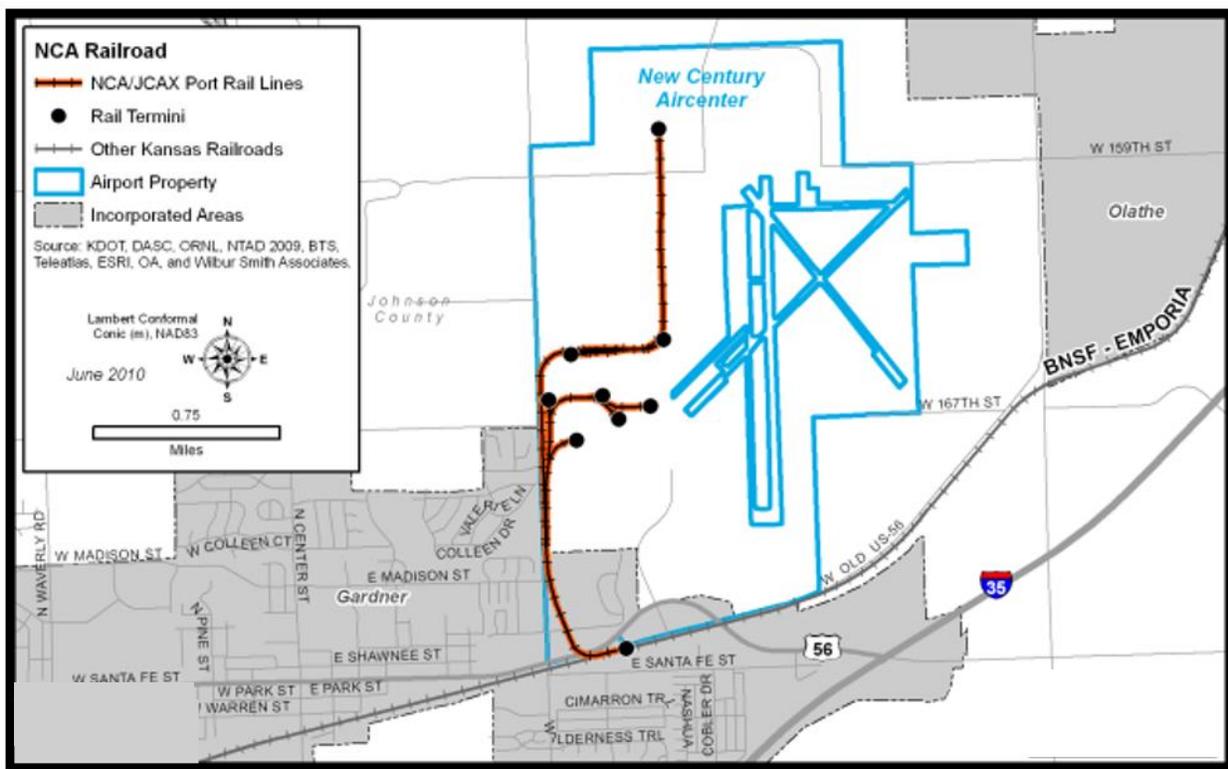


2.3.13 New Century AirCenter Railroad

New Century AirCenter is a 2,300-acre inland port located along the I-35 NAFTA corridor with five miles of rail lines (**Figure 2.16**). Rail service is provided by the New Century AirCenter Railroad (NCA), owned by Johnson County (KS), and interchanges with the BNSF Railway.

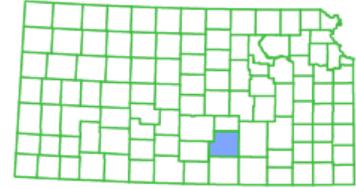
NCA provides switching services to meet intra-plant requests; usually within twenty minutes during normal business hours and as otherwise requested. The industrial park maintains a certified track scale for special weighing requirements and has recently installed in-motion railcar weight scales with computerized railcar identification and reporting systems. A total of 820 carloads were interchanged in 2016.

Figure 2.16: New Century AirCenter Rail Network



2.3.14 Wichita Terminal Association Railroad, Inc.

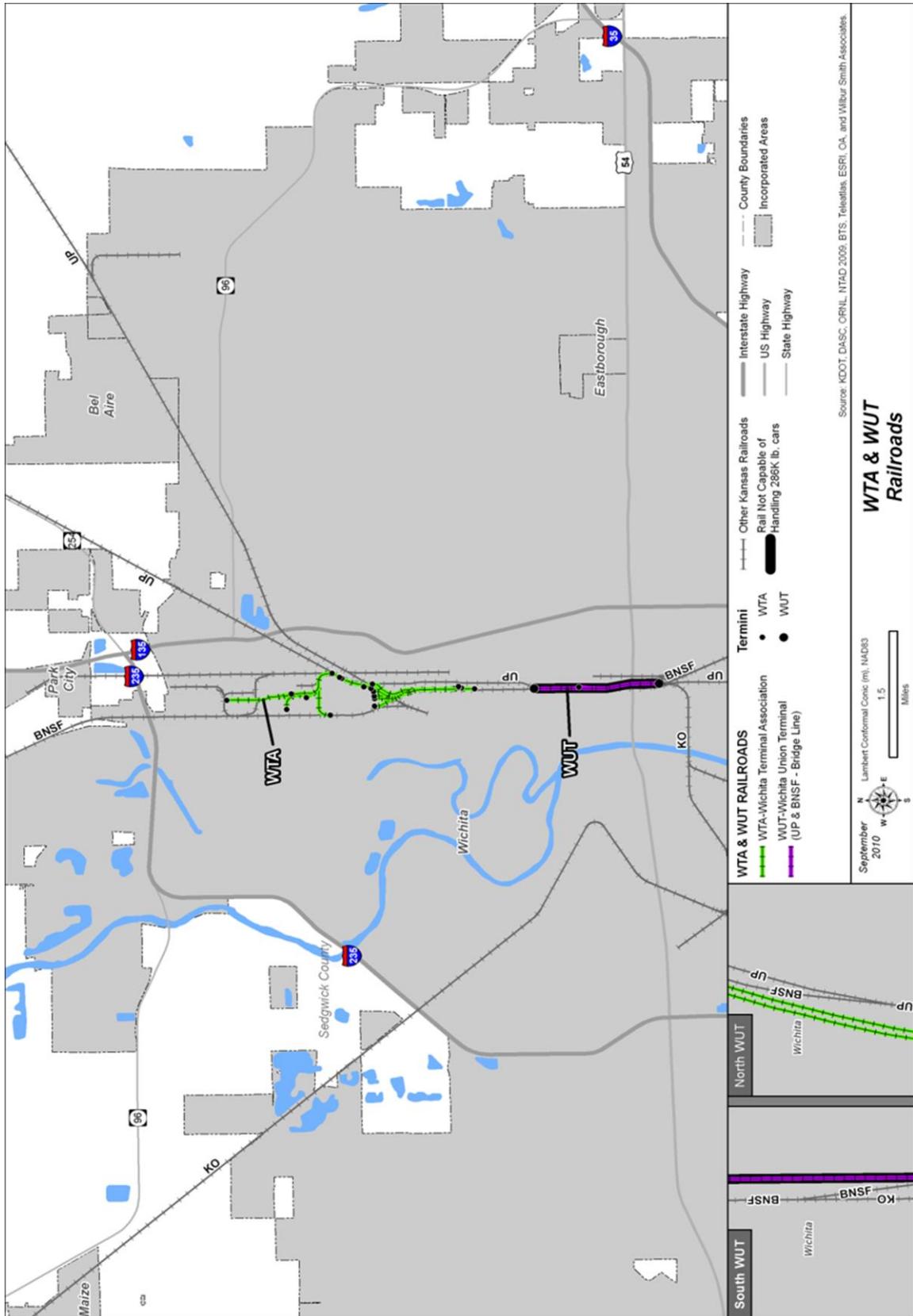
The Wichita Terminal Association Railroad Inc. (WTA) was formed in 1889 to service the stockyards in Wichita, Kansas (**Figure 2.17**). The railroad is owned by a partnership between the BNSF Railway and Union Pacific. WTA maintains and operates their facilities and infrastructure.



The WTA is a switching and terminal railroad, which primarily handles grain and grain-related products including wheat for flourmills. Often shipments of grain involve subsequent moves related to the processing of flour products. Some scrap steel is also moved. In 2016, WTA switched over 15,700 cars across nine miles of rail lines.

The WTA 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 WTA crews operate have no physical connection with the Wichita Union Terminal's tracks. BNSF dispatches the mainline of the Wichita Union Terminal.

Figure 2.17: Wichita Terminal Association Rail Network in Kansas



2.4 Rail Freight Commodity Flows

Table 2.4 notes the compound annual growth rates (CAGR) for the top five commodities (commodities having more than one million tons transported in 2014), along with their changes in total tonnage from 2014 to (project) 2040. These commodities are noted by their Standard Classification of Transported Goods (SCTG) number. Of commodities originating and/or terminating in Kansas, Cereal Grains is expected to have the largest increase in total tonnage, reflecting the importance of agriculture to the state’s economy. On the other hand, Coal volumes will drop by more than 54 percent over the 26-year period, driven by structural shifts in the energy market that will favor other power sources such as natural gas, wind, and solar. Other Food Stuffs will grow the fastest, at a 2.1 percent CAGR, to slightly more than 1 million tons in 2040. Shipments of Basic Chemicals and Fertilizers will also continue to grow. These commodities are part of the agricultural, manufacturing, and industrial sectors.

Table 2.4: Outlook for Kansas Rail-borne Commodities

SCTG	Commodity	2014		2040		Percent Change		Tonnage Change
		Tons	Percent	Tons	Percent	Total	CAGR	
02	Cereal Grains	34,667,432	59.7%	44,010,804	67.9%	27.0%	0.9%	9,343,372
07	Other Food Stuffs	1,400,145	2.4%	2,417,525	3.7%	72.7%	2.1%	1,017,380
15	Coal	13,669,159	23.5%	6,273,813	9.7%	-54.1%	-3.0%	-7,395,346
20	Basic Chemicals	1,090,474	1.9%	1,755,357	2.7%	61.0%	1.8%	664,883
22	Fertilizers	1,557,773	2.7%	2,314,763	3.6%	48.6%	1.5%	756,990
	All Other	5,696,506	9.8%	8,055,688	12.4%	41.4%	1.3%	2,359,182
	Total	58,081,489	100.0%	64,827,950	100.0%	11.6%	0.4%	6,746,461

*Source: prepared by CDM Smith, based on FHWA FAF v4.1 data for 2014 and 2040.
note totals may not sum due to rounding*

The 2014 tons in the **Table 2.4** are for inbound, outbound and intrastate movements. These vary from those shown in **Table 2.5**, the 2014 rail traffic by direction, as a result of the databases and the commodity breakdowns used. **Table 2.13** was derived from FHWA FAF v4.1 data which used SCTG commodity classifications. While the FAF data is useful for assessing broad rail commodity movements and forecasts, the figures appearing in the following section and the directional forecast were derived from the STB Carload Waybill Sample which uses Standard Transportation Commodity Codes (STCC) classifications.

2.4.1 Freight Demand and Growth

Kansas rail movements in 2014 totaled 368.4 million tons, valued at \$324.1 billion, carried by 6.9 million carload units, as seen in **Table 2.5**.¹² On average, total rail commodity movements are valued at \$880/ton. Rail movements represent 64.7 percent of modal tonnage in Kansas and 58.9 percent of total modal value in 2014, by far the largest modal share.

¹² Tonnage and carload units for rail are from the STB WAYBILL database; values are derived by applying proxy directional- and commodity-specific values per ton from the IHS TRANSEARCH® database.

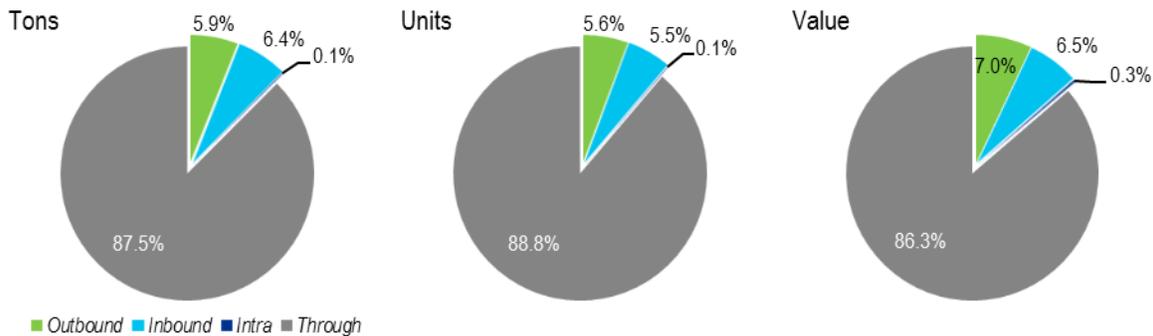
Table 2.5: Rail by Direction, 2014

Direction	Tons		Units		Value (in millions)		Average Value/Ton
	Amount	Percent	Amount	Percent	Amount	Percent	
Outbound	21,919,113	5.9%	386,788	5.6%	\$22,622	7.0%	\$1,032
Inbound	23,543,312	6.4%	381,768	5.5%	\$21,005	6.5%	\$892
Intra	489,604	0.1%	6,106	0.1%	\$901	0.3%	\$1,840
Through	322,447,524	87.5%	6,141,358	88.8%	\$279,577	86.3%	\$867
Total	368,399,553	100.0%	6,916,020	100.0%	\$324,105	100.0%	\$880

Source: prepared by CDM Smith, based on TRANSEARCH®/STB WAYBILL for 2014
note totals may not sum due to rounding

As depicted in **Figure 2.18**, through rail movements dominate directional movements by all three terms: 87.5 percent of total tonnage, 88.8 percent of carload units, and 86.3 percent of value. Inbound and outbound rail each comprise similar shares of the remaining directional movements for rail, with intrastate rail traffic accounting for a fractional percentage.

Figure 2.18: Rail Percentages by Direction, 2014



Source: prepared by CDM Smith, based on TRANSEARCH®/STB WAYBILL for 2014
note totals may not sum due to rounding

A discussion of specific commodity flows is found in Appendix B.

2.4.2 Freight Forecast

Table 2.6 depicts outbound, inbound, and intrastate rail estimates for Kansas in 2014 and 2040. Rail tonnage is forecast to increase 11.6 percent (0.4% annually) over that future horizon, and value is forecast to increase 40.0 percent (1.3% annually). As through rail traffic is a large current movement (per Table 2-5), a forecast of such movement would be ideal from FHWA FAF. In the absence of through movement data from the FAF, the national total for rail was obtained, which estimates 13.8 percent tonnage growth (0.5% annually) over that timeframe. However, as most of Kansas through rail is coal, it is worth noting that the national total rail forecasts for coal, from 2014 to 2040, declines 38.2 percent (1.8% annually). Overall this suggests that total freight rail traffic in Kansas will continue to grow, especially on a value basis, perhaps reflecting expected growth in shipments of consumer products and other high-value freight.

Table 2.6: Rail Forecast by Direction, 2014 to 2040

Direction	2014		2040		Percent Change	
	Amount	Percent	Amount	Percent	Total	CAGR
Tons						
Outbound	36,428,929	62.7%	46,194,027	71.3%	26.8%	0.9%
Inbound	20,335,728	35.0%	16,801,526	25.9%	-17.4%	-0.7%
Intra	1,316,832	2.3%	1,832,397	2.8%	39.2%	1.3%
Through *	#N/A	#N/A	#N/A	#N/A	13.8%	0.5%
Total	58,081,489	100.0%	64,827,950	100.0%	11.6%	0.4%
Value, in millions						
Outbound	\$12,236	60.6%	\$16,237	57.5%	32.7%	1.1%
Inbound	\$7,630	37.8%	\$11,573	41.0%	51.7%	1.6%
Intra	\$319	1.6%	\$442	1.5%	38.8%	1.3%
Through *	#N/A	#N/A	#N/A	#N/A	68.9%	2.0%
Total	\$20,185	100.0%	\$28,252	100.0%	40.0%	1.3%

* through growth reflects national totals as proxy

Source: prepared by CDM Smith, based on FHWA FAF v4.1 data for 2014 and 2040
note totals may not sum due to rounding

2.5 Intercity Passenger Rail Network

Up until the 1950s, Kansas was well served by passenger trains. At that time, passenger and freight service was provided by freight railroads, and these lines linked Kansas to the Pacific Northwest, California, the Rocky Mountain region, and Texas as well as other points in the Midwest such as Chicago and Omaha.

Since that time, passenger train service gradually declined as the interstate highway system expanded and jet air travel became more common. Loss of ridership resulted in declining revenues and eventually mounting financial losses. To save costs railroads began combining or eliminating train services. For example, the *El Capitan* and the *Super Chief* were combined in 1958, and the *City of St. Louis* and the UP's *City of Los Angeles* were combined west of Ogden, Utah in 1960. The last run of the *Rocky Mountain Rocket* was in 1966, and the *Southern Belle* ceased operations in 1969.

In 1970 Congress created the National Railroad Passenger Corporation (Amtrak) to relieve freight railroads of their intercity passenger train operations. Amtrak assumed operation of most intercity trains in 1971.¹³ By 1972, there were only three Amtrak trains serving Kansas:

- Super Chief (Chicago – Los Angeles)
- El Capitan (Chicago – Los Angeles)
- Texas Chief (Chicago – Houston)

By 1973, the combined *Super Chief* and *El Capitan* were operated under the name *Super Chief / El Capitan*; the *El Capitan* designation was dropped in 1983, and the train was renamed *the Southwest Chief* in 1984. The *Texas Chief* also had a name change to the *Lone Star*, which was eliminated due to budget cuts in 1979.

¹³ Amtrak was created pursuant to the National Passenger Service Act of 1970; Amtrak's first day of operations was May 1, 1971.

Today, Kansas is directly served by one long-distance Amtrak train, the *Southwest Chief*. There currently is no commuter or intercity corridor service provided in the state, either by Amtrak or by other operators. Amtrak operates entirely over BNSF track in Kansas.

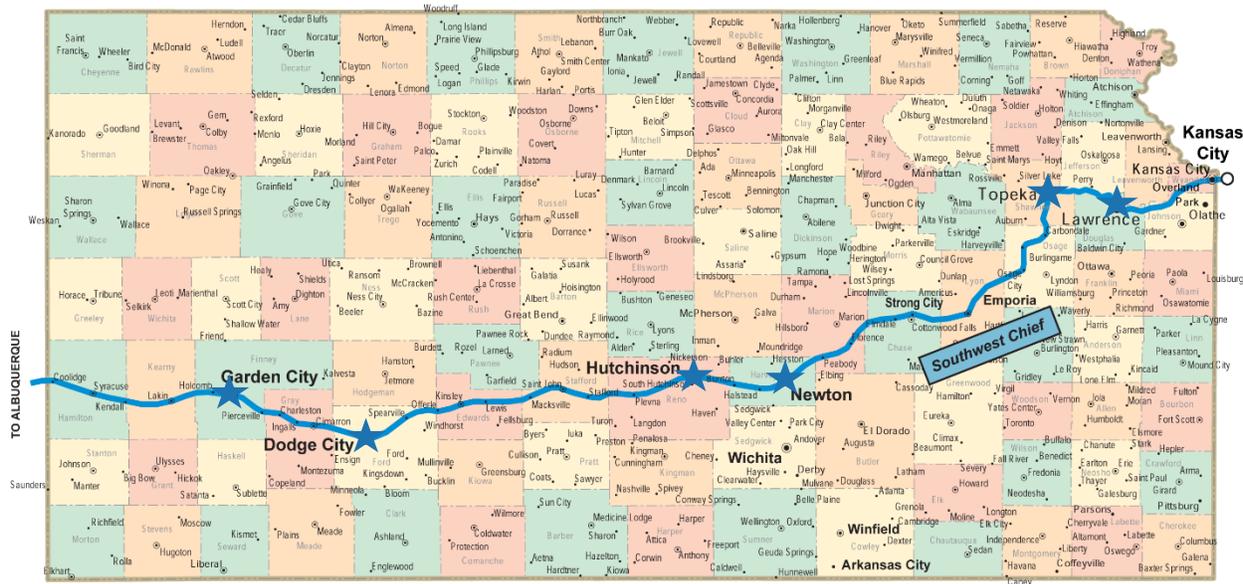
The *Southwest Chief* operates with bi-level train car equipment. Each train is equipped with coaches, sleeping cars, a diner, and a lounge car. The current national route appears in **Figure 2.19**, and the route through Kansas appears in **Figure 2.20**.

Figure 2.19: Amtrak Western Routes, Including the Southwest Chief



Source: Amtrak

Figure 2.20: Amtrak Routes through Kansas



Source: Amtrak

The *Southwest Chief* operates between Chicago and Los Angeles (route shown in **Figure 2.19**), a distance of 2,265 miles. The service consists of one daily round-trip, stopping at six stations in Kansas. Intermediate stops outside Kansas include Kansas City (MO), Albuquerque, and Flagstaff. In the westbound direction Amtrak Train 3 leaves Chicago at 3:00 PM (CT) and arrives in Los Angeles at 8:15 PM (PT) two days later. Eastbound Train 4 leaves Los Angeles at 6:15 PM (PT) and reaches Chicago at 3:15 PM (CT) two days later. In the westbound direction the *Southwest Chief* stops at Topeka at 12:29 AM, while eastbound the train stops at Topeka at 5:18 AM.

In April 2016, Amtrak initiated a Thruway bus link between the *Southwest Chief* and the *Heartland Flyer* train operating daily between Oklahoma City and Fort Worth. The service connects Newton and Oklahoma City with an intermediate stop in Wichita. Ridership on this Thruway bus route is 4,240 for the 12-months from June 1, 2016 to May 31, 2017. The bus service and its connections appear in **Table 2.7**.

Table 2.7: Thruway Bus Service between Newton, Wichita and Oklahoma City

Thruway	Southbound		Northbound	Thruway
4:00 AM	Depart	Newton (1)(2)	Arrive	2:15 AM
5:00 AM		Wichita		1:35 AM
7:35 AM	Arrive	Oklahoma City (3)(4)	Depart	10:40 PM

- (1) Westbound *Southwest Chief* arrives Newton at 2:45 AM
- (2) Eastbound *Southwest Chief* arrives Newton at 2:59 AM.
- (3) Southbound *Heartland Flyer* departs Oklahoma City at 8:25 AM.
- (4) Northbound *Heartland Flyer* arrives Oklahoma City at 9:23 AM.

2.6 Passenger Stations in Kansas

There are six Amtrak stations in Kansas. All are served by the Southwest Chief with two stops per day – one eastbound and one westbound. All were built by the former Atchison, Topeka and Santa Fe Railway (now BNSF). Appearing below is a brief description of each station depot (structure) and its general location. Detail on the physical characteristics of the six Kansas station facilities appears in **Table 2.8**.

