



Kansas State Rail Plan

Prepared for:

Kansas Department of Transportation

Prepared by:



In association with:

**TranSystems
High Street**

Kansas State Rail Plan Update

The objective of the Kansas State Rail Plan Update is to build on past freight and rail planning efforts, as well as integrate and consider guidance being established in the Kansas 2045 LRTP and the Eisenhower Legacy Transportation Program (IKE), and close the information gaps to develop:

A PRRIA-compliant State Rail Plan that provides a clear understanding of the multimodal freight and rail systems, how industries and people use the systems, and the system needs, issues, and opportunities so KDOT can make better-informed policy and investment decisions throughout Kansas.

Plan development will include: stakeholder involvement and education, rail and freight needs analysis, identification of rail- and freight-benefitting projects, and rail and freight investment plans.

Acknowledgements

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Cover image source: Sections of a 40-foot mural at CPCS headquarters in Ottawa painted by Toronto artist Mike Parsons.

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Acronyms

Acronym	Description
286K	286,000 pounds
AAR	Association of American Railroads
ADA	Americans with Disabilities Act
APU	Auxiliary Power Unit
ARRA	American Recovery and Reinvestment Act
ASV	Abilene and Smoky Valley Railroad
ATSF	Atchison, Topeka and Santa Fe Railway
BEA	Bureau of Economic Analysis
BH&W	Boot Hill & Western Railroad
BIA	Blackwell Industrial Authority
BIL	Bipartisan Infrastructure Law
BN	Burlington Northern Railroad
BNGR	Blackwell Northern Gateway Railroad
BNSF	BNSF Railway
BRR	Blue Rapids Railroad
BTS	Bureau of Transportation Statistics
BUILD	Better Utilizing Investments to Leverage Development
CARES Act	Coronavirus Aid, Relief, and Economic Security Act
CA	California
CBRR	Central Branch/Missouri Pacific Railroad
CHP	Comprehensive Highway Program
CFS	Commodity Flow Survey
CO	Colorado
COFC	Container-on-flatcar
COVID-19	Coronavirus Pandemic
CRIP	Chicago, Rock Island and Pacific Railroad or Rock Island Railroad
CRISI	Consolidated Rail Infrastructure and Safety Improvements
CTP	Comprehensive Transportation Program
CVR	Cimarron Valley Railroad
DERA	Diesel Emissions Reduction Act
DOT	Department of Transportation

Acronym	Description
eSCI	Customer Service Indicator
ES	Executive Summary
EPA	Environmental Protection Agency
FAF	Freight Analysis Framework
FAF5	Freight Analysis Framework Version 5
FAST Act	Fixing America's Surface Transportation Act
FHWA	Federal Highway Administration
FRA	Federal Railroad Administration
GCW	Garden City and Western Railway
GDP	Gross Domestic Product
HAL	Heavy Axle Load
HUTX	Hutchinson Transportation