2.6.1 Lawrence

A modernist style station is the one-story Lawrence Amtrak station, which was built in 1956. While constructed with rusticated ashlar stone, the building has the same flat roof and large, panoramic windows as the Hutchinson station. Seen in **Figure 2.21**, the station is on the east side of downtown, just south of the Kansas River.

Figure 2.21: Lawrence Station



Source: CDM Smith

Table 2.8: 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 w/ crossings	Single	Double w/ crossings	Single
Length	650'	725'	1150'	900'	1070'	680'
Construction	Concrete	Asphalt	Asphalt/Concrete	Concrete	Asphalt	Cement Pavers and Brick
Shelter	Partial Awning	Fully-Covered Platform	Portico	Partial Roof	Trees	Eaves
Lighting	Fully-Lit	Fully-Lit	Partially Lit	Unlit	Fully-Lit	Fully-Lit
Amenities	Outside Bench	Outside Benches	Lockers	Outside Tables and Benches	Outside Benches	Benches
Passenger Safety	Yellow Safety Line and Tactile Paver Strip	Yellow Safety Line	Yellow Safety Line	Yellow Safety Line	Yellow Safety Line	Tactile Paver Strip
ADA	Fully Accessible	-	-	-	Lift	Fully-Accessible
Depot Hours	11:15 PM – 12:15 AM; 5:15 AM - 6:15 AM	Mon-Fr 11:30 PM - 7:30 AM Sat-Sun 11:30PM-1:15AM; 4:15-5:30AM	Midnight - 8:00 AM	Open 24 Hours	11:45 PM - 12:45 AM; 5:00 AM - 6:00 AM	Mon-Fri 10 PM - Midnight; Tue-Sat 6 AM - 9 AM
Seating Capacity	~15	~25	~55	~20	~50	~25
Restrooms	Yes	Yes	Yes	Yes	Yes	Yes
Water Fountain	No	Yes	Yes	No	Yes	Yes
Vending	No	Yes	Yes	No	No	Yes
Ticket Counter	No	Yes	Yes	No	No	Yes
Telephones	No	No	No	Yes	No	Courtesy Phone
Shared Uses	Attached to Freight Office	Attached to Freight Office	Shared with Various Commercial Offices	Shared with Restaurant	Shared with Theater and Museum	Attached to Freight Office
Short Term Parking	~4 Spaces	~10 Spaces	~20 and 2-hours On-Street;	~7 Spaces and 2-hours On-Street	~5 Spaces West Side	~8 Spaces with Additional Parking at Nearby Lots
Long Term Parking	~15 Spaces	~25 Spaces	~40 Spaces and at Nearby City Lot	~7 Spaces and at Nearby Lot	~10 Spaces with Additional Parking at Nearby Lots	
ADA Parking Facilities	2 Designated Spaces w/ ramp	2 Designated Spaces w/ ramp	3 Designated Spaces	3 Designated Spaces; No ramp	4 Designated Spaces	1 Designated Space w/ ramp
Intermodal Connections	No Local Transit	Topeka Transit	Amtrak Thruway Bus Service to/from Oklahoma City; No Local Transit	RCAT Local Transit	D-TRAN Local Transit	City Link Local Transit, Trail Way Busline

Source: CDM Smith field survey and AMTRAK.com

2.6.2 Topeka

Like the stations in Lawrence and Hutchinson, the Topeka Amtrak station is built in the mid-century modern style. The one-story building has a sleek design with a flat roof and panoramic windows; it is clad in off-white stone squares. BNSF (station owner) remodeled the station in 2006 with new ceiling tile, painting and a new water fountain. The station is located east of downtown and appears in **Figure 2.22**.

Figure 2.22: Topeka Station



Source: CDM Smith

2.6.3 Newton

Seen in **Figure 2.23**, the Newton Amtrak station was built between 1929 and 1930 in a Tudor Revival style. The two-story, brick building, modeled after William Shakespeare’s house in Stratford-on-Avon, has a steep slate roof and patches of half-timbering. Inside are heavy-beamed ceilings and half-timbered walls. Until the late 1940s the station housed a Harvey House restaurant along with a ticket office, a waiting room, and railroad offices. Today, in addition to serving Amtrak riders, the station includes various shops and offices. It was added to both the National Register of Historic Places and the Kansas Register of Historic Places in 1985. The station is located in the downtown area.

Figure 2.23: Newton Station



Source: CDM Smith

2.6.4 Hutchinson

Built in 1954, the Hutchinson Amtrak station (**Figure 2.24**) is a mid-century modern structure. The one-story brick depot has clean lines and minimal ornamentation, with a flat roof and panoramic windows. In addition to serving rail passengers, the building is occupied by the local transit agency and a restaurant. It is located in the central business district.

Figure 2.24: Hutchinson Station



Source: CDM Smith

2.6.5 Dodge City

The Dodge City Amtrak station is located in a former El Vaquero Harvey House and depot. The two-story Romanesque style structure was built in 1898. Subsequently enlarged and altered, the two-block long station included a passenger depot, railroad offices and a hotel and eating house run by the Fred Harvey organization. The Harvey House operation was closed in 1948, following a decline in passenger traffic. The BNSF Railway, successor to ATSF and now known simply as BNSF, donated the structure to the city in 1996. The building was placed on the National Register of Historic Places in 2000. Renovations followed in 2000 to 2002. Seen in **Figure 2.25**, the station today houses a passenger waiting area, meeting space, and a repertory company. It is located on the southeast side of downtown.

Figure 2.25: Dodge City Station



Source: CDM Smith

2.6.6 Garden City

Seen in **Figure 2.26**, the Garden City Amtrak station is a one-story, hip-roofed, prairie style, red brick structure built in 1907. The building has hexagonal bay dormers and decorative glass. It was remodeled in 1957 and renovated again in 2002. Also used for civic and social events, the station is located on the south side of the city.

Figure 2.26: Garden City Station



Source: CDM Smith

2.7 Recent-Year Improvements at Amtrak Stations

Amtrak's 2009 *A Report on Accessibility and Compliance with the Americans with Disabilities Act of 1990* identified station ADA compliant and State-of-Good-Repair improvement needs amounting to \$7.4 million for the six Kansas Amtrak stations. Of this amount, \$1.8 million was for structures, \$4.8 million for platforms, and \$747,000 for pathways.

Since that time, Amtrak has made several improvements, according to the annual *Amtrak Fact Sheet* for Kansas. In 2009 Amtrak installed a new information kiosk, providing train schedules, ticketing, safety and security information, and an enhanced level of Amtrak brand visibility at the Lawrence station. In 2011, Amtrak and the city of Lawrence celebrated the completion of a new, ADA-compliant platform, period platform lighting and parking upgrades. For 2013, some ADA improvements were planned for the Hutchinson station¹⁴. The 2009 ADA assessment identified \$870,000 of ADA-compliance needs at that station. Those improvements are still pending, however.

According to the Great American Station project¹⁵, improvements were made at:

- **Dodge City** – In June 2013 Dodge City won \$258,000 through the Federal Highway Administration's Transportation Enhancement (TE) program for station rehabilitation work.
- **Lawrence** – In June 2013 Lawrence won a \$1.2 million FHWA TE grant. The grant was to cover about 80% of the cost of a building restoration, with the remainder of the funding (\$300,000) coming from the city. The work included installation of a new roof and heating, cooling and electric systems, and repairs to stone and brickwork, the parking lot and sidewalks.
- **Topeka** – BNSF remodeled the Topeka station, including new ceiling tile, painting and a water fountain.

2.8 Tourist Train Network

Kansas's tourist railways offer tourists and visitors several hour-long trips that showcase scenic or historic areas of the state with bucolic rides between small towns. These rail trips offer a glimpse of an activity that was once part of daily life. The railroads also serve to preserve equipment, buildings, artifacts and industrial skills from earlier eras.

In addition to preserving railroad history, tourist railways and museums also attract visitors, generating income not only for these businesses but also for restaurants, hotels and other visitor service establishments. Tourist railways can also provide an opportunity to introduce the general public to the contemporary rail industry and its key role in the state's economy.

¹⁴ <https://www.amtrak.com/ccurl/83/1005/ADA-Accessibility-Compliance-Report-May2012.pdf>

¹⁵ <http://www.greatamericanstations.com/Stations/BRL>

There are three tourist railroads in Kansas:

- **Abilene and Smoky Valley Railroad (ASV)** - This railroad offers an 11-mile, 90-minute round trip between Abilene and Enterprise on a former CRI&P line. ASV trains operate Wednesday through Sunday between Memorial Day and Labor Day, but then run only on weekends earlier in May and later in September and October. Most trains are pulled by a vintage diesel-electric locomotive, but trips powered by steam locomotive number 3415 are also offered on holiday weekends from the end of May through the beginning of October. Dinner trains are available on Saturdays from the end of May through most of October. The ASV also operates monthly rides on the *Silver Flyer Railbus*, a former school bus fitted with rail wheels as well as highway tires, from Enterprise 12 miles southeastward to Woodbine. ASV trains average 12,000 riders per year, of whom about 25 percent are from out-of-state. The railroad has one full time employee, the manager. All other labor is provided by 45 volunteers.
- **Central Branch Railroad** - The Central Branch Railroad offers three rides of various lengths (45-minutes, one hour, and two hours) between April and October along its 12-mile route through the northern tier of the Flint Hills in northeastern Kansas. The two-hour ride crosses the Big Blue River on an 85-foot high trestle. The Marshall County Railroad Historical Society acquired the abandoned UP branch line in 2002. The railroad offers no regularly scheduled service. Rather, trips are offered seven days a week by reservation. Prospective riders must call three to four days in advance to arrange their ride. Two passenger cars built by railroad volunteers, each with a capacity of 16-20 people, are pulled by two motorized maintenance-of-way gang cars. In 2015, the railroad hauled 850 people, of whom about 10 percent were from out of state. Operations and maintenance work is performed by 10 volunteers. There are no full-time employees.
- **Midland Railway (MID)** - This tourist railroad offers various rides on a 10-mile line between Baldwin City, Norwood and Ottawa (connection to the BNSF Transcon) on a former ATSF branch line. The MID operates between early May and the end of October. Trains depart Baldwin City for a five-mile, one-hour round trip between Baldwin City and Norwood on Thursdays. On Saturdays and holidays there is a 10-mile, two-hour round trip between Baldwin City and Ottawa as well as a Baldwin City-Norwood round trip. Sundays see a three-hour round trip between Baldwin City and Ottawa. Annual ridership for the Midland Railway is about 20,000. Trains are pulled by vintage diesel electric locomotives, and passengers ride in vintage coaches and cabooses. In addition, the railway offers special event excursions including:

 - Maple Leaf Festival Weekend Trains (third weekend of October every year);
 - Night of Terror, the “Train to Hell” (around Halloween);
 - Easter Egg Ride and Hunt;
 - Day out with Thomas (Thomas the Tank Engine event); and

- The *Kansas Belle Dinner Train*, offering round trips between Baldwin City and Ottawa. Rides are offered on Saturday nights and Sunday afternoons. Most rides include a theatrical performance.

2.9 Changes to the Rail Network

Changes to a state’s rail network typically occur when a railroad discontinues service on a line or abandons it. Service discontinuance is where a railroad no longer provides freight service on a line, but wishes to preserve it for possible reactivation of service in the future. Abandonment involves relinquishing the rail line and all underlying property interests.¹⁶ Railroads must petition the U.S. Surface Transportation Board (STB) for permission to abandon a line or discontinue service on it.

Rail banking is another federal process that allows public entities to preserve established railroad rights-of-way for future reactivation of rail service, to protect rail transportation corridors, and to encourage energy efficient transportation use. Several abandoned or rail banked lines have been converted to recreational trail uses or are proposed for this purpose.

Recent-year abandonments and filings with the STB allowing interim trail use and service discontinuance are presented in **Table 2.9**. Since 2010, 96.7 miles of rail lines in Kansas have been abandoned; and one short line has ceased its use of trackage rights on 17.7 miles of another short line in Kansas. Furthermore, notices for interim trail use and abandonment are in effect for 19.17 route miles in the state. A decision is expected in September 2017. Since 2010, only the Nebraska, Kansas & Colorado (NKC) Railway discontinued operating rail service in Kansas between Almena and Oronoque Junction on the KYLE line.

¹⁶ National Cooperative Rail Research Program, *Legal Research Digest 2: Railroad Legal Issues and Resources*, September 2015. Retrieved February 7, 2017 from <https://www.nap.edu/read/22093/chapter/5>.

Table 2.9: Rail Network Changes in Kansas Since 2010

Docket No.	Name of Carrier	Description	Kansas Miles	Status
AB_1032_0_X	Nebraska, Kansas & Colorado Railway	Abandonment: Almena, KS to KS/NE state line; Reager, KS to Oberlin, KS; and Norton Spur, Norton KS. Service Discontinuance: Almena, KS to Oronoque Jct., KS, on Kyle Railway	Abandonment: 47.61 miles. Service Discontinuance: 17.7 miles	Regarding abandonment, track has been removed in 2016; use of line as a trail is under negotiation. The Surface Transportation Board granted an extension until September 11, 2017 on this decision. Regarding discontinuance of service, NKC is no longer operating on the Kyle line.
AB_33_313_X	Union Pacific Railroad	Interim trail use: City of Osawatomie, KS	0.5 miles	UP and City issued a Joint Notice of Interim Trail use/Rail Banking Agreement in 2015.
AB_33_270_X	Union Pacific Railroad	Abandonment: West of Downs, KS to west of Portis, KS, i.e., the end of the Lenora Branch Line.	12.4 miles	Abandoned in 2011.
AB_33_269_X	Union Pacific Railroad	Abandonment: West of Bourne, KS to west of Stockton, KS, i.e., the Solomon Branch.	31.3 mile	Abandoned in 2011.
AB_103_9_X	Kansas City Southern Railway	Abandonment: KCS main line in Jasper County, MO to near Crestline, KS, i.e., the Baxter Springs Branch.	5.4 miles	Abandoned to trail use in 1994; trail use surrendered in 2015.
AB_870_0_X	Butler County	Interim trail use: County's line east of Andover, KS.	2.87 miles	Notice of Interim Trail Use issued in 2016.
AB 927 X	Boot Hill & Western Railway	Interim trail use: Bucklin to Wilroads, KS.	15.8 miles	Notice of Interim Trail Use re-issued in 2015, with change in interim trail manager.

Source: Surface Transportation Board (STB)

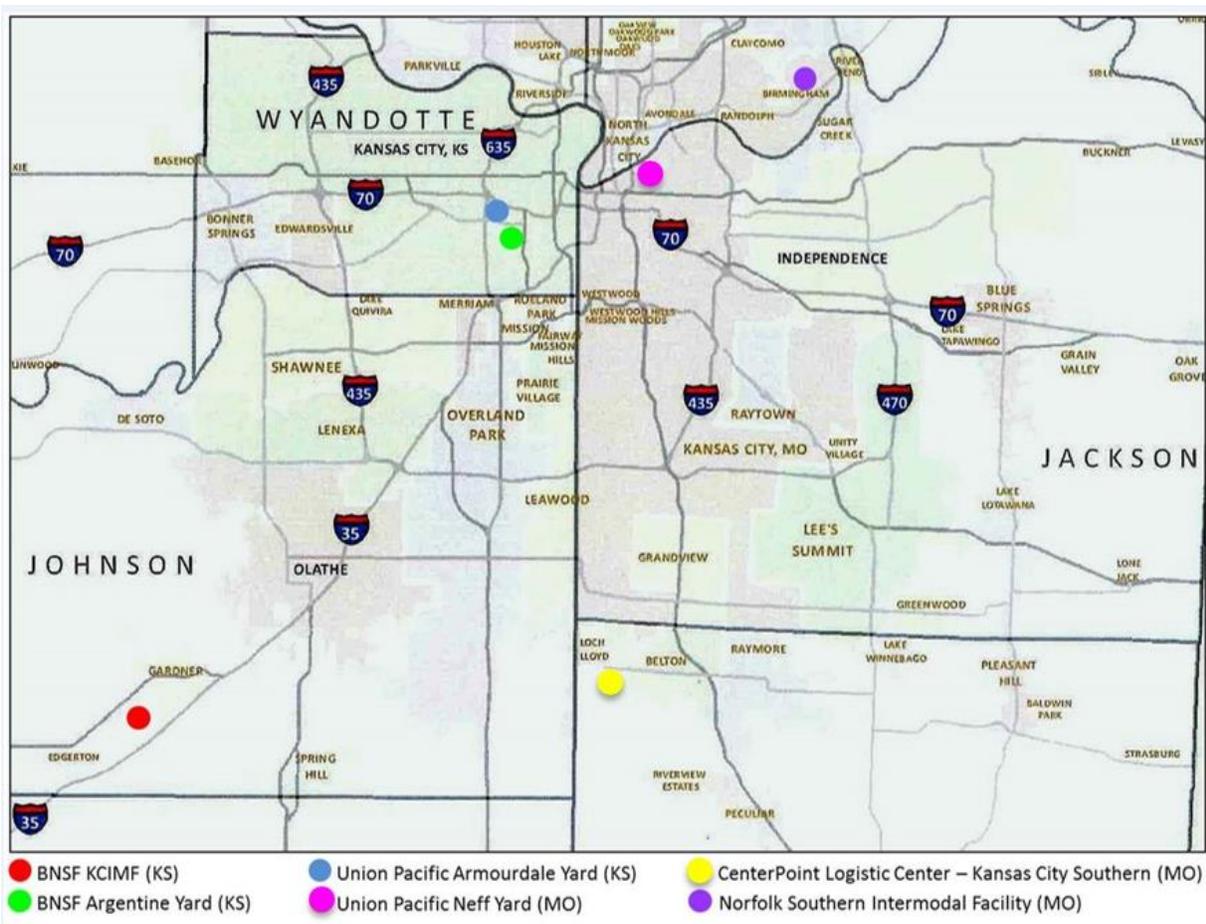
2.10 Intermodal

This section will discuss intermodal service where freight is transferred from one mode to another. The facilities discussed are intermodal facilities, transload facilities, major rail yards/facilities, and shuttle grain elevators.

2.10.1 Intermodal Facilities

Kansas is the proud home of BNSF’s newest state of the art intermodal container facility. The Logistics Park Kansas City (LPKC) Intermodal Facility is in Edgerton within the Kansas City metropolitan area. It is one of the three major intermodal facilities in Kansas City region within the state of Kansas, see **Figure 2.27**. LPKC is a major economic driver and jobs creator for Kansas. The BNSF Intermodal LPKC has an enormous growth opportunity available. LPKC handled over 360,000 lifts in 2016 with a current capacity of more than 500,000 lifts. The adjacent warehousing and distribution centers are part of the 1,700-acre North Park Development that offers 3.4 million square feet of rail served warehousing as a portion of the 17 million square feet of building capacity.

Figure 2.27: Major Intermodal Facilities in Kansas City Region



2.10.2 Transload Facilities

Transloading is the movement of freight from one mode of transportation to other. This process is common when one mode of shipping often cannot be used for the entire move from origination to destination point. Transloading can occur at any place depending on the requirements of the shipment. Transload facilities are designed to minimize the handling of cargo and may require warehouses, truck or rail yards, or material handling facilities. Some of the benefits of transloading include:

- Faster return of ocean containers to productive use by the steamship line
- Reduced repositioning expenses
- Reduced cost for inland moves of ocean containers and other commodities
- Multimodal choice which leads to a faster delivery to market

BNSF identifies the following five transload facilities in Kansas¹⁷.

Metro Park Warehouse Fairbanks is a warehousing and open air storage transload facility in Kansas City. The warehouse serves grocery products, wine, paper products and various metal products including aluminum, lead, copper, and zinc. There is 1 rail car capacity.

Harcros Chemicals handles bulk products in Kansas City. Some of the commodities include acids, solvents, peroxide, cottonseed oil, vegetable oil, and potash to name a few of the products. There are 8 tracks capable of storing 55 rail cars.

United Warehouse Company in Wichita offers warehousing and dimensional storage. They handle aluminum, bricks, grocery products, household appliances, lumber and other paper products. They have 2 tracks and 15 rail car spots available.

Garvey Public Warehouse also offers warehousing and dimensional storage in Wichita. Some of the products include bricks, lumber, wallboard, particle board, plywood, railroad ties, and roofing materials.

Transportation Partners and Logistics is located in Garden City with uncovered storage of dimensional products. An important product stored at the facility is wind energy tower components such as windmill blades. Other commodities stored at the facility include bricks, lumber, siding, machinery, poles and posts, railroad ties, and roofing materials.

Union Pacific identifies six transload facilities on its system.

Union Pacific Delivery Services Partner has four transload locations in the Kansas City area. These facilities offer services such as sampling, freight consolidation, packing, re-wrapping, and truck brokerage. The range in rail car storage available is from 3 to 39 to 75 rail cars. One facility does not have rail car storage available. Likewise, the commodities vary widely from aggregates, food, metals, liquid bulk, and hazmat liquids.

¹⁷ BNSF, <http://domino.bnsf.com/website/premtransloader.nsf/mapprlocations>

UP has another **Union Pacific Delivery Services Partner** located in Pittsburg with warehouse space available. Some of the commodities the facility handles include machinery, metals, foods, liquids, lumber, paper, and plastics to name a few. There are 6 rail cars spots at this facility and offer strapping/banding, pick and pack, Re-wrapping, and sorting services.

Savage Services Corporation in a UPDS Gold Network Partner in El Dorado. Wet and dry bulk, metals, lumber, paper, plastics, and hazmat materials are handled at this facility. There are 40 rail car spots at this location.

KDOT has worked the past two years to select two sites for additional transload facilities. From an initial call for applications that resulted in 83 applications and 111 sites submitted, the two selected sites were in Great Bend and Garden City. The **Garden City facility** is an expansion of the existing Transportation Partners and Logistics operations from 200 acres to 900 acres. This site was completed in 2016. The **Great Bend facility** is located at the Airport Industrial Park on the west side of the city and opened in June 2017. Currently, this facility serves as a laydown yard for wind energy components (nacelles, blades, tower sections and hubs), aggregate (1,000 ton per hour railcar unloading system that transloads rock from railcars via a series of conveyors, then to a computer automated stacker that allows materials to be place in separate piles for different materials. Aggregates are load onto trucks by a large front end loader, weighed and sent out) and inbound cement products. This facility will also offer warehousing and laydown facilities for pipe, lumber, dimensional goods and oil field related products. Additionally, the facility will also be able to accommodate agricultural commodities in the future.

2.10.3 Major Yards and Facilities Freight Rail

The major freight facilities for the Class I railroads in Kansas appear in **Table 2.10**. The type of facility is also noted. Intermodal refers to the handling of intermodal containers. Transload refers to a several potential activities including cross docking, bulk breaking, storage, and repackaging to name a few. Auto indicates the ability to handle automobiles. Manifest refers to mixed trains with a variety of rail car types and products.

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. The highest capacity elevators are often used to load trainload quantities of grain or “shuttle trains.” These shuttle trains average between 75 and 120 cars. The shuttle elevators within the state are listed in **Table 2.11**.

Table 2.10: Major Freight Rail Yards and Facilities in Kansas

Railroad	City	Terminal	Intermodal	Transload	Auto	Manifest
BNSF	Kansas City	Argentine Yard		•	•	•
	Arkansas City, KS					•
	Dodge City, KS					•
	Emporia, KS					•
	Hutchinson, KS			•		•
	Wichita, KS					•
	Edgerton, KS	Logistics Park Kansas City (LPKC)	•	•		
	Newton, KS			•		•
	Topeka, KS					•
	Wellington, KS					•
KCS	Pittsburg, KS	Classification Yard				•
UP	Fairfax, KS					•
	Kansas City, KS	18 th Street Yard				•
	Kansas City, KS	Armourdale				•
	Kansas City, KS	Quindaro				•
	Liberal, KS					•
	Muncie, KS	Ramp			•	
	Salina, KS	Team Track		•		
	Topeka, KS					•
Wichita, KS	United Warehouse				•	

Source: KDOT

Table 2.11: Shuttle Grain Elevators in Kansas

City	Name	Railcar Capacity	Elevator Capacity (in 1,000 bushels)	Carriers
Abilene	Gavilon Grain LLC	110	4,839	UP, BNSF
Atchison	Bartlett Grain	85	936	UP
Atchison	Cargill	78	9,212	UP, BNSF
Atchison	Bunge Milling	62	10,929	UP, BNSF, KCS
Canton	Producer Ag	110	7,500	UP
Colby	Cornerstone Ag LLC	100	928	UP
Concordia	AgMark LLC	115	4,750	BNSF
Coolidge	Scoular Company	110	2,300	BNSF
Dodge City	ADM Grain	104	1,880	BNSF
Downs	Scoular Grain	110	1,500	UP, KYLE
Ensign	Dodge City Coop Exchange	112	2,301	BNSF, CVR
Frankfort	Farmers Coop	110	4,200	UP
Garden City	WindRiver Grain LLC	110	4,856	BNSF
Glen Elder	AgMark LLC	110	1,200	UP, KYLE
Hanover	Farmers Coop Assn	110	522	UP
Haviland	Farmers Cooperative Co.	100	1,300	UP
Hugoton	United Plains Ag LLC	110	2,360	BNSF, CVR
Hutchinson	ADM Grain (Elevator I)	110	5,800	UP, BNSF
Hutchinson	ADM Grain (Elevator J)	108	18,300	BNSF
Kansas City	Bartlett River Rail	75	10,000	UP, BNSF
Kansas City	ADM/Farmland Fairfax	60	8,700	UP, BNSF
Kansas City	ADM Gowmark Wolcott	65	2,300	UP
Liberal	Conestoga Energy	100	2,400	UP
Milan	MKC Grain Elevator	under	construction	BNSF
New Cambria	ADM Grain, Elev. A	110	2,057	UP
Ogallah	Castle Rock Marketing	103	568	UP
Plains	Collingwood Grain	100	3,000	UP
Pratt	Scoular Company	110	1,800	UP
Salina	Cargill	112	32,000	UP, BNSF, KO
Salina	Scoular Company	110	11,047	UP, BNSF
Salina	ADM Collingwood (Term. A)	110	2,000	UP
Salina	Cargill	110	32,000	UP, BNSF, KO
Sharon Springs	United Plains Ag LLC	110	1,800	UP
Topeka	Cargill Gordon Unit	110	27,000	UP, BNSF, KCS
Topeka	Cargill AgHorizon	75	12,055	UP, BNSF, KCS
WaKeeney	Castle Rock Marketing	100	550	UP
Wellington	Scoular Company	110	2,280	BNSF
Wichita	Bartlett Grain	110	10,340	UP, BNSF, WTA
Wichita	Gavilon Grain LLC	110	22,549	UP, BNSF, KO
Wright	Right Coop	120	2,943	BNSF

Source: UP (<http://dx01.my.uprr.com/pubdir/graindir.nsf/webstate?OpenView&Start=1&Count=1000&Expand=9#9>), BNSF (<https://www.bnsf.com/customers/grain-facilities/elevators/>), and KDOT

2.11 Rail Safety and Security

KDOT works with its private sector, state, and federal partners to implement a comprehensive rail safety and security program. This includes the following efforts:

2.11.1 Positive Train Control

Positive Train Control (PTC) refers to technologies designed to automatically stop or slow a train before certain accidents can occur. PTC is designed to prevent collisions between trains and derailments caused by excessive speed, trains operating beyond their limits of authority, incursions by trains on tracks under repair, and by trains moving over switches left in the wrong position. The Rail Safety Improvement Act of 2008 required railroads to place PTC systems in service by December 31, 2015 on all rail main lines over which regularly-scheduled commuter or intercity passenger trains operate, and on all Class I railroad main lines with over 5 million gross ton-miles per mile annually over which any amount of toxic/poison-by-inhalation hazardous materials are handled. In late 2015, Congress extended the PTC implementation deadline to December 31, 2018. The PTC mandate excludes all Class II and III railroads, unless they accommodate passenger trains over their lines. All three Class I railroads owning track in Kansas – BNSF, KCS and UP – are busy implementing PTC throughout their networks:

- BNSF reported that it will have implemented PTC on mandated subdivisions by December 31, 2018. The railroad completed almost half of its 86 PTC-mandated subdivisions operating by the end of 2016. PTC on the Emporia Subdivision is in service.
- KCS has installed or partially installed 53 percent of its PTC-mandated subdivisions with PTC hardware and software; 16.4 miles of PTC-mandated lines are located within the state of Kansas. KCS has partially installed PTC on about 75 percent of its 600+ locomotives earmarked for the technology.
- Union Pacific’s goal is to complete PTC system implementation by the end of 2018. The revenue service demonstration (RSD) of its PTC system began in Southern California in December 2015, and is moving north to the Pacific Northwest in 2016. Thence, RSD will head east through the mountain and prairie states (including Kansas) to Chicago, thence south to the Gulf of Mexico, and finally west to Southern California.

2.11.2 Rail Security

Rail security is a cooperative effort between the state and the federal Department of Homeland Security (DHS). DHS addresses rail security by providing training and deploying manpower and assets for high risk areas; developing and testing new security technologies; performing security assessments across the country; and providing targeted funding to state and local partners. DHS provided Freight Rail Security Grants to two Kansas railroads, the KCT Railroad Company and the SKOL Railroad, in 2010¹⁸. The lead state agency for rail security in Kansas is the Kansas Division of Emergency Management (DEM), an arm of the Adjutant General’s Department. The DEM requires each county to maintain a disaster agency responsible for emergency preparedness, and

¹⁸ U.S. Department of Homeland Security Grant Programs Directorate Information Bulletin No. 342, May 13, 2010.

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.

2.11.3 Grade Crossing Safety

KDOT has a crossing safety program aimed at improving safety at rail-highway intersections around the state. KDOT uses federal funds to target the highest priority crossings for improvement, as measured by a hazard exposure index. For example, KDOT has historically allocated \$10 million annually in federal Hazard Elimination and Surface Transportation Program funds for grade crossing safety improvements. Crossings that don't qualify for federal funds may still be addressed through the state funded Highway/Railroad Crossing Program, which provides \$300,000 per year. KDOT also administers the Railroad Grade Separation and Local Partnership Grade Separation Programs which are specifically geared towards grade separation projects.

Operation Lifesaver – This is a non-profit educational organization that educates the public about grade crossing safety and rail trespass prevention. Operation Lifesaver provides educational outreach to improve pedestrian and driver situational awareness at crossings and around tracks, while promoting continued research into railroad crossing safety.

Hazardous Materials Safety Programs – Railroads are required to transport hazardous materials per federal common carrier regulations. Within Kansas, the Department of Health and Environment is charged with regulating and registering transporters of hazardous waste. This primarily involves inspection/review of railroad and shipper facilities, records, and procedures to ensure adherence to federal regulations, as well as providing technical assistance and education to stakeholders including shippers, carriers, emergency responders, and the public.

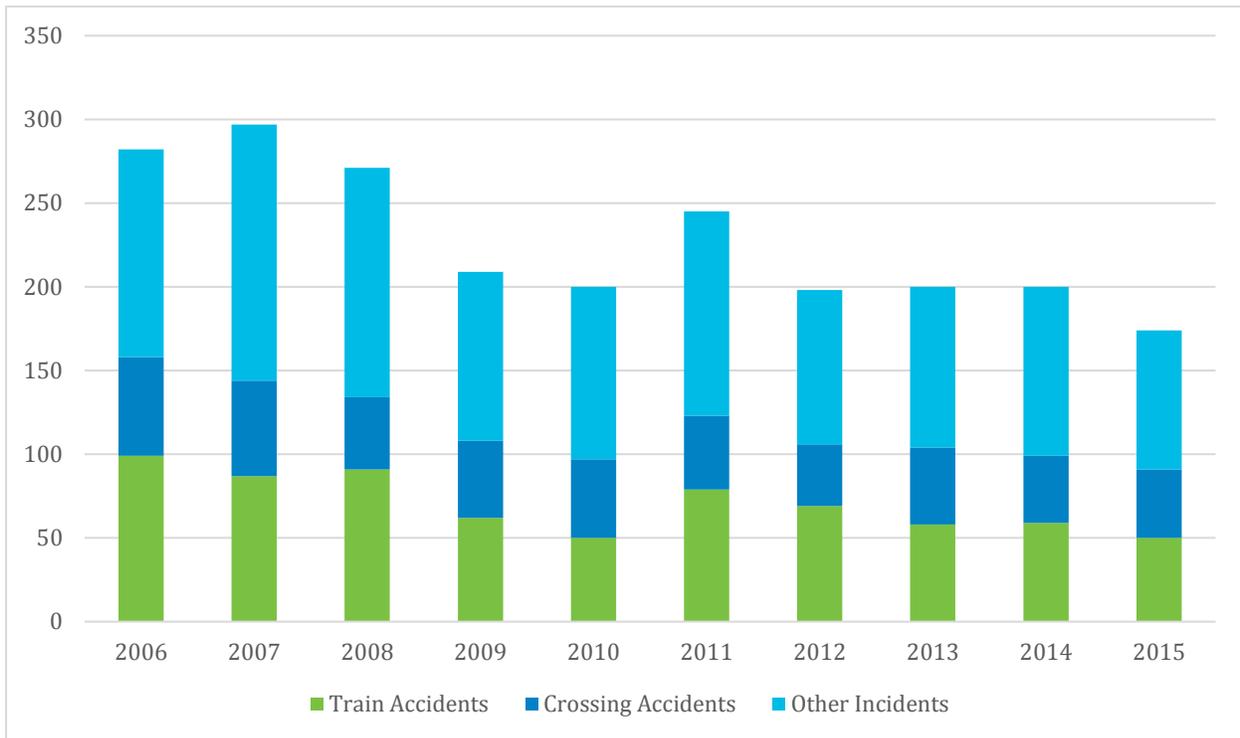
2.11.3.1 Kansas Rail Accident Statistics

The various rail safety programs, as well as educational outreach, have been successful at improving rail safety in Kansas. As shown in **Figure 2.28**, railroad accidents have generally been on a downward trend over the last 10 years, declining from a high of 297 in 2007 to 174 in 2015. As the chart shows, the FRA classifies rail incidents into three categories:

Train incidents include train derailments, collisions, and other events involving on-track rail equipment that result in fatalities, injuries or monetary damage above a threshold set by FRA. These types of accidents declined by 49% over the past 10 years. There were zero fatalities from these types of incidents and only a minimal number of injuries in 2015. Most of these incidents are derailments, and the predominate causes are human error and track defects.

Crossing accidents (incidents involving passenger vehicles or other non-rail modes at highway-rail grade crossings) declined from 59 in 2006 to 41 in 2015, a drop of 31%. Within this group, fatalities declined by 87% during this period, while injuries dropped by 44%. There are more than 5,200 public grade crossings in Kansas. These crossings are equipped with varying levels of protection ranging from active treatments such as gates and bells to passive measures like crossbucks and stop signs. The majority of public crossings (3,218) have passive safety features, however most of these are in low traffic, rural locations.

Figure 2.28: Rail Accident Trends in Kansas, 2006-2015



Source: Federal Railroad Administration.

Other accidents or incidents are events other than train accidents or crossing incidents that caused a death or injury to any person. Most fatalities in this category involve rail trespassers. Other incidents included here are falls, getting on or off equipment, performing maintenance work, and throwing switches. These incidents declined from 124 in 2006 to 83 in 2015, or by 33%.

The FRA also compiles statistics on railroad accidents involving hazardous materials. These have also trended downward in Kansas, as shown in **Table 2.12**. The number of rail cars carrying hazmat that were involved in accidents declined by 81% over the last ten years, while cars that were damaged or derailed in such incidents dropped by 71%. No railcars actually released hazardous materials into the environment from 2013-2015.

Table 2.12: Rail Accidents Involving Hazardous Materials in Kansas (2006-2015)

Rail Incidents	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Percent Change 2006 - 2015
Cars Carrying Hazmat	519	543	491	116	149	212	192	215	228	97	-81%
Hazmat Cars Damaged or Derailed	42	52	28	13	4	35	25	19	19	12	-71%
Cars Releasing Hazmat	4	2	2	0	0	4	3	0	0	0	-100%

Source: FRA Office of Safety Analysis.

2.12 Rail's Current Economic Impacts

Freight rail services facilitate economic activity associated with the production and consumption of goods traded. Trade-oriented impacts reflect the production of intermediate and final goods, the reallocation of intermediate goods, and the consumption of final goods. Kansas-specific goods movements are translated into economic activity by tracing directional commodity values through commodity-industry economic interrelationships.

In addition to encapsulating economic activity directly related to provisioning freight services (e.g., the rail industry), translating economically-relevant freight values into trade-related impacts demonstrates the role of freight rail's importance to Kansas' economy. Such economic impact analysis provides a complementary perspective for traditional freight-related analysis that emphasizes movement volume (tons and/or units) and the route/facility capacity.

2.12.1 Economic Impact Terminology

The economic impacts of freight rail are categorized into two activities: freight service providers, and trade users; three types: direct, indirect, and induced; and five measures: jobs (employment), income, value-added, output, and taxes.

Activities:

- *Freight Service Providers* – Impacts associated with provisioning freight services (i.e., the rail industry) include primarily modal transportation, but also includes support and administrative operations. Service provider impact estimates are based on existing transportation industry data in IMPLAN® (e.g., “truck transportation”), proportioned by the freight-related composition for certain aggregate industries.¹⁹
- *Trade Users* – Impacts associated with shippers/receivers using freight services for goods movement (intermediate and final goods), excepting the freight industry itself. Trade-related impacts are estimated via tracing Kansas-specific commodity values (from IHS TRANSEARCH®) through commodity-industry interrelationships (from IMPLAN®) as a gauge to how freight goods movements are interconnected throughout the economy.

Types:

- *Direct* – Calculated service providers and trade users impacts.
- *Indirect* – Impacts associated with the suppliers that provide intermediate goods and services to the directly impacted industries.
- *Induced* – Impacts associated with the re-spending of earned income from both the direct and indirect industries in the study area.²⁰

¹⁹ Such aggregate transportation industries (i.e., “rail transportation” and “air transportation”) were disaggregated into respective freight and passenger subcomponents by proportionally applying the United States Census County Business Patterns data for air, and AMTRAK data for rail.

²⁰ Note that the indirect and induced impact types are often referred to, jointly, as multiplier impacts.

- *Total* – Summation of direct, indirect, and induced types.

Measures:²¹

- *Jobs (Employment)* – Measured in terms of full-time-equivalent (FTE) job-years.
- *Income* – Wage/salary earnings paid to the associated jobs.
- *Value-Added* – Net additional economic activity (i.e., total output less gross intermediate inputs), synonymous with GRP (gross regional product); includes employee and proprietor income, other income types, taxes, etc., required to produce final goods and services.
- *Output* – Total sales value associated with all levels of economic activity (comprised of gross intermediate inputs and value added, combined).
- *Taxes* – Various taxes on production and imports (sales, property, excise, etc.), fines, fees, licenses, permits, etc. resulting from business economic activity; this includes all federal, state, and local tax revenues.

2.12.2 Economic Impacts

Impacts are summarized for rail by activity (service providers, trade users, and a combined total), type (direct, indirect, induced, and an economic total), and measure (employment, income, value added, output, and tax revenue) for year 2014 to provide a comprehensive perspective on how rail freight in Kansas impacts the economy. The rail economic impacts are presented in **Table 2.13**.

In Kansas, freight rail operations are directly or indirectly responsible for nearly 235,000 jobs, second only to trucking among the freight modes. Of these, 5,420 were directly employed by railroads. Firms that use freight rail service directly to trade goods accounted for another 100,960 jobs, while multiplier impacts created another 128,520 positions. Like trucking, most impacts are trade-related, accounting for over 90%, excepting direct taxes (71%). Directionally, impacts associated with inbound rail are larger than outbound, especially employment-related impacts. However, the outbound/intra-impacts are associated with a higher relative multiplier and more production per employee than inbound-related impacts.

²¹ Monetary measures are presented in constant 2014 dollars (income, value-added, output, and taxes).

Table 2.13: Rail Impacts by Activity and Economic Measure/Type

Measure and Type	Services	Trade Users			Service and Trade	Total Rail Activity (Percent of Economy)
		Outbound/Intra	Inbound	Trade Total		
Employment *						
Direct	5,420	32,710	68,240	100,950	106,370	5.6%
Indirect	4,220	29,520	31,390	60,910	65,130	3.5%
Induced	5,340	25,230	32,820	58,050	63,390	3.4%
Total	14,980	87,460	132,450	219,910	234,890	12.5%
Income **						
Direct	\$636	\$2,398	\$3,681	\$6,079	\$6,715	7.1%
Indirect	\$242	\$1,768	\$1,755	\$3,523	\$3,765	4.0%
Induced	\$219	\$1,033	\$1,345	\$2,378	\$2,597	2.7%
Total	\$1,097	\$5,199	\$6,781	\$11,980	\$13,077	13.7%
Value Added **						
Direct	\$1,725	\$3,801	\$5,289	\$9,090	\$10,815	7.2%
Indirect	\$353	\$2,729	\$2,754	\$5,483	\$5,836	3.9%
Induced	\$381	\$1,798	\$2,340	\$4,138	\$4,519	3.0%
Total	\$2,459	\$8,328	\$10,383	\$18,711	\$21,170	14.0%
Output **						
Direct	\$2,650	\$14,825	\$14,940	\$29,765	\$32,415	9.8%
Indirect	\$851	\$5,923	\$5,792	\$11,715	\$12,566	3.8%
Induced	\$666	\$3,139	\$4,085	\$7,224	\$7,890	2.4%
Total	\$4,167	\$23,887	\$24,817	\$48,704	\$52,871	16.0%
Tax Revenue **						
Direct	\$265	\$124	\$515	\$639	\$904	9.2%
Indirect	\$27	\$226	\$236	\$462	\$489	5.0%
Induced	\$33	\$156	\$203	\$359	\$392	4.0%
Total	\$325	\$506	\$954	\$1,460	\$1,785	18.2%

Source: CDM Smith, IHS TRANSEARCH[®] and IMPLAN[®]

* employment rounded to the nearest ten job-years; totals may not sum due to rounding

** in millions of 2014 dollars

2.13 Conclusions

Kansas has a robust rail system that serves the state's industries and population well. The state's freight rail network includes three Class I railroads which provide Kansas shippers with connections to national and international markets, as well as 11 Class III railroads that provide critical "last mile" connectivity and connect to the Class I national network for transport of Kansas products to regional, national and international markets. Amtrak provides intercity passenger service to six stations in Kansas along its *Southwest Chief* route which connects Chicago to Los Angeles. Passengers are also able to use the Thruway bus service to transfer between the *Southwest Chief* and the *Heartland Flyer* which operates between Oklahoma City and Fort Worth. Rail operations in Kansas are generally safe, with overall accidents, fatalities, and injuries declining over the last several years. The freight rail industry is also directly or indirectly responsible for thousands of jobs in Kansas, nearly \$53 billion in economic output, and \$1.8 billion in tax revenues.

Chapter 3

Passenger Rail Performance, Improvements, and Potential Investment

3.1 Introduction

This chapter notes Amtrak performance in Kansas, various ongoing or proposed passenger rail initiatives as well as new passenger rail service concepts that could enhance future mobility options for Kansans. These include intercity passenger and commuter rail services. Intercity rail passenger services are generally 100-150 miles or more in length operating with limited frequencies seven days a week. Commuter rail is a mass transit option that links relatively high density work centers with outlying residential communities and a service concentration on weekdays during the morning and evening commute periods.

The primary intercity passenger rail initiative involving Kansas would provide service between Kansas City, Wichita, Oklahoma City and Fort Worth. Kansas could also be served by the Midwest Regional Rail Initiative (MWRRI) reaching Kansas City, Missouri. Other proposed Midwestern rail concepts that could serve Kansas include concepts to link Kansas City, Missouri with Omaha, Des Moines and the Twin Cities, which have been discussed in state rail plans of nearby states.

In addition, a commuter rail option serving Kansans working in Kansas City, Missouri, was identified in recent years.

These passenger rail concepts are discussed in the sections that follow.

3.2 Amtrak Performance Evaluation

This section provides an overview of the metrics associated with intercity rail passenger operations in Kansas. Where available it describes the ridership, operating, and financial results for these services. Amtrak operates one long-distance intercity train through Kansas, the *Southwest Chief*. The performance characteristics for the train are outlined below. Amtrak also offers Thruway bus service in Kansas, a link between the *Southwest Chief* in Newton and the *Heartland Flyer* in Oklahoma City. The service started in April 2016 and carried 4,240 passengers during the 12 months from June 1, 2016 to May 31, 2017. The performance of this daily round trip is not discussed below.

3.2.1 Ridership and Utilization

In fiscal year 2016, there were nearly 50,000 boardings (riders boarding) and alightings (riders departing) at Kansas stations, as seen in **Table 3.1**. Total ridership in the state increased 13.6 percent from 2010 through 2016. Of the six Kansas stations, Newton consistently experienced the greatest ridership volume, with over 13,700 passenger boardings and alightings in 2016. The Lawrence station has experienced consistent increases in ridership since 2010. The Dodge City and Hutchinson stations generated the lowest ridership at approximately 5,000 passengers per year

each. Kansas Amtrak ridership peaked in 2013 at over 50,000 riders, likely driven by high gas prices, which began to tumble in 2014. Ridership generated by Kansas stations (half of total boardings and alightings) in FY 2016 accounted for approximately 13 percent of the *Southwest Chief's* total annual ridership of 364,748²².

Table 3.1: Kansas Stations Boarding and Alightings 2010-2016

Station	2010	2011	2012	2013	2014	2015	2016	Change
Dodge City	4,847	5,149	5,174	5,149	5,300	5,048	4,895	1.0%
Garden City	7,075	7,511	7,887	7,355	7,870	7,972	7,378	4.3%
Hutchinson	4,519	5,185	5,239	5,303	5,312	4,925	4,691	3.8%
Lawrence	5,096	6,410	6,608	7,204	8,017	8,319	8,465	66.1%
Newton	13,326	13,890	14,131	14,564	12,871	13,010	13,741	3.1%
Topeka	8,618	9,760	10,459	10,571	10,048	10,399	10,214	18.5%
Total	43,481	47,905	49,498	50,146	49,418	49,673	49,384	13.6%

Source: Amtrak

The *Southwest Chief's* route ridership performance in 2016 was down 0.7 percent from the 367,267 riders in FY2015, as seen in **Table 3.2**. The train's total ridership was up 6.5 percent over the seven-year period. The largest ridership markets for the *Southwest Chief* are Chicago – Los Angeles, Chicago – Kansas City and Albuquerque – Los Angeles, each accounting for 8 percent of total trips in FY2011²³. By way of comparison, the 6.5 percent ridership increase for the *Southwest Chief* is outpacing the 4.0 percent increase in Amtrak ridership for all its long-distance trains over the period.

Table 3.2: Ridership for Southwest Chief and All Long-Distance Trains 2010 - 2016

Service	2010	2011	2012	2013	2014	2015	2016
<i>Southwest Chief</i>	342,403	354,912	355,316	355,815	352,162	367,267	364,748
Change Year over Year	7.7%	3.7%	0.1%	0.1%	-1.0%	4.3%	-0.7%
Long Distance Trains	4,474,844	4,521,833	4,736,187	4,757,358	4,543,199	4,488,542	4,655,599
Change Year over Year	6.6%	1.1%	4.7%	0.4%	-4.5%	-1.2%	3.7%

Source: Amtrak Monthly Performance Reports for September 2010 – 2016

Passenger-miles per train-mile is a measure of utilization generated by dividing service passenger-miles (moving one passenger one mile is one passenger-mile²⁴) by route train-miles (moving a train one mile is one train-mile²⁵). The measures for each service have changed only slightly over the periods studied, as seen in **Table 3.3**. The *Southwest Chief* utilization rate both improved and exceeded that for all long-distance trains over the most recent period studied²⁶.

²² Amtrak Monthly Performance Report, September 2016.

²³ Per *PRIIA Section 210 FY12 Performance Improvements Plan, Auto Train, City of New Orleans, Coast Starlight, Empire Builder, Southwest Chief*, Amtrak, September 2012.

²⁴ Estimated passenger-miles per trip were 437,145 for the *Southwest Chief* in FY2016.

²⁵ Train-miles per trip are the length of the routes, viz., 2,265 for the *Southwest Chief*.

²⁶ *Southwest Chief* riders' average trip length calculates to 860 miles.

Table 3.3: Rolling Average, Passenger-Mile per Train-Mile for Southwest Chief and All Amtrak Long Distance Trains

Route	Oct. 2013 – Sep. 2015	Oct. 2014 – Sep. 2016
<i>Southwest Chief</i>	191	193
Long Distance Trains	189	184

Source: Quarterly Report on the Performance and Service Quality of Intercity Passenger Train Operations, 2016

3.2.2 Financial Performance

Revenue and cost information by route is shown in **Table 3.4**. The revenue-to-cost or cost recovery ratio is calculated as follows: total ticket revenue, including ticket revenue and revenues from meals and other operating sources, divided by fully allocated operating costs. The ratio is a metric of the amount, by percentage, of each service's costs that are covered by revenues. Between 2010 and 2016, the cost recovery ratios for the *Southwest Chief* have been stable, varying in a range from 42.5% to 49.4%. These performances, however, are noticeably lower than that of Amtrak's long distance trains overall, which generated a cost recovery in the range of 47.5% to 53.4% over the past seven years.

Table 3.4: Financial Performance of the Southwest Chief and All Long-Distance Trains, 2010 - 2016

Service	2010	2011	2012	2013	2014	2015	2016
<i>Southwest Chief</i>							
Revenue	\$44.8	\$48.0	\$48.2	\$49.1	\$49.4	\$49.8	\$48.2
Operating Cost	\$103.2	\$111.8	\$113.3	\$115.6	\$108.9	\$100.9	\$103.0
Cost Recovery	43.4%	42.9%	42.5%	42.5%	45.4%	49.4%	46.8%
Long Distance Trains							
Revenue	\$485.8	\$518.5	\$557.1	\$568.8	\$564.2	\$545.3	\$551.9
Operating Cost	\$1,019.2	\$1,090.7	\$1,132.2	\$1,163.0	\$1,071.7	\$1,040.0	\$1,033.3
Cost Recovery	47.7%	47.5%	49.2%	48.9%	52.6%	\$52.4%	\$53.4%

Source: Amtrak Monthly Performance Reports for September 2010 - 2016

In 2014 and 2015, the *Southwest Chief's* route received \$46 million in federal Transportation Investment Generating Economic Recovery (TIGER) grants for track upgrades and repairs to improve and maintain train operating speed. The 2015 award included matching funds from Colorado, New Mexico and Kansas (\$1 million each), plus a \$4 million commitment from Amtrak and \$2 million from BNSF. La Junta, Colorado, was the lead applicant for the award. TIGER grants are discussed later in this chapter.

3.2.3 On-Time Performance and Customer Satisfaction

Amtrak defines on-time performance (OTP) as the total number of trains arriving on-time at a station divided by the total number of trains operated on that route. A train is considered on-time if it arrives at the final destination within an allowed number of minutes, or tolerance, of its scheduled arrival time. Tolerances vary based on how far trains travel.

OTP Annual Trend – The on-time performance of the *Southwest Chief* since 2010 is shown in **Table 3.5**, along with the OTP of all Amtrak long distance trains over the seven-year period. The impact of the 2014 and 2015 TIGER grants are showing in the 21 percent OTP growth in 2016.

Table 3.5: On-Time Performance of the Southwest Chief and of All Long-Distance Trains, 2010 - 2016

Service	2010	2011	2012	2013	2014	2015	2016
<i>Southwest Chief</i>	79.1%	73.3%	75.3%	60.5%	44.8%	34.6%	55.9%
Change Year over Year	-6.1%	-5.8%	2.0%	-14.8%	-15.7%	-10.2%	21.3%
Long Distance	74.6%	63.7%	70.7%	54.6%	39.4%	43.2%	55.1%
Change Year over Year	-0.5%	-10.9%	7.0%	-16.1%	-15.2%	3.9%	10.4%

Source: Amtrak Monthly Performance Reports for September 2010 – 2016

The on-time performance standard for long distance trains established by the Passenger Rail Investment and Improvement Act of 2008 (PRIIA) is 80%. After nearly achieving an OTP exceeding the standard in 2010, the *Southwest Chief* has experienced a steady decline in OTP until 2016.

Cause of OTP Delays – Causes for Amtrak train delays can be attributed to many reasons. **Table 3.6** shows the leading causes of delay, by percentage of delay minutes, for the *Southwest Chief* as well as for all Amtrak long distance trains in September 2016. The single largest cause for delay for all Amtrak long distance trains was train interference. For the *Southwest Chief* no single cause stands out.

Table 3.6: Causes of Delay for Southwest Chief and All Long Distance Trains (September 2016)

Causes of Delays	<i>Southwest Chief</i>	Long Distance Trains
Train Interference	19.4%	27.1%
Passenger Operations Related Delays	23.7%	21.5%
Slow Orders	22.3%	15.4%
All Other Freight Railroad Operational Delays	18.2%	18.5%
All Other Delays	16.3%	17.5%
Total Delays	100.0%	100.0%

Source: Amtrak Monthly Performance Reports for September 2016.

The following provides definitions of each type of causes of delay, as listed in the table above.

- **Train Interference Delays** are related to other train movements in the area. These can be delays from freight trains as well as other Amtrak trains.
- **Passenger Operating Delays** are related to equipment turning and servicing, engine failures, passenger train holds for connecting trains and buses, crewing, and detours.
- **Slow Orders** are delays from reduced speeds to allow safe operation due to track problems.
- **All other Freight Railroad Operational Delays** are miscellaneous freight railroad delays and delays related to the railroad infrastructure and / or maintenance work being done on the tracks or signaling systems.

- **All Other Delays** could include delays caused by the weather and non-railroad third-party factors such as customs and immigration, a bridge opening for waterway traffic, police activity, grade crossing accidents, or loss of power due to a utility company failure.

Customer Satisfaction Indicator – Amtrak’s Customer Service Indicator (CSI) scores measure the satisfaction by passengers, on an 11-point scale, on particular aspects of their trip. For example, a CSI score of 80 means 80% of respondents rated the aspect of their trip in the top three of the 11 steps of the scale.

- **Overall Service** is the measure for the respondents rating for their overall trip experience.
- **Amtrak Personnel** is the measure for the respondents rating Amtrak reservations personnel, station personnel, train crew and on-board service crew.
- **Information Given** is the measure for the respondents rating all information they received pertaining to their trip.
- **On-Board Comfort** is the measure for the respondents rating seat or sleeping compartment comfort, air temperature and ride quality.
- **On-Board Cleanliness** is the measure for the respondents rating the cleanliness of the train and on-board restrooms.
- **On-Board Food Service** is the measure for the respondents rating the quality of the food and snacks purchased on-board the train.

Table 3.7 shows the CSI averaged scores for the *Southwest Chief* and all long-distance trains in the fourth quarter of FY2016 compared to Amtrak’s standard. In general *Southwest Chief’s* performance met or exceeded the average for all Amtrak long distance trains in four of six categories. However, it exceeded the Amtrak standard for only one category: Amtrak personnel.

Table 3.7: CSI Scores for Southwest Chief and All Long Distance Trains (Fourth Quarter in 2016)

Fiscal Year 2016	Standard	Southwest Chief	All Long-Distance Trains
Overall Service	82	75	75
Amtrak Personnel	80	82	82
Information Given	80	70	70
On-Board Comfort	80	60	61
On-Board Cleanliness	80	71	74
On-Board Food Service	80	66	63

Source: Quarterly Report on the Performance and Service Quality of Intercity Passenger Train Operations, 2016 (Fourth Quarter results)
 Red: CSI Scores below the standards.

3.3 Passenger Travel Demand and Growth

These demographic and travel demand trends suggest that Kansas’ population and economy will continue to grow in the future. This will result in more travel throughout the state and as highways

and air travel. If these modes become congested, travelers may turn to the passenger rail system. Rail travel serves the population that are not close to a major airport.

Favorable demographic trends including above average income growth and employment growth in key economic sectors will drive continued expansion of the state’s consumer market, providing demand for consumer products that frequently ship by intermodal rail. Continued growth in key industrial sectors like agriculture and manufacturing will also drive additional freight rail traffic. Meanwhile, travel demand growth – both passenger and freight – will contribute to additional road congestion around the state, especially on the freeways and arterial routes that carry most of the traffic. These trends point to several potential rail needs and opportunities.

3.3.1 Travel Demand – Highways

Projections indicate that travel demand within and to/from Kansas will continue to grow. The estimated growth in vehicular travel demand for Kansas over the next 20 years, measured by Vehicles Miles Traveled (VMT), is shown in **Table 3.8**. VMT describes the level of travel demand on a roadway system, and growth in VMT is a strong indicator of growth in travel demand. VMT is a weighted measure of travel, and it is calculated by multiplying the number of vehicles on a roadway segment by its length. Thus, an increase could be correlated to either increases in vehicles or trip lengths, both of which are growth-related.

In Table 3.8 VMT is shown for years 2015 and 2035 by National Highway Functional Classification (NHFC). These classifications are used to define roadway types and their primary uses for roadway users.

Table 3.8: Estimated VMT on KDOT Roadways by Classification, 2015 and 2035

Functional Class	Existing Miles of Roadway	Average Annual Daily VMT (in thousands)		Growth in VMT	% Growth
		2015	2035		
Interstate/Freeway	874	20,799	30,176	9,377	45.1%
Principal Arterial - Other Highways	537	8,618	13,082	4,464	51.8%
Principal Arterial - Other	2,654	11,737	15,797	4,060	34.6%
Minor Arterial	4,115	7,037	8,952	1,915	27.2%
Major Collector	1,693	1,185	1,441	256	21.6%
Minor Collector	7	3	3	1	0.0%
Local	4	1	1	0	0.0%
Total	9,884	49,380	69,453	20,073	40.7%

Source: KDOT.

This information was extracted from the state’s travel demand forecasting model and represents an estimate of the changes in regional travel conditions between 2015 and 2035, specifically for Kansas DOT-controlled roadways (where data is available to study). Overall vehicle travel is forecasted to grow by around 29 percent from around 49.4 million daily VMT to around 69.5 million daily VMT in the state, with the large majority of growth occurring along interstate freeways and arterial roadways controlled by Kansas DOT (around 98 percent of the VMT growth would occur in these roadway functional classes). It is expected that travel, particularly on state and federal highways, will increase as the population and overall economy improve through the next couple of decades.

Some travelers may change their travel mode to passenger rail travel if road capacity does not keep up with this growth in demand for highway travel. Highway congestion trends are discussed in section 3.3.4.

3.3.2 Travel Demand – Air Travel

Passenger enplanements at Kansas’s eight commercial airports over the last 10 years appears in **Table 3.9**. While enplanements are up 15 percent over the period, the growth is concentrated in three airports: Garden City, Manhattan, and Wichita. Salina showed a spike in 2015, but volume in the previous nine years was mostly flat.

Table 3.9: Kansas Commercial Airport Passenger Enplanements

Airport	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Dodge City	6,337	5,801	4,701	3,373	3,853	4,501	6,155	5,789	3,101	2,396
Garden City	11,603	13,065	11,453	10,014	10,155	11,690	18,375	24,456	26,428	27,152
Hays	10,274	10,536	8,540	7,518	9,026	11,397	10,381	8,726	5,621	8,470
Liberal	5,933	5,113	7,911	6,255	7,156	8,007	10,487	11,101	7,734	2,816
Manhattan	14,969	14,032	16,489	25,074	44,603	58,672	69,038	65,683	65,649	66,258
Salina	2,877	4,127	5,170	2,868	3,144	2,857	3,526	2,829	2,398	10,013
Topeka	17,924	24,316	14,922	11,985	15,115	7,015	8,476	9,339	21,730	4,934
Wichita	710,380	769,124	780,756	730,374	751,601	740,675	735,270	736,090	757,695	773,526
Total	780,297	846,114	849,942	797,461	844,653	844,814	861,708	864,013	890,356	895,565

Sources FAA

Table 3.10 shows the forecasts of enplanements at Kansas’ commercial airports through 2034 (latest year for which a forecast was calculated). The forecasts were developed for the *Kansas Aviation System Plan Update* (2016). The base year was 2014 as noted in the table above. Topeka Regional Airport (formerly Forbes Field) was not included because it had less than 10,000 enplanements per year at the time of the forecast, which is the FAA threshold to identify commercial service airports. Overall, enplanements at the seven airports will increase at an average annual growth rate (AAGR) of 1.5 percent, though three airports have forecasts for enplanements to decline. Growth at Wichita’s Eisenhower National Airport drives the overall increase.

Table 3.10: Forecast of Kansas Enplanements 2014-2034

Airport	2014	2019	2024	2034	AAGR
Dodge City	3,828	2,277	2,317	2,397	-1.1%
Garden City	26,071	28,586	31,398	37,880	2.2%
Hays	4,964	9,131	9,131	9,131	3.1%
Liberal	4,331	2,915	2,985	3,125	-3.0%
Manhattan	66,249	70,904	80,005	101,981	2.8%
Salina	2,253	1,691	1,732	1,799	-1.3%
Wichita	754,954	792,660	865,486	997,838	1.6%
Total	862,650	908,164	993,054	1,154,151	1.5%

Source: FAA TAF.

Similar to the highway travel, Kansas passenger travelers may use AMTRAK in place of air travel if air travel becomes overly congested, number of flights, or potentially excessive crowds at the terminal gates. Air congestion trends are discussed in section 3.3.5.

3.3.3 Travel Demand – Intercity Rail

The basis for forecasting Amtrak riders at Kansas stations was to project population growth in Kansas for counties within an approximate 30-mile radius of passenger rail stations.²⁷ Station ridership changes were calculated based upon the growth rate of each county served by the station.

It is important to note that actual future ridership performance will be based not only on population growth, but also by changes in income growth, changes in the number of train frequencies and train schedule times at the station (day vs. night), changes in Amtrak fares vs. other modes, and changes in the quality of Amtrak service (i.e., on-time performance). No changes in Amtrak's *Southwest Chief* service, in terms of schedule and frequency, were assumed.

Population around Kansas's Amtrak stations shows growth overall, with the strongest growth around Lawrence and Topeka. As a result, forecasted passenger boardings and alightings at those stations are highest, as seen in **Table 3.11**. A slight decline in usage is predicted for Dodge City and a sharper decline for Garden City.

Table 3.11: Amtrak Kansas Boardings and Alightings Forecast for 2044

Station	2014	2044	Change 2014-2044	Annual Growth
Dodge City	5,300	5,227	-1.4%	-0.1%
Garden City	7,870	6,348	-19.3%	-0.8%
Hutchinson	5,312	7,411	39.5%	0.5%
Lawrence	8,017	9,085	13.3%	1.2%
Newton	12,871	14,743	14.5%	0.5%
Topeka	10,048	12,084	20.3%	0.7%
Total	49,418	54,898	11.1%	0.4%

Source: CDM Smith analysis of data provided by Amtrak and the Institute for Policy and Social Research at the University of Kansas.

Kansas passenger rail travelers may choose rail travel if major airports are too far away. When this is the situation, passenger rail travel may be the only option. Balancing the demands of freight rail movements and passenger rail will be important as passenger and freight movements continue to increase in frequency. Currently there are no issues, however; rail capacity to support both freight and passenger rail movements will continue to be monitored to identify and reduce any future delays between freight and passenger rail movements.

²⁷ <http://www.iprs.ku.edu/ksdata/ksah/population/2pop17.pdf>

3.3.4 Highway Congestion Trends

As Kansas population continues to grow, there will be more vehicles on the state’s highways. With more vehicles on the highways the increase in congestion will follow. Should congestion become severe, travelers may seek other modes such as passenger rail travel.

Kansas contains 105 counties and is home to five cities with populations greater than 100,000, including the state capital, Topeka, and the most populous city, Wichita. Linking these cities and counties within the state are various types of highways and roadways. According to KDOT, as of 2014, the state has approximately 140,500 miles of public roadway. There are approximately 1,459 miles of federal interstate highways and freeways/expressways in Kansas. Primary Interstates in the state include I-35, I-70, I-135, and the Kansas Turnpike.

While interstate roadways account for only 1 percent of the state’s roadway mileage, they carry the highest percentage (23.6%) of the recorded vehicle-miles traveled. Rural local roads, which inherently connect low-traveled and populated areas, comprise around 62 percent of the state’s roadway system, but only carry around 6 percent of the state’s traveled vehicle mileage.

Based on data provided by KDOT, **Table 3.12** shows the mileage and percentage of Kansas DOT-controlled roadways and their respective level of service (LOS) operations²⁸, sorted by functional class (where capacity and LOS information was available). Kansas DOT is generally responsible for regional and longer-distance roadways such as the interstate and state/US highway systems. LOS values range from A to F, with LOS A describing free-flow conditions and LOS F describing highly congested and delayed traffic. LOS E and F conditions describe traffic conditions approaching or exceeding available roadway capacity.

Table 3.12: KDOT 2015 LOS Mileage and Operations by Functional Class

Functional Class	Total Miles	LOS Operations – Number of Miles											
		A	%	B	%	C	%	D	%	E	%	F	%
Interstate	874	663	75.8%	104	12.0%	69	7.9%	15	1.8%	23	2.6%	0	0.0%
Freeway/Expressway	537	455	84.7%	34	6.4%	19	3.6%	26	4.8%	3	0.6%	0	0.0%
Principal Arterial - Other	2,653	894	33.7%	1,048	39.5%	594	22.4%	117	4.4%	0	0.0%	0	0.0%
Minor Arterial	4,115	3,198	77.7%	698	17.0%	211	5.1%	8	0.2%	0	0.0%	0	0.0%
Major Collector	1,693	1,580	93.3%	108	6.4%	5	0.3%	0	0.0%	0	0.0%	0	0.0%
Minor Collector	7	7	93.5%	0	6.5%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Local	4	4	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Total	9,883	6,801	68.8%	1,992	20.2%	898	9.1%	166	1.7%	26	0.3%	0	0.0%

Source: KDOT.

The vast majority of non-interstates currently perform very well according to KDOT, with only 155 miles of roadway operating at LOS D or worse and with most roadways operating at LOS A. At the interstate level of roadway, around 38 of the 874 interstate miles in the state operate at LOS D or worse, comprising around 4.4 percent of the existing interstate mileage. Overall a total of 69

²⁸ Level of Service (LOS) determinations were calculations based on volume-to-capacity (v/c) ratio data provided by KDOT. Capacities and LOS thresholds of roadway segments were determined by individual roadway characteristics as calculated by KDOT.

percent of KDOT-maintained roadways operate at LOS A, while a total of 2 percent of roadways operate at LOS D or worse.

KDOT projected highway volumes and level of service to year 2035 for their roadways. A comparison between current and future 2035 conditions is presented below in **Table 3.13**, specifically the number of miles in the future expected to worsen compared to existing conditions. According to KDOT data, the analyzed 2035 roadway network is largely expected to remain the same, with the network mileage total of 9,884 miles. Conditions in year 2035 are projected to worsen slightly, as an estimated 661 additional miles of Kansas highways and interstates would experience LOS D through F conditions.

Table 3.13: KDOT 2035 LOS Mileage and Operations by Functional Class and Comparison to Existing Conditions

Functional Class	Total Miles	LOS Operations – Number of Miles											
		A	%	B	%	C	%	D	%	E	%	F	%
Interstate	874	118	13.4%	279	32.0%	217	24.9%	53	6.0%	12	1.4%	195	22.4%
Freeway/Expressway	537	253	47.1%	123	22.9%	60	11.1%	32	6.0%	17	3.1%	53	9.8%
Principal Arterial - Other	2,653	881	33.2%	637	24.0%	725	27.3%	351	13.2%	57	2.1%	3	0.1%
Minor Arterial	4,115	3,096	75.2%	657	16.0%	289	7.0%	69	1.7%	4	0.1%	0	0.0%
Major Collector	1,693	1,570	92.7%	97	5.7%	17	1.0%	5	0.3%	0	0.0%	5	0.3%
Minor Collector	7	7	93.5%	0	6.5%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Local	4	4	100%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Total	9,883	5,929	60.0%	1,793	18.1%	1,308	13.2%	510	5.2%	90	0.9%	256	2.6%
Existing Total	9,883	6,800	68.8%	1,992	20.2%	899	9.1%	167	1.7%	26	0.3%	0	0.0%
<i>2035 – Existing Difference</i>	<i>0</i>	<i>(871)</i>	<i>(8.8%)</i>	<i>(198)</i>	<i>(2.0%)</i>	<i>409</i>	<i>(4.1%)</i>	<i>342</i>	<i>3.4%</i>	<i>63</i>	<i>0.6%</i>	<i>256</i>	<i>2.6%</i>

Source: KDOT.

In summary, approximately 9 percent of total roadway mileage would experience traffic conditions approaching or exceeding available capacity in 2035. In particular, an estimated 256 additional miles of roadway are expected to operate at LOS F. Overall, approximately 60 percent of the Kansas DOT mileage in the future would still operate at LOS A; however, only 13 percent of the interstate mileage would perform at LOS A. Many of the roadways that would see a decrease from LOS A would only slightly degrade to LOS B and C, which is still acceptable. Overall, though, the projections indicate that there is an expectation that some roadways would experience increased congestion.

3.3.5 Airport Congestion Trends

Enplanement and based aircraft projections are presented in Section 3.3.2. Anticipated growth per the Kansas Aviation System Plan is less than 2 percent per year for enplanements to 2034. This growth rate is low enough to make any threat of congestion relatively easy to manage.

3.3.6 Potential for Intercity Passenger Rail

As previously noted, in 2011, KDOT published a study for a proposed state-supported Kansas City-Oklahoma City-Fort Worth intercity passenger rail service. The plan developed two options. One would be to extend the existing Fort Worth – Oklahoma Heartland Flyer north to Wichita and Newton, Kansas on the BNSF, providing a connection to the *Southwest Chief* in Newton. The other would be for a new daytime service between Kansas City, Topeka, Emporia, Newton and Wichita,

thence south to Oklahoma City and Fort Worth. Each option would offer a daily round trip on trackage belonging to the BNSF Railway. Both options would require major infrastructure improvements to ensure fluid shared use to the BNSF track by freight and scheduled passenger services, and both options would be recurring operating subsidies. The plan also investigated the potential for operating both services as a combined option. To date, funding options in both Kansas and Oklahoma have not been identified. The options are described in detail in Section 3.6.

Other potential intercity rail passenger services that would be of interest to Kansans include proposals to link Kansas City, Missouri with Chicago, Minneapolis/St. Paul and Omaha with corridor services. The service to Chicago is one of the original routes proposed in the 2004 Midwest Regional Rail Initiative (MWRRI). Routes going north to Des Moines and thence St. Paul and to Omaha were discussed in the recent Minnesota and Iowa State Rail Plans respectively. Any of these options that reach Kansas City, Missouri conceivably could be extended to Topeka or points further west in Kansas and thence south to Oklahoma City and Texas.

3.3.7 Potential for Commuter Rail

Commuter rail has been explored as an option for Kansas City through studies conducted by the Mid-America Regional Council in 2000 and 2002. These studies investigated a network of freight rail lines radiating in all directions from Union Station in Kansas City including routes to Topeka, as well as Atchison, Ottawa, and Paola. In more recent times, the commuter rail concept has been scaled back to just one route serving Jackson County, Missouri. However, the growth in population anticipated for Lawrence and Topeka, driven in part by the proximity to jobs in the Kansas City metro area, could justify revisiting a commuter rail concept between Topeka and Kansas City.

3.4 Passenger Rail Needs

3.4.1 Improvements to Current Amtrak Performance

The *Southwest Chief* today is earning substandard scores per Amtrak's Customer Service Indicator as it pertains to on-board comfort, on-board cleanliness, and on-board food service. Furthermore, the trains are well below the Amtrak standard on-time performance metrics. Several stations still have unmet needs in terms of ADA compliance and achieving a state of good repair. The good news is that ridership has grown noticeably since 2010. Also, the cost recovery for the train is not that far behind the financial performance for Amtrak long distance trains overall. It is reasonable to conclude that with improvements in customer satisfaction, on-time performance and station conditions, more riders will be attracted to the train, thus spurring improvements to the train's performance metrics.

3.4.2 Capacity

Given the freight railroads' existing and projected traffic volumes, rail line capacity likely will continue to be an issue for new passenger rail service implementation. Passenger rail sponsors will need to engage the freight railroads in analysis of infrastructure improvements required to assure fluid and reliable freight and passenger operations in shared-use corridors. Often such collaboration will require operations simulation modeling, which can pinpoint potential

bottlenecks and robustly test for solutions (e.g., additional passing sidings or lengthening sidings), given specific assumptions about train volumes and schedules.

3.4.3 Possible Improvements for Amtrak’s Southwest Chief

Amtrak’s September 2012 report, *PRIIA Section 210 FY12 Performance Improvements Plan, Auto Train, City of New Orleans, Coast Starlight, Empire Builder, Southwest Chief*, identified numerous possible improvements for the *Southwest Chief*. These included:

- ***Newton-Wichita-Oklahoma City Thruway Bus*** – This concept would provide a link between the *Southwest Chief* in Newton and the *Heartland Flyer* in Oklahoma City. The *Heartland Flyer* provides daily service between Oklahoma City and Fort Worth. Due to the performance reliability of the *Southwest Chief* and *Heartland Flyer*, the Thruway service is estimated to work smoothly and successfully in connecting both trains. (As previously noted, this improvement was implemented in 2016.)
- ***Premium Express Contracted Pallet Service between Chicago and Los Angeles*** – This concept would provide for small scale shipment of six pallets per trip loaded into the train’s existing baggage car between Los Angeles and Chicago. No incremental labor or capital costs are anticipated. Incremental revenue would amount to an estimated \$284,000 annually.
- ***Southwest Chief Food Service Adjustments*** – Given that trains often arrive in Los Angeles an hour earlier than scheduled (8:15 AM), passengers’ time for breakfast is compressed, as it is for dining car crews preparing, serving and clearing meals. The concept of the adjustments was to switch from a conventional sit-down breakfast to a continental breakfast, which would minimize food preparation as well as free up seating, as passengers will not have to wait for their meals to be cooked and brought to them and thus remain in their table seats for longer periods.
- ***Schedule Improvements*** – Minor schedule adjustments were contemplated to help improve all stations’ and overall on-time performance. The minor (30 to 60 minutes) schedule adjustments to adjust the arrival and departure by time in Los Angeles would rippled through the system. Although contemplated, no schedule adjustments were made.

Other initiatives, common to all the services reviewed, were:

- ***Modify the Current Superliner Transition Sleeping Car*** – This concept is to add 11 additional rooms for sale. Most would be on the lower level where a largely unused lounge space would be converted into four roomettes, one Family Room, and one ADA Accessible room. Also, five rooms for sale would be added on the upper level: four from the Business Travel group and one from the conversion of the Conductor Room. The Conductor’s Room would be relocated to the former Chief’s Room, thereby maintaining a crew work area.

- **Customer Service Performance Metrics Integrator Program** – This program is a business intelligence system that tracks information on an individual crew and train level, with monthly reports that compare a route’s performance by crew and crew member. The goal is to encourage positive competition between crew couplets, build teamwork, and identify crew couplets needing additional management coaching. Ultimately, the goal is an improvement in the personnel-related CSI scores.

3.5 Improvements to Existing Intercity Services

3.5.1 Current Projects and Initiatives

Amtrak’s 2009 *A Report on Accessibility and Compliance with the Americans with Disabilities Act of 1990* identified station ADA compliant and State-of-Good-Repair improvement needs amounting to \$7.4 million for the six Kansas Amtrak stations. Of this amount, \$1.8 million was for structures, \$4.8 million for platforms, and \$747,000 for pathways.

Since that time, Amtrak has made some improvements, according to the annual *Amtrak Fact Sheet* for Kansas. In 2009 Amtrak installed a new information kiosk, providing train schedules, ticketing, safety and security information, and an enhanced level of Amtrak brand visibility at the Lawrence station. In 2011, Amtrak and the city of Lawrence celebrated the completion of a new, ADA-compliant platform, period platform lighting and parking upgrades. For 2013, some ADA improvements were planned for the Hutchinson station²⁹. The 2009 ADA assessment identified \$870,000 of ADA-compliance needs at that station. Those improvements are still pending, however.

According to the Great American Station project³⁰, improvements were made at:

- **Dodge City** – In June 2013 Dodge City won \$258,000 through the Federal Highway Administration’s Transportation Enhancement (TE) program for station rehabilitation work.
- **Lawrence** – In June 2013 Lawrence won a \$1.2 million FHWA TE grant. The grant was to cover about 80% of the cost of a building restoration, with the remainder of the funding (\$300,000) coming from the city. The work will include installation of a new roof and heating, cooling and electric systems, and repairs to stone and brickwork, the parking lot and sidewalks.
- **Topeka** – BNSF did the aforementioned 2006 remodeling that included new ceiling tile, painting and a water fountain.

The ongoing implementation of Positive Train Control (PTC) on the BNSF network, including on the Transcon route across Kansas, will have positive impacts to Amtrak services in the state. These improvements are discussed further in Chapter 4.

²⁹ <https://www.amtrak.com/ccurl/83/1005/ADA-Accessibility-Compliance-Report-May2012.pdf>

³⁰ <http://www.greatamericanstations.com/Stations/BRL>

3.5.2 Potential Future Projects and Initiatives

Potential future projects and initiatives that Kansas might consider to improve existing intercity services in the state are identified in this section.

3.5.2.1 Thruway Bus Services

To provide Kansans with improved access to existing Amtrak long-distance and corridor routes, new connecting Amtrak Thruway bus routes could be implemented. One route could be implemented along north-south Interstate 35, linking the Twin Cities with Mason City, Ames, Des Moines, Osceola, Kansas City and Topeka. The route could provide connections to the Amtrak *Empire Builder* in St. Paul, the *California Zephyr* in Osceola, and the *Southwest Chief* and the *Missouri River Runner* in Kansas City.

Alternatively, Thruway service could be implemented between Topeka, Kansas City and Omaha, linking with the *Southwest Chief* and *Missouri River Runner* in Kansas City and with the *California Zephyr* in Omaha. The potential for a second daily train between Denver and Chicago on the *California Zephyr* route was identified in the 2016 *Iowa State Rail Plan*. A doubling of service, with direct connections to Denver and Chicago at Omaha, would enhance the attractiveness of this Thruway service for Kansans.

3.5.2.2 Passenger Rail Connections

At the Kansas City, Missouri station, the 2017 AMTRAK schedule allows for westbound River Runner passengers to connect to the westbound Southwest Chief with a 30-minute layover. Likewise, the eastbound Southwest Chief is scheduled to arrive in time for passengers to connect to the eastbound River Runner with a 40-minute layover.

3.5.2.3 Improve Pedestrian and Bicycle Access at Kansas' Amtrak Stations

All Amtrak stations have pedestrian sidewalks and provide good walking connectivity. Improvements to local crosswalks in the vicinity of Amtrak stations would enhance the pedestrian experience and safety while ensuring new and existing pedestrian access is ADA compliant. All stations could consider adding or expanding the number of bike racks available.

3.6 Proposed New Intercity Services

3.6.1 KDOT Study of Potential New Passenger Rail Services and Corridors, 2000

In 2000, KDOT commissioned the *Kansas Rail Feasibility 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 proposed Midwest Regional Rail System (MWRRS).

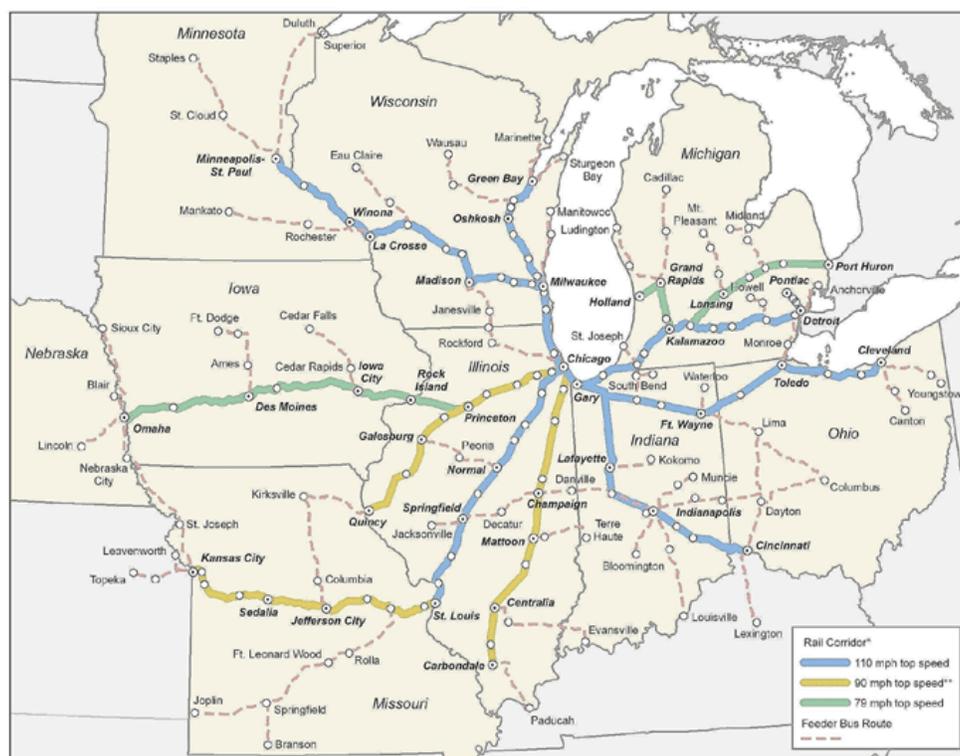
The Kansas Passenger Rail Development Act (K.S.A. 75-5089), which became law on July 1, 2010, allows KDOT to contract with Amtrak and other states to provide supplemental passenger rail service and creates a passenger rail revolving fund to hold and disburse federal rail passenger capital grants and future state contributions. The state will continue to develop relationships with neighboring states to better position itself for future potential grant solicitations. In 2010, the Kansas Legislature also approved the Midwest Interstate Passenger Rail Commission Membership Act (K.S.A. 75-50-90). This Act authorized 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 (**Figure 3.1**), which was envisioned in 2004 with multiple new intercity passenger rail corridor routes mostly emanating from a hub in Chicago³¹.

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.

³¹ MWRRS is the subject of the *Midwest Regional Rail System, Executive Report*, September 2004. The report was prepared for the Illinois, Indiana, Iowa, Michigan, Minnesota and Wisconsin Departments of Transportation, the Nebraska Department of Roads, and the Ohio Rail Development Commission.

Figure 3.1: The Proposed Midwest Regional Rail System (2004)



*Indiana DOT is evaluating additional passenger rail service to South Bend and to Louisville.
 **In Missouri, current restrictions limit train speeds to 79 mph.

Source: Midwest Interstate Passenger Rail Commission

3.6.2 Kansas City-Oklahoma City-Fort Worth Corridor

3.6.2.1 Amtrak Feasibility Study, 2010

Ten years later following the *Kansas Rail Feasibility Study*, KDOT identified the Kansas City-Oklahoma City-Fort Worth corridor as a potential passenger rail route, linking major population centers in Kansas and Oklahoma to the Dallas-Fort Worth metroplex. The service and routes analyzed in the study (Alternatives 1, 2, 3 and 4) would utilize existing rail right-of-way for the entirety of the route, operating over the BNSF Railway. The segment from Newton to Kansas City (Alternatives 2, 3 and 4) would share track with the current *Southwest Chief* Amtrak service.

Passenger rail service existed along this corridor until 1979 when, in an effort to reduce system-wide Amtrak operating losses, service was discontinued. 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 by AMTRAK and 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*.

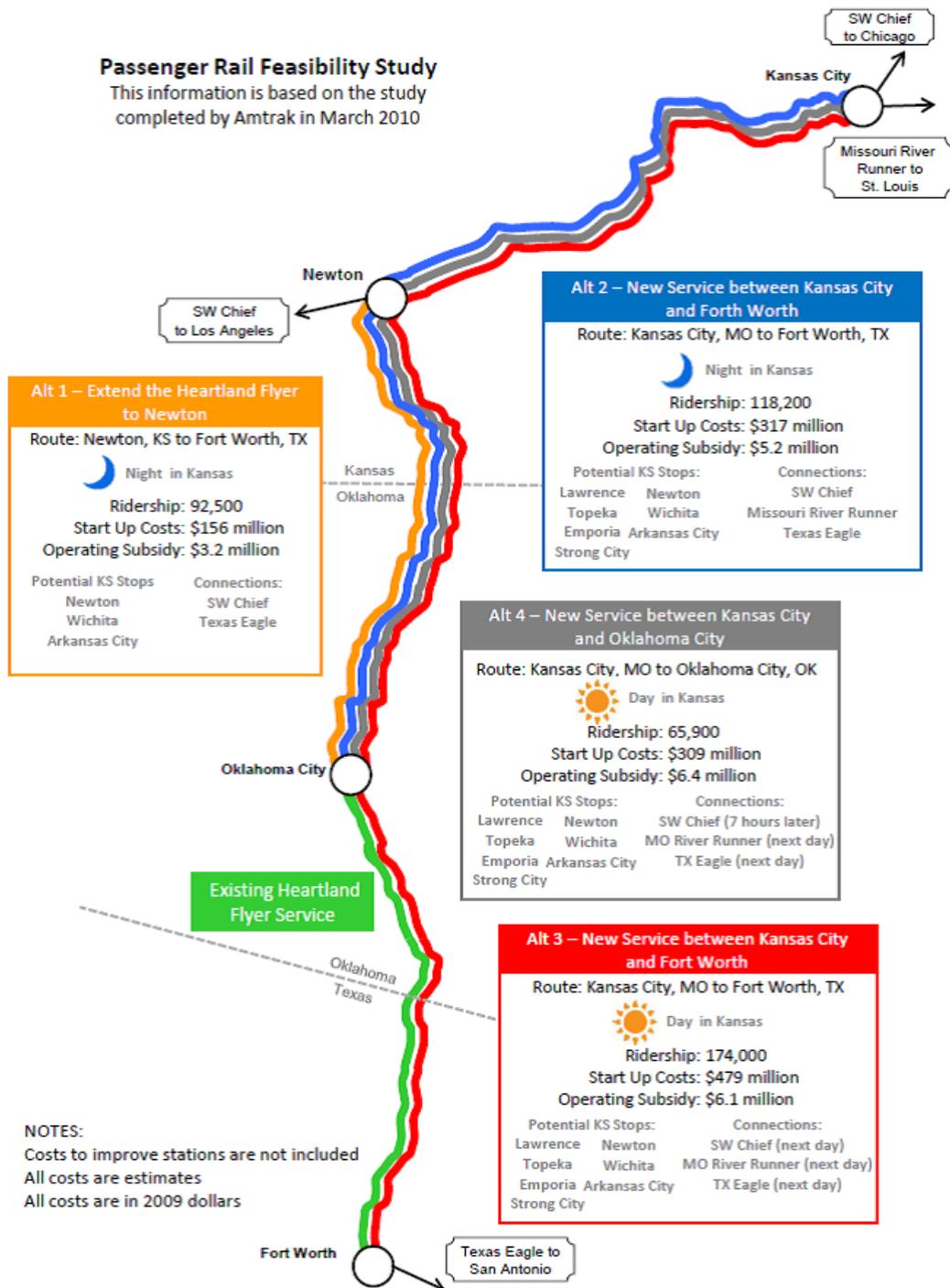
The Feasibility Report of Proposed Amtrak Service Kansas City, Missouri-Oklahoma City, Oklahoma to Fort Worth, Texas, prepared by Amtrak and published in March 2010, evaluated the operational and financial viability of this potential state-supported passenger rail corridor. Four alternatives were examined 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 would connect with the existing *Southwest Chief*.
- **Alternative 2: Kansas City, Missouri – Fort Worth, Texas (overnight service)** – This alternative extends the *Heartland Flyer* service from Oklahoma City to Kansas City, creating a new overnight service between Fort Worth and Kansas City. This route would provide connections to the *Southwest Chief* at Kansas City and Newton, and to the *Missouri River Runner* at Kansas City.
- **Alternative 3: Kansas City, Missouri – Fort Worth, Texas (daylight service)** – This alternative would be a new daily daytime service between Kansas City and Fort Worth. It would not provide connections with either the *Southwest Chief* or the *Heartland Flyer*. As this service would not replace the current *Heartland Flyer*, frequencies would be doubled along the Oklahoma City-Fort Worth 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 **Figure 3.2**, along with specifics on ridership, costs, subsidies, and stations served. The study was highlighted in the 2011 *Kansas Statewide Rail Plan*.

All service alternatives would operate at a maximum of 79 MPH on BNSF Railway-owned track for most of the route.

Figure 3.2: Proposed Kansas City-Oklahoma City-Fort Worth Alternative Alignments



Source: Amtrak and the 2011 Kansas Statewide Rail Plan

3.6.2.2 Service Development Plan, 2011

Based on the findings of the 2010 Amtrak Study, KDOT and the Oklahoma Department of Transportation initiated the *Kansas City-Wichita-Oklahoma City-Fort Worth Passenger Rail Service Development Plan*. The Federal Railroad Administration requires a Service Development Plan (SDP) from any state applying for federal assistance for state supported passenger rail capital projects. An SDP defines the service, explaining how it is to operate, potential ridership, costs and economic impacts, among other things.

Alternatives

The SDP defined four alternatives at the outset:

- **Alternative 1 – Fort Worth, TX-Newton, KS (*Heartland Flyer Extension*):** This scenario is an overnight extension of the existing *Heartland Flyer* service from Oklahoma City to Newton. Both northbound and southbound service would be provided connecting in Newton with both the eastbound and the westbound *Southwest Chief*. The service would connect with the *Texas Eagle* in Fort Worth, as does the *Heartland Flyer* today. The route would total 406 route miles.
- **Alternative 2 – Fort Worth, TX-Kansas City, MO:** This scenario is new northbound and southbound overnight services connecting Fort Worth, Oklahoma City and Kansas City, effectively an extension of the *Heartland Flyer* to Kansas City. The two services would provide connections with the *Southwest Chief* at Newton. The service would connect with the *Texas Eagle* in Fort Worth. The route would total 600 route miles.
- **Alternative 3 – Fort Worth, TX-Kansas City, MO (*KC-OKC-FW Daytime Service*):** This scenario is a new daytime service in each direction between Fort Worth and Oklahoma City, and on to Kansas City. This alternative would not provide a reasonable connection at Newton with Amtrak's *Southwest Chief* service. The service would connect with the *Texas Eagle* in Fort Worth. The route would total 606 route miles.
- **Alternative 4 – Oklahoma City, OK-Kansas City, MO:** This scenario is a new daytime service in each direction between Oklahoma City and Kansas City. Neither the northbound nor the southbound service would conveniently connect with any of the existing Amtrak services. The route would total 400 route miles.

Based on input received from the public, as well as local governmental officials, through an extensive outreach effort held in cities that KDOT identified as potential station stops, the *Heartland Flyer Extension* and the *KC-OKC-DF Daytime Service* options – Alternatives 1 and 3 respectively – were selected for further analysis. For the most part, these alternatives correspond to Alternatives 1 and 3 in the earlier Amtrak study. In addition, an alternative assuming simultaneous operation of both alternatives was considered. This option was called the *Combined Service*.

All service alternatives would operate at a maximum of 79 MPH on tracks of the BNSF Railway for most of the route.

Equipment

The proposed service would be powered by conventional diesel-electric locomotives. Passenger cars would be bi-levels, like those already operating or that will soon be constructed and operating on other Midwest intercity passenger rail corridors and in California. A layout of a typical 85-foot long, bi-level coach car appears in **Figure 3.3**.

Stations

The stations to be served from north to south for the three service alternatives are in **Table 3.14**.

Table 3.14: Proposed Stations by Service

Station	Heartland Flyer Extension	KC-OKC-FW Daytime Service	Combined Service
Kansas City, MO		✓	✓
Shawnee/Johnson Co, KS		✓	✓
Lawrence, KS		✓	✓
Topeka, KS		✓	✓
Emporia, KS		✓	✓
Strong City, KS		✓	✓
Newton, KS	✓	✓	✓
Wichita, KS	✓	✓	✓
Arkansas City, KS	✓	✓	✓
Ponca City, OK	✓	✓	✓
Perry, OK	✓	✓	✓
Guthrie, OK	✓	✓	✓
Edmond, OK	✓	✓	✓
Oklahoma City, OK	✓	✓	✓
Norman, OK	✓	✓	✓
Purcell, OK	✓	✓	✓
Pauls Valley, OK	✓	✓	✓
Davis, OK	✓	✓	✓
Ardmore, OK	✓	✓	✓
Gainesville, TX	✓	✓	✓
Krum/Denton	✓	✓	✓
Fort Worth, TX	✓	✓	✓

Source: Kansas City-Wichita-Oklahoma City-Fort Worth Passenger Rail Service Development Plan

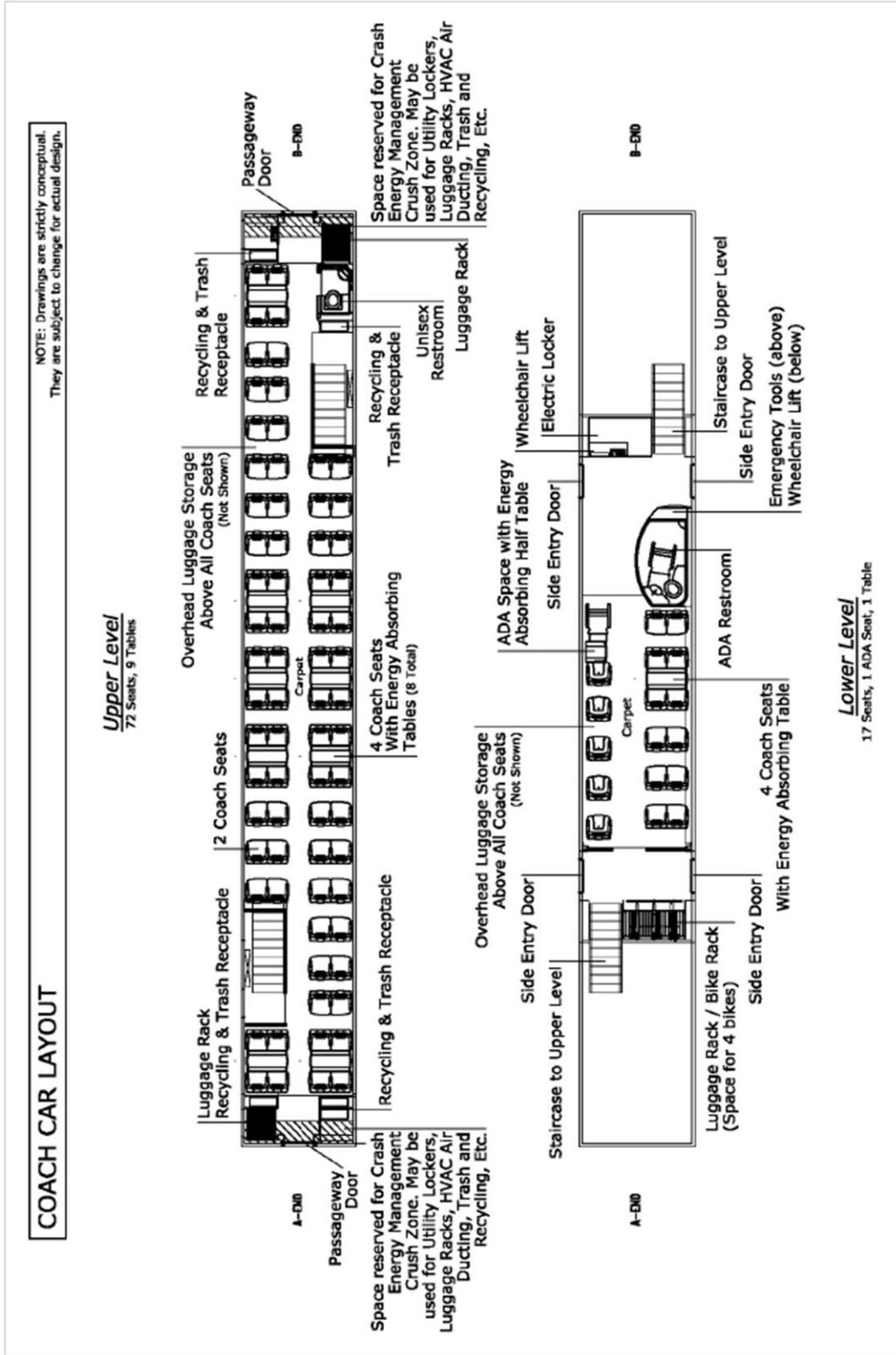
The station list above is the same as that developed for the 2010 Amtrak feasibility study but with three additions: Shawnee/Johnson County, Kansas; Davis, Oklahoma; and Krum/Denton, Texas.

The SDP assumed that the costs of building the stations would be handled by the communities serviced and therefore do not appear in the capital cost estimate in the following section.

Rail Infrastructure Improvements

The SDP estimated the costs of building and implementing the three service alternatives, as seen in **Table 3.15**.

Figure 3.3: Typical 85-Foot, Bi-level Coach Car



Source: PRIIA 305-001/Amtrak 962 Technical Specification Revision C.1

Table 3.15: Capital Costs for Service Alternatives (\$M)

	<i>Heartland Flyer Extension</i>	<i>KC-OKC-FW Daytime Service</i>	<i>Combined Service</i>
Infrastructure Costs	15 miles / \$87.5	43 miles / \$245.5	48.3 miles / \$268.0
Soft Costs	\$18.0	\$49.0	\$54.0
Contingencies	\$27.0	\$73.7	\$81.0
Equipment	\$4.0	\$68.0	\$72.0
Total	\$136.5	\$436.2	\$475.0

Source: Kansas City-Wichita-Oklahoma City-Fort Work Passenger Rail Service Development Plan

Capital costs were grouped into four categories and included:

- **Infrastructure Costs:** These include miles of new track in terms of passing sidings, sections of new track, plus grade crossing improvements and a layover facility (the Newton layover facility only for the *Heartland Flyer Extension*). As noted, costs for station improvements and operations were considered to be the responsibility of local communities and were therefore not included.
- **Soft Costs:** These include an allowance of 20% of infrastructure for planning, environmental studies, preliminary engineering, final design and construction oversight.
- **Contingencies:** An allowance of 30% of infrastructure costs reflecting that no detailed engineering was undertaken.
- **Equipment:** The costs of new passenger equipment or rail rolling stock.

The table shows the number of new track miles assumed for each service alternative. Equipment costs included an additional standard coach (\$4 million) for the *Heartland Flyer Extension*, and two trainsets (each trainset costs \$27 million: two locomotives for \$10 million, three standard coaches for \$12 million, and a food service car for \$5 million) plus spares (one locomotive, one food service car, and one standard coach) for the *KC-OKC-FW Daytime Service*. The combined service includes the equipment costs for both services. The costs in **Table 3.15** are in 2011 dollars.

Ridership, Revenues and Operating Costs

A summary of the financial outcomes of the various service implementation options are in **Table 3.16**.

Table 3.16: Ridership and Financial Projections for Service Alternatives

	<i>Heartland Flyer</i>	<i>Heartland Flyer Extension</i>	<i>KC-OKC-FW Daytime Service</i>	<i>Combined Service</i>
Incremental Ridership	81,700	111,300	256,700	368,000
Total Revenue (\$000)	\$1,983	\$5,013	\$11,467	\$14,497
Total O&M (\$000)	\$6,470	\$13,868	\$25,994	\$32,703
Fare Box Recovery	30%	36%	44%	44%
Total Subsidy (\$000)	(\$4,486)	(\$8,855)	(\$14,527)	(\$18,205)
Per Capita subsidy	\$55	\$46	\$42	\$40

Source: Kansas City-Wichita-Oklahoma City-Fort Work Passenger Rail Service Development Plan

In the table, the base year for the *Heartland Flyer* is 2010, when the train produced a ridership of 81,700. Adding the extension to Newton, the service would generate 111,300 more riders. If the *KC-OKC-FW Daytime Service* were implemented in addition to the *Heartland Flyer*, it would generate 256,700 more riders. Lastly, if the *Heartland Flyer* were replaced by the *Heartland Flyer Extension* and the *KC-OKC-FW Daytime Service* were added, the *Combined Service* would generate 368,000 new riders. That is to say, the total ridership for the *Combined Service* would be just under 450,000 a year.

Incremental revenues, operating and maintenance (O&M) costs and subsidies can be calculated in the same way. In so doing, the improvement in total financial performance can be observed. The fare box recovery ratio, or the percentage of operating costs covered by fare revenue, for the *Heartland Flyer* is 30 percent. However, the *Combined Service* generates a fare box recovery of 44 percent. At the same time, the required subsidy would be four times that for just the *Heartland Flyer*. However, on a per capita basis, the subsidy would drop from \$55 per rider to \$40 per rider for the *Combined Service*.

Economic Impacts Analysis

In a planning level analysis, the SDP calculated the economic benefits of the *Heartland Flyer Extension*, the *KC-OKC-FW Daylight Service* and the *Combined Service*. The purpose of an economic impacts analysis is to compare the anticipated quantifiable benefits of a particular rail service with the anticipated costs. Benefits include such things as highway user savings, oil import savings, noise savings, road fatality and injury reductions, productivity increases from shifts from other modes to rail, and induced passenger benefits, i.e., benefits accruing to riders who would not travel if the trains were not there. All such benefits can be monetized.

Costs include infrastructure improvements, new rolling stock, O&M costs, start-up or mobilization costs, and contingencies (15% of infrastructure and equipment or rolling stock costs).

The analysis showed that the anticipated quantifiable benefits from the *Heartland Flyer Extension* are approximately equal to their anticipated costs, with a benefit-cost (BC) ratio of 0.93; while the anticipated quantifiable benefits from the *KC-OKC-FW Daytime Service* are less than the forecasted costs, i.e., a BC ratio of 0.64. The *Combined Service* option, on the other hand, does better than the *KC-OKC-FW Daylight Service* option, but not quite as well as the *Heartland Flyer Extension*, with a BC ratio of 0.87.

The SDP pointed out that while the economic evaluation was conducted with the best information available at the time, inputs such as ridership and costs are subject to change. Accordingly, the values determined for the three options should be considered approximate.

3.6.2.3 Current Status

No funding source has been identified to enable potential future development of new intercity passenger rail service in the Kansas City-Oklahoma City-Fort Worth Corridor.

3.6.3 Other Intercity Service Concepts That Could Serve Kansans

3.6.3.1 Twin Cities-Des Moines-Kansas City Corridor

The March 2015 *Draft Minnesota GO State Rail Plan* identified a potential intercity route from either Minneapolis and/or St. Paul, Minnesota, to Des Moines, Iowa, as seen in **Figure 3.4**. The plan assumed up to four round trips per day traveling at maximum speeds of 79 MPH on the Union Pacific's Spine Line. The Minnesota plan envisioned possible extension southward to Kansas City with connections there to other cities. It also included implementation costs for the service between the Twin Cities and Albert Lea, Minnesota, just north of the Minnesota / Iowa state line. The plan identified the route to Des Moines as a Phase I project, that is, a project that is in a 0-20 year implementation horizon. The route into Iowa and on to Des Moines and Kansas City has yet to be evaluated but would occur on the southern portion of the Union Pacific's Spine Line.

The concept was also discussed in the 2016 *Iowa State Rail Plan*. The service would provide connections to the existing *Southwest Chief* and *Missouri River Runner* in Kansas City, to the *Empire Builder* in St. Paul, and a proposed east-west, Chicago-Council Bluffs/Omaha corridor service in Des Moines.

It is worth noting that, were this service implemented to Kansas City, it could be extended to Topeka and thus link three state capital cities (St. Paul, Des Moines, and Topeka).

3.6.3.2 Twin Cities-Sioux City-Omaha-St. Joseph-Kansas City Corridor

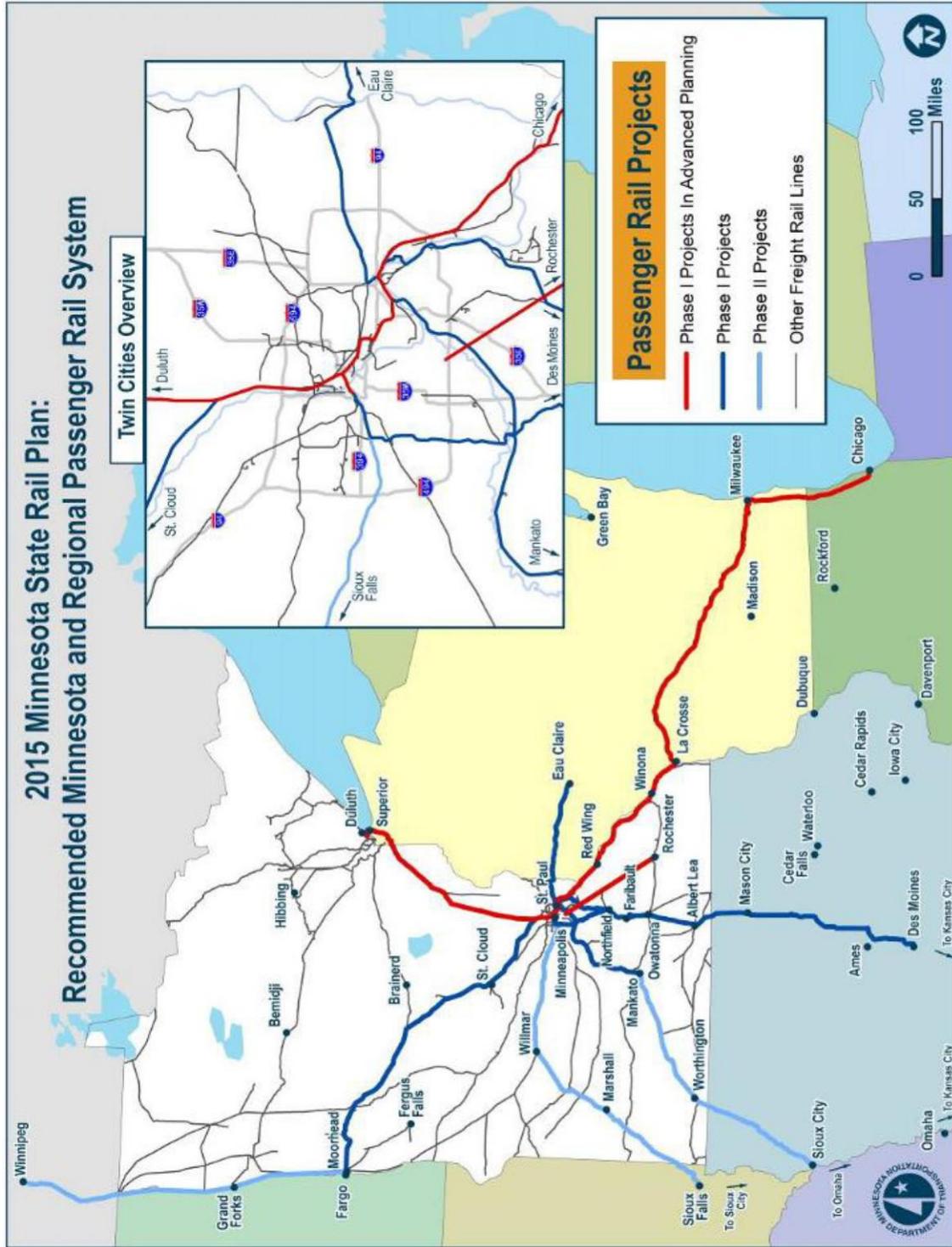
The Minnesota rail plan also envisioned service between the Twin Cities and Sioux City, Iowa, with an extension southward to Omaha and Kansas City in subsequent phases. The service could utilize the UP between the Twin Cities, Sioux City and Council Bluffs/Omaha, and it could use either the UP or BNSF between Council Bluffs, Omaha, St. Joseph, and Kansas City.

The Minnesota plan developed implementation cost estimates for the service between the Twin Cities and Mankato, Minnesota. The route into Iowa, and south to Omaha and Kansas City has yet to be evaluated. This service would provide a connection to the *Southwest Chief* and *Missouri River Runner* in Kansas City and to the *California Zephyr* and a proposed Chicago-Des Moines-Council Bluffs/Omaha corridor service in Council Bluffs/Omaha. This route also could reach Topeka.

3.6.3.3 FRA Midwest Regional Rail Study

As noted in Chapter 2, the FRA will initiate an update and expansion of the 2004 MWRRS concept. The FRA effort, titled the Midwest Regional Rail Plan, will look at new services making stops in 12 Midwestern states, including Kansas.

Figure 3.4: Potential New Minnesota Passenger Trains to Serve Iowa



Source: Minnesota GO State Rail Plan, 2015

3.7 Proposed Commuter Rail Service

Published in 2001, the *Kansas City Region Commuter Rail Study, Initial Corridor Screening* was the first step in evaluating commuter rail’s potential role in the greater Kansas City region over a 20-year period. The study was sponsored by the Mid-America Regional Council (MARC), the MPO for the bi-state Kansas City metropolitan area.

The study investigated eight different corridors emanating in all directions from downtown Kansas City on lines belonging to BNSF, UP and KCS. As seen in **Figure 3.5**, the lines in Kansas included:

- Kansas City-Paola on the BNSF and the UP.
- Kansas City to Ottawa on the UP.
- Kansas City-Topeka on both the BNSF and UP.
- Kansas City to Atchison on the UP.

In the end, the study recommended that three corridors be evaluated further:

- Odessa-Kansas City
- Warrensburg-Pleasant Hill-Kansas City
- Topeka-Lawrence-Kansas City

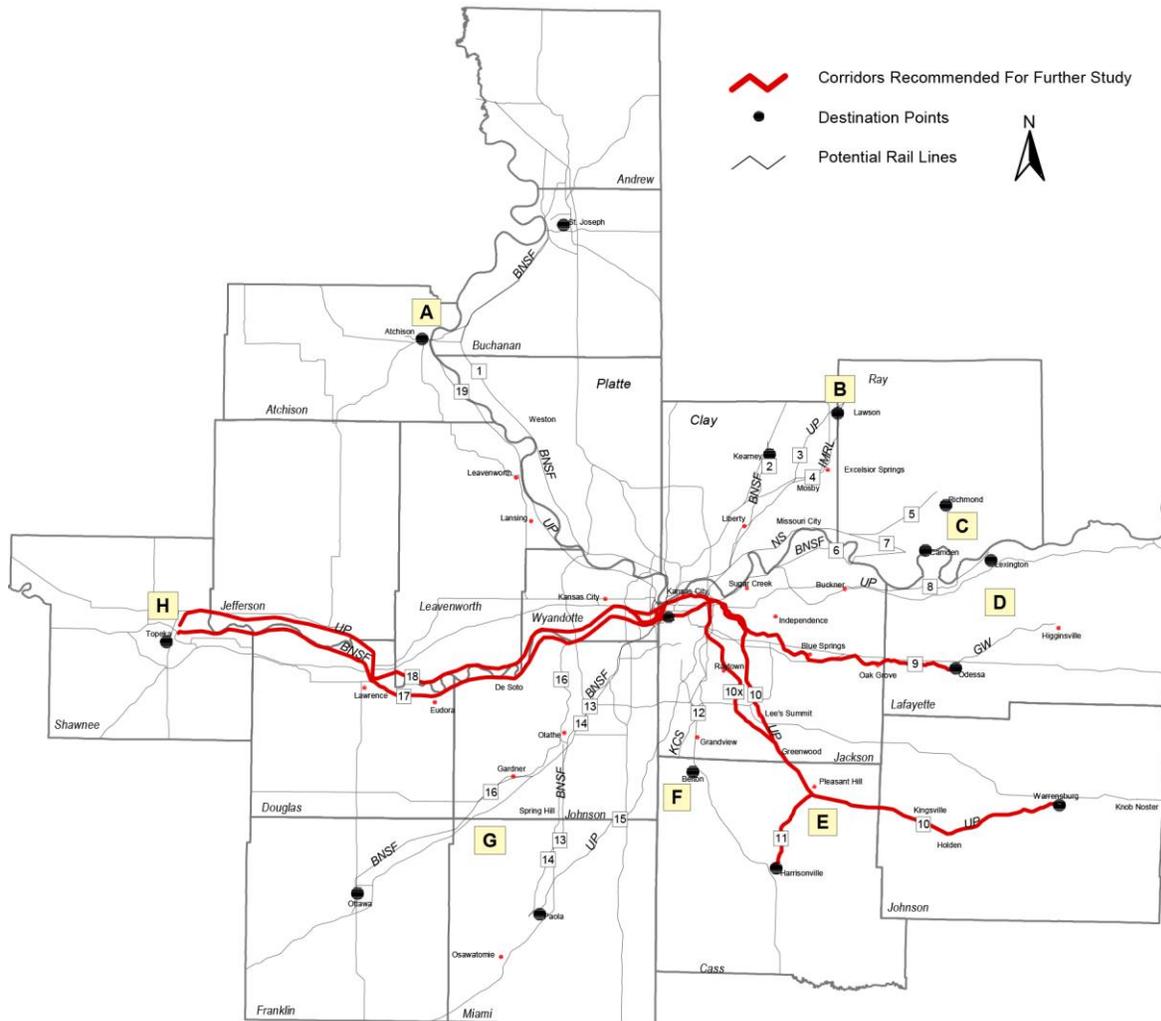
In the subsequent 2002 *Kansas City Region Commuter Rail Study, Detailed Assessment of Feasible Corridors*, also sponsored by MARC, two of the options were shortened to Pleasant Hill-Kansas City and Lawrence-Kansas City. The latter, having a total of 40 route miles and operating on the BNSF Railway in Kansas, would offer three peak period trips inbound to Kansas City Union Station in year 2020 with the reverse pattern in the evening. Intermediate Kansas stations would include Eudora, De Soto, Edwardsville, and Kansas City, Kansas. The potential ridership in 2020, along with estimated revenue, operating costs and capital costs appear in **Table 3.17**.

Table 3.17: Lawrence-Kansas City Commuter Line Estimated Ridership and Costs

Category	Value
Weekday One-Way Passenger Trips in 2020	2,238
Annual Revenue (\$M)	\$1.54
Annual Operating and Maintenance Costs (\$M)	\$5.23
Fare Box Recovery Ratio	29%
Annual Operating Subsidy (\$M)	\$3.69
Per Capita Subsidy (with trains operating 254 days/year)	\$6.52
Total Capital Costs (\$M)	\$117.9

Sources: Kansas City Region Commuter Rail Study and CDM Smith

Figure 3.5: Kansas City Area Commuter Rail Routes Studies in 2001



Source: Kansas City Region Commuter Rail Study, Initial Corridor Screening

Projected ridership and fare box recovery ratio are representative of levels achieved by commuter rail services having three or four peak period commuter runs. Capital costs included track improvements, support facilities, rolling stock, stations and parking, plus a contingency of 15% on facilities and equipment costs.

The study concluded that this corridor and the two other lines serving destinations exclusively in Missouri (Pleasant Hill-Kansas City and Odessa-Kansas City) have a potential role to play with the region’s long-term transportation system and recommended that all three remain under consideration.

In recent years, planning for Kansas City commuter rail has focused on service exclusively in Missouri.

3.8 Passenger Rail Summary

Amtrak is expected to continue service through Kansas on its Southwest Chief route with six station stops and Thruway bus service between Newton and Oklahoma City (Heartland Flyer connection). Amtrak initiatives include station access improvements for pedestrians and bicyclists. Amtrak will continue to work to enhance on-time service reliability and may introduce schedule and food service adjustments. In Kansas, the potential expansion of passenger rail service has been explored through various studies connecting Kansas City to Oklahoma City, Oklahoma and Dallas, Texas. The development plan discussed previously in this chapter, examined four alternatives. The public identified additional potential routes through southeast Kansas during the public outreach effort of this plan. However, funding remains an issue to pursuing any alternative further. Commuter rail initiatives identified a potential route between Topeka and Kansas City, however the primary commuter rail route was exclusively in Missouri.

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Chapter 4

Freight Rail Performance, Improvements, and Potential Investment

4.1 Rail Congestion Trends

The three Class I railroads owning main line routes in Kansas (BNSF, KCS and UP) reported no specific issue with regard to rail congestion in Kansas. UP does have plans for a major improvement west of Topeka, which will enhance capacity and fluidity there.

4.2 Trends and Forecasts

The purpose of this section is to identify trends that will affect rail needs for the state of Kansas in the future. Trends which impact both passenger and freight rail include factors such as demographic and economic growth, freight and passenger transportation changes, congestion to all transportation modes, and the future land use outlook. These factors all contribute to the projected demand and growth for both passenger and freight, although many of these factors are difficult to incorporate into demand forecasting. The following discussion provides a base for determining future rail service needs in Kansas and identifies areas of the state's future economy that will be transportation dependent.

4.2.1 Demographic and Economic Growth Factors

4.2.1.1 Population

The estimated population for Kansas in 2016 was 2,907,289, which ranked 35th among the U.S. states. Over the past four years Kansas's population increased by 0.5 percent, compared with a 2.2 percent population growth rate for the U.S. as a whole. From 2000 to 2016 Kansas only grew at the 38th fastest rate in the country, reflecting the slower growth of the region when compared with other portions of the country.

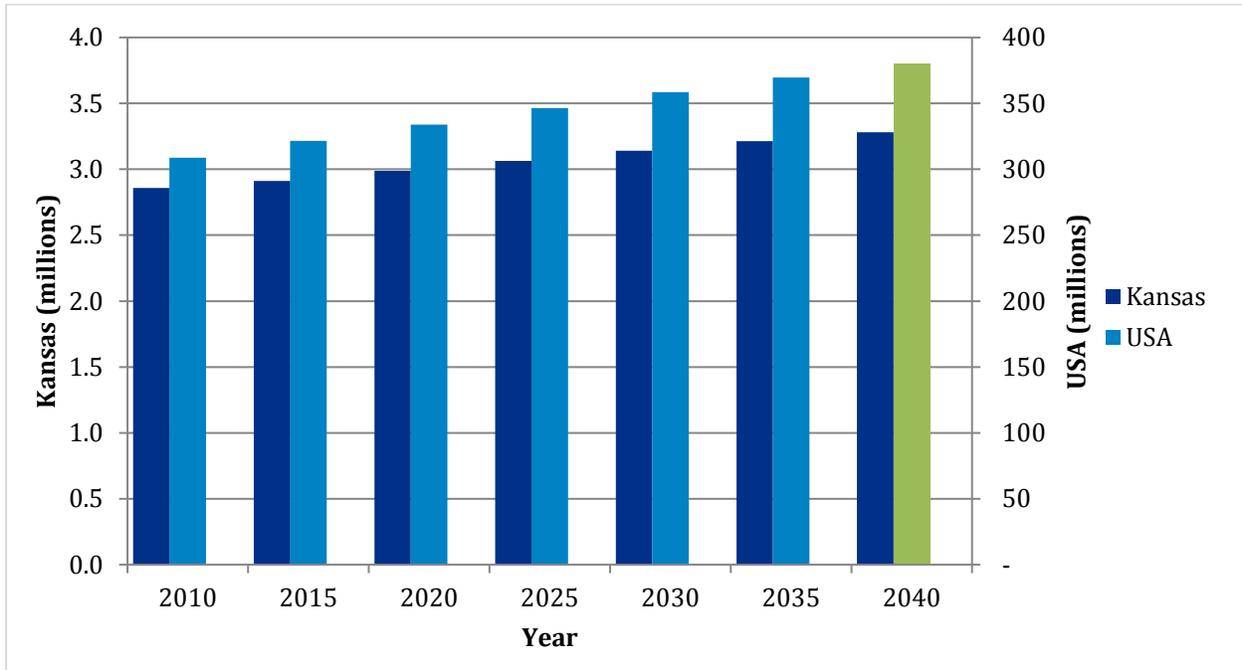
Overall, Kansas's population increased by 1.9 percent from year 2000 to 2016, which is substantially lower than the country's overall 4.7 percent growth in population during the same time period. This indicates that Kansas, while still growing, is not adding as much population as most other states in the country.³²

Wichita State University's Center for Economic Development and Business Research and the U.S. Census Bureau provide future population projections for public use. Kansas' information is provided to year 2065, while the U.S. Census projects to the year 2060. Population projections in five-year increments were used for both the state and country. Based on this information, between 2010 and 2040 the state's population is projected to increase by about 14.7 percent, reaching a total of nearly 3.3 million people. Compared to the estimated 23.1 percent growth for the country,

³² Population data from U.S. Census Bureau.

Kansas’ projected growth exhibits the expectation that the state will continue to lag behind most of the country in terms of attracting more people and grow slower than the U.S. as a whole. **Figure 4.1** shows the projected population estimates for both Kansas and the United States.³³

Figure 4.1: Kansas and USA Future Population Estimates



Based on information from the Census Bureau’s American FactFinder, which is sourced from information gathered for the 2014 American Community Survey (ACS), the median age for the state is 36.0 years, which is slightly younger than the national median age of 37.4 years. Among the state’s population over 25 years of age, 90.0 percent graduated from high school and 30.7 percent received a bachelor’s degree or higher; the high school graduation rate is much higher than the national average of 86.3 percent, while the college graduation rate slightly exceeds the 29.3 percent national average.³⁴ Kansas’s working age population (aged 18 to 65 years) was about 61.1 percent of the overall population, which is below the country’s 62.8 percent of the population. These demographics are reflective of higher proportions of populations below the age of 18 as well as over the age of 65.

4.2.1.2 Employment

The most current wage and salary employment (i.e., base employment) figures indicate that approximately 1.47 million people were employed in Kansas as of 2014, based on information from the Bureau of Economic Analysis (BEA). This data excludes farm and nonfarm proprietor’s employment information.

³³ Population forecast based on U.S. Census Bureau population estimates.

³⁴ U.S. Census Bureau, 2010 Demographic Profile Data.

Using the Kansas Department of Labor’s Labor Market Information Services employment growth projections, by 2020 base employment will increase to about 1.58 million, a 7.3 percent increase when compared to 2014 base employment projections.³⁵ Using this information and applying actual employment information from the BEA, the state’s base employment is projected to increase by around 24 percent to over 1.96 million jobs in year 2040.³⁶ As previously mentioned, this excludes proprietors employment as defined by the BEA.

Kansas’ unemployment rate over the past few years has changed substantially as a result of shifting regional and national economic conditions. In the past decade unemployment rates ranged from as low as 4.2 percent in June 2007 prior to the economic recession to as high as 7.3 percent in August 2009. Since 2009, rates have gradually dropped from 6.4 percent in May 2011 to 4.2 percent in May 2015. As of May 2016, the seasonally adjusted unemployment rate for the state was 3.7 percent. This rate is substantially lower than the national average rate of 4.7 percent, which itself has dropped significantly from its recent high of 10.0 percent in October 2009.³⁷

As of 2014, Kansas is the headquarters for three Fortune 500 companies: Spirit AeroSystems Holdings, a large aerostructures and defense company based in Wichita; Lansing Trade Group, a commodities business specializing in agriculture and energy; and Seaboard, a conglomerate of food, shipping, and agriprocessing companies. According to the BEA³⁸, Kansas’s gross domestic product (GDP) has increased by 45 percent since 2004; overall the state on average increased in GDP by 1.5 percent yearly in the past 10 years, which slightly exceeds the United States average of 1.3 percent. 2013 to 2014, the state’s GDP rose 1.2 percent. Recent economic growth in Kansas is mixed, although there has been consistent growth along the I-70 corridor in Wyandotte and Leavenworth Counties and the I-35 corridor in Johnson County. Overall, Kansas continues to experience growth in economic development, which should continue to increase as the economy expands and improves.

Figure 4.2 displays the employment change from 2000 to 2014 against Kansas’s Gross State Product (GSP) by employment sector in 2014. The graph highlights sectors with the largest impact on the Kansas economy and the changes in those sectors recently in terms of available jobs. The size of the bubble for each employment sector represents the number of jobs in that sector compared against all other sectors. According to the BEA, education and healthcare, other services, and public administration rank as the top employment sectors for the state, with retail trade and professional and business services closely behind. The education and healthcare and other services industries have employment which show a growing trend since 2000, while public administration employment has slowly grown. The retail trade sector has decreased by nearly 8 percent, while the information sector (which includes industries like publishing and telecommunications) has decreased by around 35 percent.³⁹ Other notable sectors include the natural resources and mining sector which has grown by over 137 percent in the past 15 years. In terms of GSP, five sectors

³⁵ Kansas Department of Labor (KDOL). Labor Market Information Services. July 2014.

³⁶ Percentage increase determined from projections provided by KDOL and then applied to actual BEA data. Thus it varies from KDOL projection data.

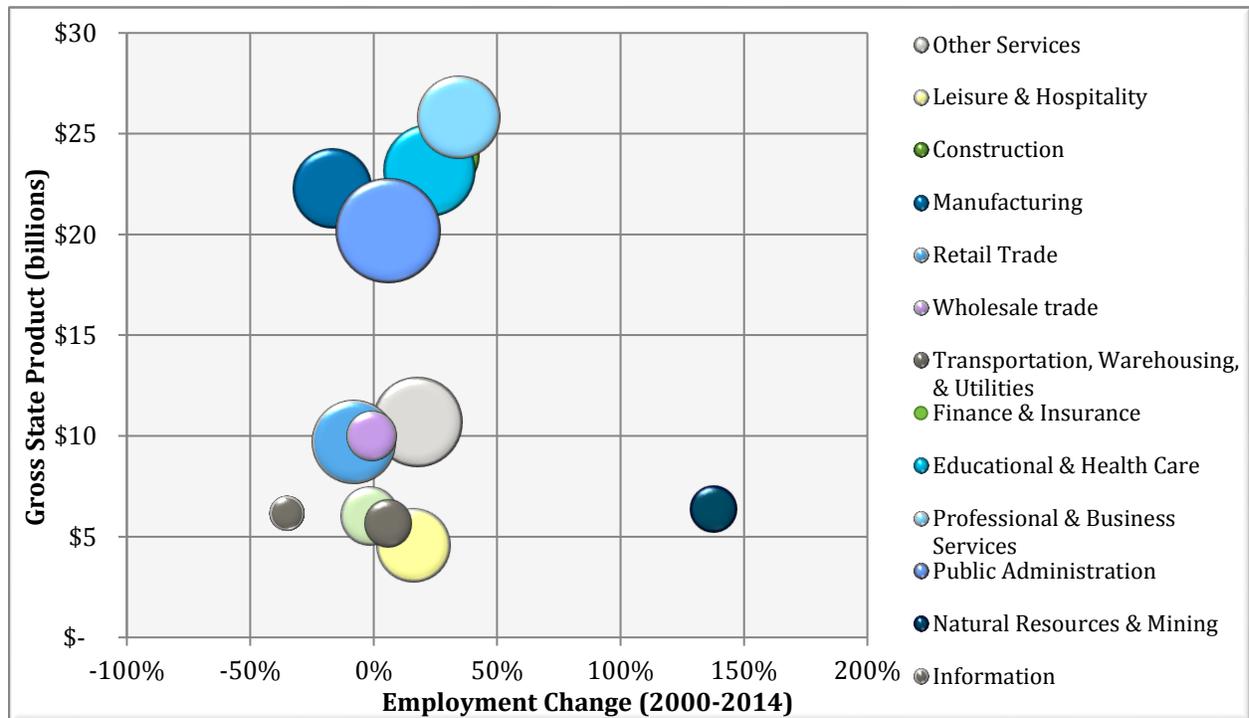
³⁷ Unemployment statistics provided by the U.S. Department of Labor and the Bureau of Labor Statistics.

³⁸ Bureau of Economic Analysis. Accessed at <https://www.bea.gov/regional/bearfacts/pdf.cfm?fips=20000&areatype=STATE&geotype=3>.

³⁹ U.S. Census Bureau and the Bureau of Economic Analysis.

generate about 66 percent of the overall GSP and have the most economic impact for the state. These five sectors are: the finance and insurance sector, educational and healthcare industry, manufacturing, public administration, and professional and business services. Of these, manufacturing is probably the most reliant on rail transportation for the delivery of intermediate inputs and/or the shipping of finished products. However, other key sectors of the Kansas economy such as retail and wholesale trade, transportation, warehousing, and utilities, and natural resources and mining are also somewhat dependent on rail transportation.

Figure 4.2: Kansas Employment Growth and GSP by Size of Employment Sector (2014)



Source: Bureau of Economic Analysis.

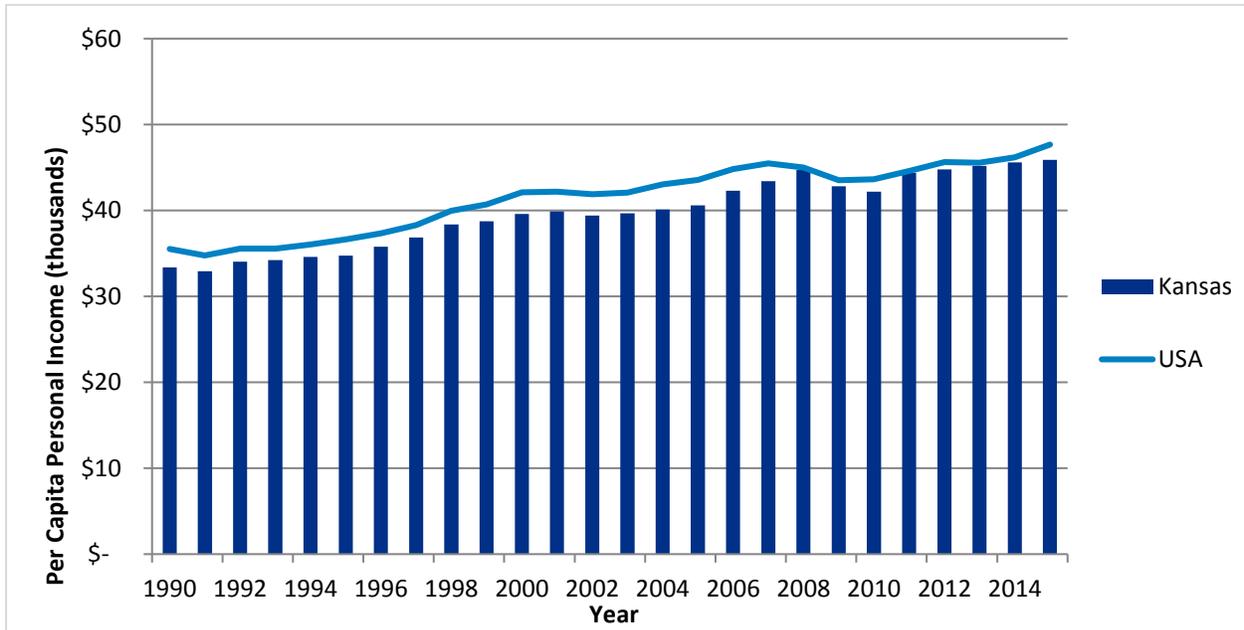
4.2.1.3 Personal Income

Kansas’s per capita personal income in 2015 was \$45,876, which ranked 24th within the United States and was 96 percent of the national average (\$47,669).⁴⁰ In continuous 2015 dollars (adjusted for inflation using the Consumer Price Index) the per capita personal income since 1990 has grown by 37.5 percent, somewhat above the national income growth of 34.2 percent. Since 2000, Kansas’s per capita personal income has continued to increase at a pace slightly above the national average, with a growth of 15.9 percent, while nationally incomes have grown by about 13.2 percent. The income growth in the past decade in Kansas can be attributed to the growing economy, as shown by the recent GSP gains and low unemployment rate. Kansas’s per capita personal income is currently at or around the U.S. personal income average, which is in line with historical data, as it has consistently been slightly below the national average. Historical per capita personal income from

⁴⁰ Bureau of Economic Analysis, accessed at http://www.bea.gov/iTable/index_regional.cfm.

1990 to present day is shown in **Figure 4.3**.⁴¹ Growth in per capita income is often associated with increasing travel demand in all modes including rail.

Figure 4.3: Historical Per Capita Personal Income (2014 U.S. \$)



Source: U.S. Bureau of Economic Analysis.

4.3 Freight Rail Needs and Opportunities

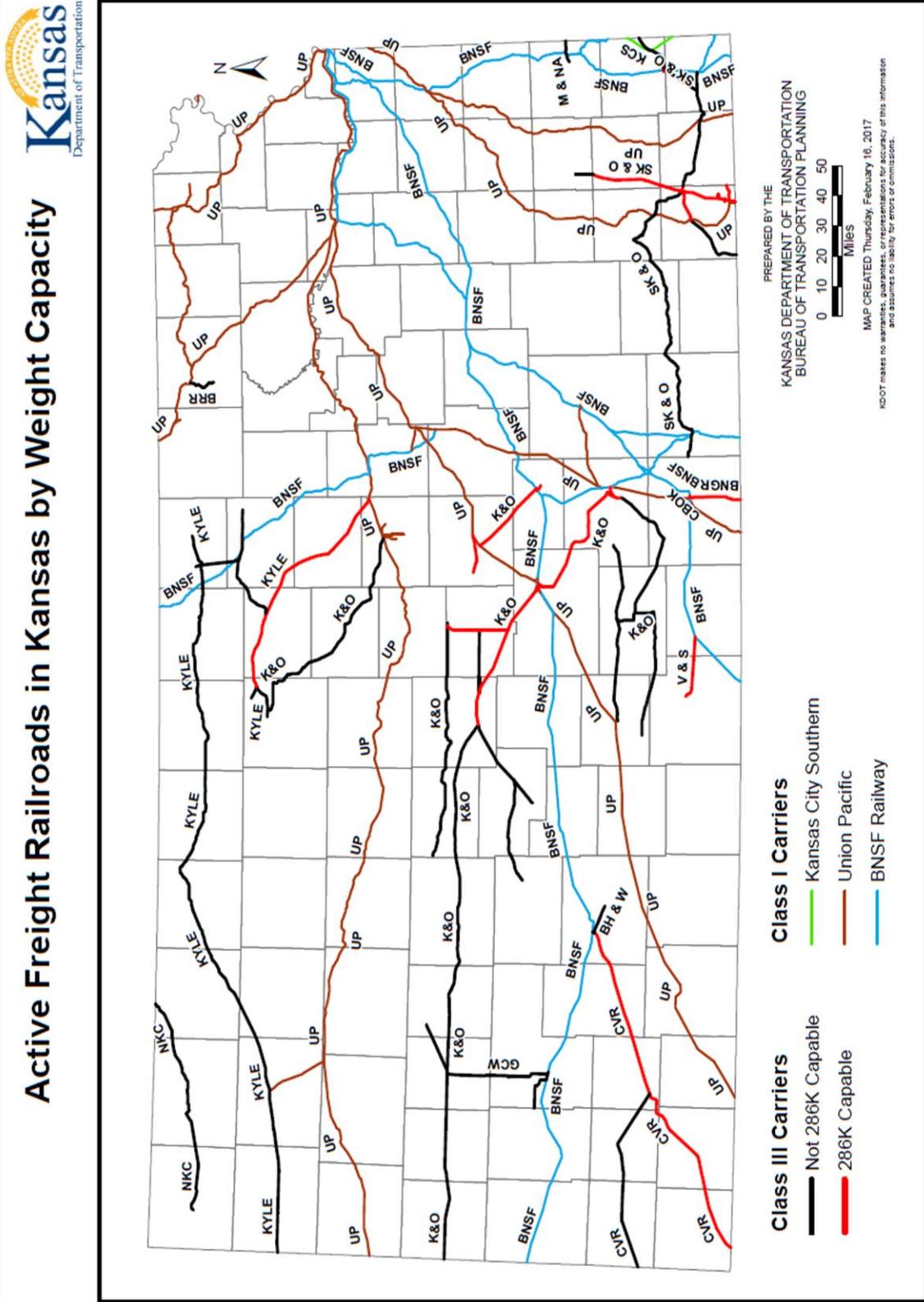
Stakeholders expressed a need to increase the number and geographic catchment area of transload facilities throughout the state. KDOT has taken the lead to accomplish this through a competitive application and multilayered analyses process that resulted in the construction of two transload facilities. Garden City has recently completed expansion of their facility that will support the wind energy and aggregate industries. The second project resulting from the statewide competition is a new facility in Great Bend. The construction of this facility was completed in June 2017. This facility will support the wind energy, aggregate and concrete industries.

Class III railroads purchased trackage from lower volume Class I railroad lines that primarily serve first and last line mile customer operations. These lines have often been the victim of deferred maintenance resulting in slower operating speeds. As the industry has accepted heavier rail cars as the standard, Class III railroads have struggled to keep up with the costs to upgrade their track to accommodate these heavier loads. As a result, 30 percent of the Class III rail lines remain non-286,000-pound segments.

⁴¹ Bureau of Economic Analysis, adjusted by the national CPI into 2014 U.S. dollars.

Kansas State University studied the rail capacity of Class III rail lines in Kansas and found that only 30 percent of the Class III route mileage was capable of carrying the standard 286,000-pound loads. **Figure 4.4** shows all the rail segments in Kansas that are non-286,000-pound segments.

Figure 4.4 Kansas Non-286,000 lb. Rail Segments



Source: 2017 Kansas State University Research, KSU 16-5

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Chapter 5

Rail Service and Investment Plan

This chapter identifies and describes possible future improvements and investments that could enhance the freight rail needs of Kansas. The potential projects are listed by the type of need they would primarily fulfill to include rail access, new rail capacity, rail improvements to existing capacity, improved safety and rail efficiency, economic development and environmental improvements. Projects can also be categorized by focus on specific entities to include Class I and Short Line Railroads, freight shippers (Users), and communities.

5.1 The Market (for Freight Rail) – Population and Economic Growth

In 2014 Rail accounted for 64.7 percent, or 368.4 million tons of the total freight movement volumes in Kansas. By (2040) Rail freight tonnage is expected to increase to 411.1 million tons, an increase of 11.6 percent. Coal accounts for approximately half of this volume. The Kansas Rail System is an important component of the national rail system and is vital for economic competitiveness and growth in Kansas. Because of Kansas' geographical location, through-rail traffic is significant and currently accounts for over 87 percent of all rail tonnage in Kansas. By 2040, rail tonnage in Kansas is forecast to increase by 11.6 percent. The rail lines expected to handle the greatest increase in freight movements in Kansas include:

- BNSF Railway (BNSF) TransCon line which crosses the KS-OK state line just south of Kiowa and moves northeast, via Emporia and Olathe, to Kansas City.
- Union Pacific Rail Road (UP) Transcontinental line which crosses the KS-NE state line just north of Marysville and moves south / southeast, via Topeka, to Kansas City.

Most rail freight generated in Kansas is characterized as bulk commodities of which farm products accounts for almost half of the tonnage, 48.1 percent. These include agriculture (grain and livestock). Although the population in Kansas has experienced slow growth over recent years, the U.S. has grown significantly. Kansas agriculture production, both livestock and grain, has increased to meet overall U.S. and international demand which is driven by population growth.

5.2 Freight Rail Project Needs

Kansas is served by three Class I railroads (BNSF, KCS, and UP) although NS has approximately 3 miles of trackage rights in Kansas City, KS. The needs of Class I railroads in Kansas differ significantly from the needs of the short line, Class III, railroads. Because the Class I railroads are financially strong, they are able to consistently invest in their own infrastructure to include new capacity, operational projects, infrastructure maintenance, regularly invest in new equipment, conduct on-going research and maintain long-range plans.

5.2.1 Class I Railroad Investments

To support investment in new rail capacity (rail lines, bridges and signal systems), infrastructure maintenance and improvements, and acquisition of locomotives and railcars, the Class I railroads use private financing. Occasionally, public funding may be available when public benefits justify it.

Class I investments in rail infrastructure in the state of Kansas has been focused on developing the capacity necessary to efficiently handle the increase in import and export products and commodities moving to/from the west coast to the greater Midwest and eastern part of the U.S. The increased demand has been the catalyst to upgrade and add multiple tracking to existing lines, expansion of existing and construction of new terminal facilities. Each year the Class I railroads budget funds to facilitate capital investment in the state's rail network.

Class I railroads have continued to invest heavily in the networks during recent years to solve on-going issues with capacity constraints, operational efficiencies, chokepoints, maintenance and safety, and increased volumes of through traffic in Kansas. Also, the federally mandated positive train control (PTC) systems, which reduce the risk for train overspeed incidents and collisions between trains, consume significant funding.

Investments are expected to continue among Class I railroads to improve and expand infrastructure, which includes intermodal centers as the international container business continues to grow at most ports and domestic containers also grows in volumes. In the near term, BNSF plans to develop line capacity expansion projects on its Transcon line between Wellington and Ellinor. These projects are programed for the 2020 – 2021 timeframe. Likewise, UP has selected capacity expansion projects for its Trans-Continental route in Kansas. In Edgerton, KS, BNSF has a developed a state-of-the-art intermodal facility. Logistics Park Kansas City (LPKC) recently began operation and contributes significantly to both international and domestic containers movements.

5.2.2 Short Line Railroad Investments

Kansas is served by 11 short line railroads and 3 switching railroads. These railroads are consistently challenged to acquire funding to modernize infrastructure and improve operational efficiencies. Typically, the largest constraints on U.S. short line railroads have been accommodating railcars with 286,000-pound (lb.) gross maximum weight, the industry standard, and chokepoints caused by insufficient operating capacity.

Railcars with larger loading capacity provide greater operating efficiency by reducing costs (labor, fuel, maintenance, etc.) while increasing capacity and synergy for rail shippers and rail operators. Most Class III railroads have legacy infrastructure suited to low-density operations and railcars of lower capacity (263,000-lb. and 268,000-lb. gross weight capacity). In order to accommodate 286,000-lb. railcars, short line railroads must upgrade track structure and/or substructure (i.e. rail, ties, switches, and ballast), and bridges to support the increased weight and stress caused by the heavier railcars. Short line railroads that are unable to fund these upgrades are at risk of losing business to competitors, which includes a nearby railroad or the trucking industry.

Short line railroads were typically formed as a result of Class I railroads divesting or abandoning low volumes rail lines that did not provide an adequate return on investment. As such, chokepoints on short line rail lines are antiquated, limit capacity and hamper efficiency. These include small

yards with insufficient capacity to support building trains, switching and staging railcars, and sidings of inadequate quantity and length, geographically unsuitable to support present-day train operations and schedules. Some short line railroads are further constrained by delays caused by interchanging cars with another carrier and use of trackage rights to access an isolated segment of their network. These deficiencies not only compromise rail transit times, operational safety, and cause mainline and rail yard congestion, they may also have unintended consequences of affecting the quality of life of adjacent communities. These are manifested as protracted delays for motorists and emergency services vehicles at highway-rail grade crossings. **Table 5.1** shows rail projects provided by the short line railroads.

Table 5.1: Potential Short Line Freight Rail Projects in Kansas

Railroad	Location	Project Name / Type	Project Description	Estimated Cost	Funding Source	Project Need	Project priority
KYLE (GWRR)	throughout network	increase capacity	increase rail to 286K#		Grants and internal	increase capacity	Very High
KYLE (GWRR)	Yuma sub	Republican River Bridge	Bridge replacement	\$4 mil	Grants, Internal and public	Bridge failure	Very high
KYLE (GWRR)	throughout network	Operational efficiency	Upgrade and replace selected bridges throughout network		Grants, Internal and public	Bridge deficiencies	High
KYLE (GWRR)	Western & Central KS	Transload	bulk shuttle loader(s)		Grants, Internal and public	new business	High
KO RR (Watco)	Western & Central KS	Transload	bulk shuttle loader(s)		Grants, Internal and public	new business	High

Source: CDM Smith interviews with stakeholders

KDOT is constantly seeking out opportunities to leverage funds to improve the multimodal transportation network throughout Kansas. As an example, KDOT is preparing two INFRA Grants with Class III railroads due in early November 2017. The two projects applying for grant funding are described below:

KYLE Railroad Rural Kansas Connectivity Project

The Rural Kansas Connectivity Project will strengthen and improve 207 bridges spanning over 500 miles of track in Kansas and Colorado. Funding made possible through an INFRA grant will allow KYLE Railroad customers to ship in the industry standard 286,000-pound railcar. Currently these customers are forced to use 268,000-pound railcars due to the condition of the bridges along this line. Gaining new transportation efficiencies through higher capacity railcars is critical for Kansas farmers and elevators who rely on affordable and competitive rail transportation to move their goods to market. The total cost of the project is \$9,223,498.

South Kansas and Oklahoma Railroad Accelerating Economic Prosperity in the Heartland: A Rural Freight Rail Project

This bi-state state effort, in coordination with the Oklahoma Department of Transportation and the South Kansas and Oklahoma railroad, will support much needed infrastructure improvements to

this important freight corridor that provides critical rail service, as well as connections to the nation's Class I railroad network, to a variety of shippers in Kansas and Oklahoma. The total cost of the project is \$42,359,014.

5.3 Future Tasks

Recommendations for additional planning and analysis to gather information to help KDOT, public officials, and other stakeholders make informed decisions about future freight rail investment in Kansas include:

- Continuing to communicate and coordinate with the Class I railroads to better understand their needs and priorities.
- Continuing to communicate and coordinate with the Class III short line railroads to better understand and prioritize critical rail infrastructure needs. This includes information on the state of repair of rail bridges, tracks and structures. Developing a funding strategy and program to assist with identified improvements to insure Kansas industries remain competitive would have good public benefits.
- Continuing to seek opportunities to assure all freight transportation modes are made available to industries and businesses to enhance economic growth.

Chapter 6

Stakeholder Engagement

6.1 Introduction

Numerous freight rail and passenger rail stakeholders were involved in helping KDOT create the Kansas State Rail Plan Update. Stakeholder engagement began prior to the start of the development of the rail plan and continued throughout the process. Active participation and professional dialogue were characteristic of the many carriers, logistics, distribution and shipping managers, economic development professionals, and leaders in private industry. Those that use the system most provided their perspectives on the conditions, issues, and needs of the rail network.

The goals of the stakeholder outreach program were to:

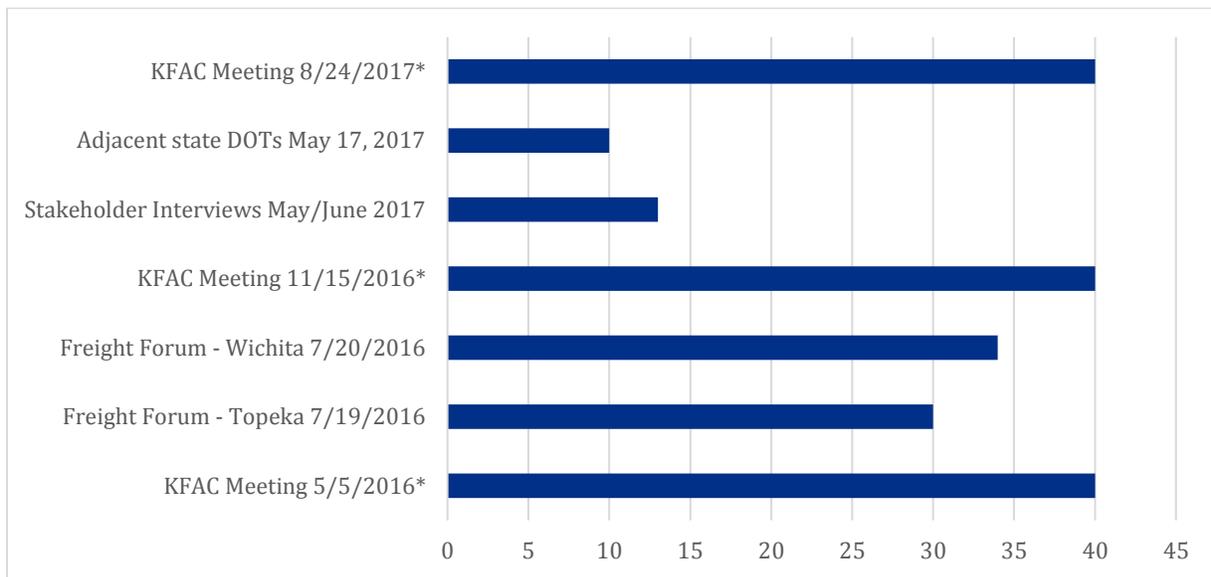
- Better understand what the costs are to Kansas' economy if the rail network stagnates or deteriorates.
- Articulate what rail projects and programs would be most helpful if additional funds become available.
- Collect opinions on how to leverage freight rail and passenger rail to provide conditions for businesses and communities to be more competitive – whether through improvement projects or policy changes.

Throughout the process KDOT engaged key freight and rail stakeholders via surveys, interviews, forums, and direct/grassroots outreach throughout the State. Additionally, the Kansas Freight Advisory Committee, which is made up of key freight stakeholders were involved with development of this rail plan.

Figure 6.1 summarizes stakeholder outreach participation.

KDOT used stakeholder input during the process to develop a plan well-vetted by Kansans who are the most involved and affected by freight and rail network movement and development. The purpose of these open dialogues with key stakeholders was to gather input on stakeholders' priorities as well as inform them on plan progress.

Figure 6.1: Public Outreach Participants



* Approximate attendance

Stakeholders provided input on:

- An inventory of freight assets and assessment of needs.
- What Kansas needs to do to be competitive and attract economic development and support existing businesses.
- A defined State rail network.
- Weighted rail goals and priorities that line up with goals of the State’s last long-range planning effort and the state freight plan.
- A list of prioritized investments and a project list based on the weighted goals and priorities from stakeholders.

6.2 Guiding the Plan: How Stakeholders Provided Input

Rail stakeholders provided valuable input and helped guide KDOT during the entire life of the project, by:

- Initially **updating existing contact lists** that included key stakeholders that were engaged and kept informed of activities related to the process. Those lists were maintained and updated throughout the plan update process.
- **Stakeholder interviews** of adjacent state DOTs and rail stakeholders were conducted to enrich KDOT’s understanding of the stakeholder’s perception of rail and freight issues and needs throughout the state. A total of 13 agencies and firms participated in various

conference calls. Their insight is summarized below in Section 5.4: Listening to Kansans: What KDOT Heard.

- The **Kansas Freight Advisory Committee (KFAC)** made up of freight and State leaders and select members of KDOT leadership. The committee, representing a diverse group of freight interests, convened three times during the plan update process (May 2016, November 2016, and August 2017) to provide feedback, review materials, and help connect KDOT to other stakeholders. A full listing of KFAC members is available in Appendix C. The KFAC was organized in early 2014 and serves as a private sector partner to KDOT. The Kansas Freight Advisory Committee advises and assists the Kansas Department of Transportation and the Kansas Turnpike Authority with identifying freight transportation issues, priority highway and rail freight corridors of significance, and identification of multimodal freight infrastructure improvement needs. The Committee advocates for a seamless multimodal freight transportation system for the efficient and safe movement of Kansas products throughout the state, region, nation and around the globe.
- **District Forums** that brought together several key stakeholders from across the State to discuss the Rail Plan Update with KDOT. Two freight/rail forums were held to ensure KDOT understood the perception of needs, trends and issues about freight and rail. The forums were held on July 19, 2016 at the KDOT District 1 Office in Topeka and on July 20, 2016 at City Hall in Wichita. Over 60 stakeholders attended the forums and provided valuable feedback to the Freight and Rail Plan Update efforts regarding needs, issues and trends.
- **Public Comment Period** of Draft State Rail Plan was made available for public comment from September 21, 2017 to October 20, 2017. A total of two comments were received. Both comments were related to the length of time a train blocks specific roadway/rail crossing.

6.3 Listening to Kansans: What KDOT Heard

Stakeholders spoke to a number of consistent themes and helped identify a series of important projects for Kansas' rail network.

6.3.1 Consistent Statewide Themes

Reoccurring themes—throughout the State and regionally—emerged during stakeholder outreach. These themes include:

- Kansas enjoys a centralized geographic location that helps to attract and grow foreign-owned businesses.
- The Kansas rail network is efficient and has good interchanges between Class I and short line railroads.
- The rail network has the flexibility to move exports to the west coast or Gulf coast.
- Lack of congestion problems.
- The Kansas City Logistics Park in Edgerton has good capacity and access.

6.3.2 Needs, Issue, Concerns

Specific needs, issues, and concerns were also identified through the stakeholder outreach process:

Freight Rail

- Some segments of Class I rail traffic have been in decline, coal is one of the commodities on the decline.
- Class III railroads have seen an increase in carloadings led by agricultural products.
- Desire for transload facilities, especially in west and central Kansas.
- Strengthen pool of KDOT funds for local projects that support freight rail movement.
- Improve/eliminate selected existing at-grade rail crossings.
- Moving agricultural products in most efficient means possible.
- Need for additional funding for short line railroads.

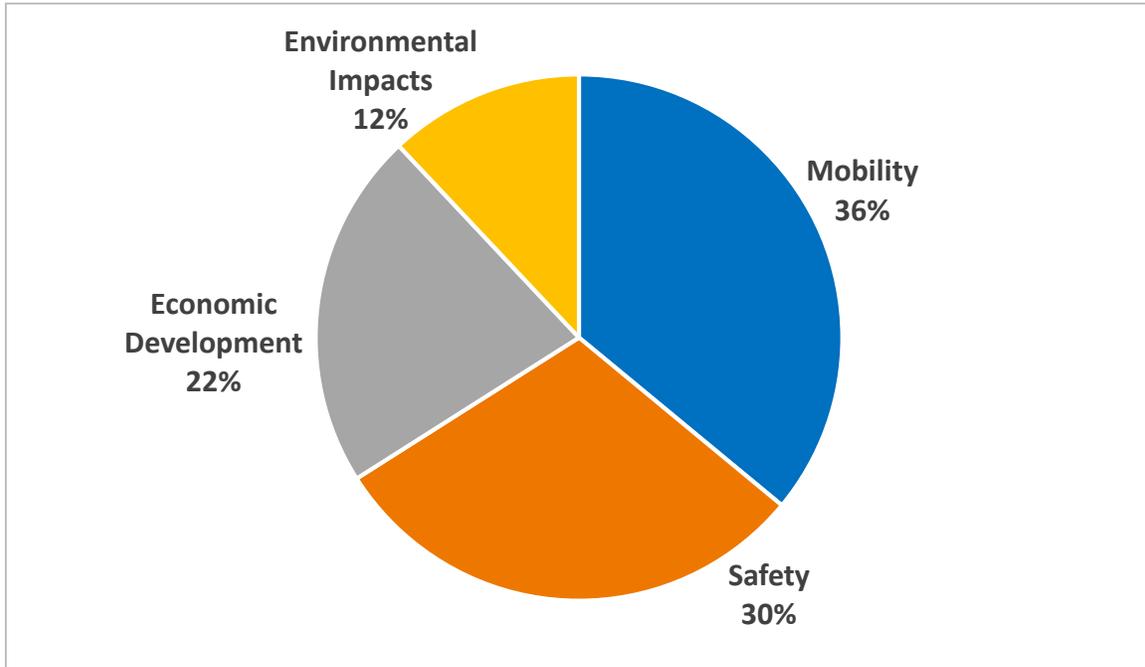
Passenger Rail

- Passenger rail service would improve local economies and improve quality of life for an aging population.
- Suggestions on several locations where potential service could be provided or improved (e.g., Tulsa to Southeast Kansas, expanded Amtrak service, Kansas City to Southeast Kansas, etc.)

6.3.3 Project Prioritization Process

During the second KFAC meeting, stakeholders were asked to set weighted criteria for identifying high priority projects using an apportionment of 100 points total. The criteria included mobility, safety, economic development, and environmental impacts. Mobility ranked highest with a score of 36, followed by safety with a score of 30, economic development with a score of 22, and environmental impacts with a score of 12. (**Figure 6.2**)

Figure 6.2: KFAC Recommended Project Prioritization Weighting



Within the **mobility criteria**, the following factors were ranked highest for prioritizing potential projects:

- Improving intermodal and transload freight facilities to support increased multimodal traffic;
- Addressing freight rail bottlenecks;
- Improving connections to major freight generators and high growth target industries; and
- Maintaining existing facilities.

Within the **safety criteria**, the following factor was ranked highest:

- Addressing rail-highway safety issues.

Within the **economic development** criteria, the following factors were ranked highest:

- Projects supporting business expansion or new business development for a new or existing company;
- Improving multimodal connections to freight generators, industrial parks or similar facilities in economically distressed counties; and
- Projects supporting expansion, retention or new business for Kansas Department of Commerce targeted industries.

Within the **environmental impacts** criteria, the following factors were ranked highest:

- Enhancing opportunities for Environmental Justice communities; and
- Providing opportunities to reduce impacts to air and water quality.

In addition, a scenario planning exercise was conducted at the second KFAC meeting. The scenarios centered around four themes: The Hungry World, the Global Market, Convenient Living and Technology Overlay. Discussion of these themes focused around how Kansas could leverage its strengths depending on the potential future scenario.

6.4 Forming Partnerships and Moving Forward

Upon adoption of the Kansas State Rail Plan update, KDOT will continue to build upon relationships formed and enhanced during the Rail Plan process. Transportation funding is limited. However, there is a commitment that this Rail Plan will be implemented. KDOT will develop a process to prioritize and actively manage, monitor and measure the implementation of the policies, programs and projects recommended within this plan. Consideration for the timing of these efforts, i.e. short-term and long-term, and the funding and financing options will weigh heavily on how and when implementation is most effective.

6.5 Lessons Learned

Through drafting and vetting this Rail Plan update, stakeholders communicated and reaffirmed some lessons for KDOT on how best to communicate with them, engage additional stakeholders, and identify high level concepts always to consider when discussing freight in Kansas.

- Engaging all rail interests is more complicated than simply having public meetings. The most effective way to engage with these stakeholders is by doing grassroots outreach and going to meet private stakeholders at industry-specific events and conferences.
- Stakeholder input was integral in the development of the Kansas State Rail Plan update – from qualitative assessments of freight infrastructure conditions to highlighting what the State needs to do to be economically competitive.
- Economic development and freight rail go hand-in-hand. Be prepared to talk about economic impacts.
- There are opportunities for no- or low-cost partnerships to enhance rail opportunities in the State.
- Public and private stakeholders are concerned about growing needs and limited resources for transportation.
- Rail freight stakeholder’s top concerns aligned with the state’s freight goals.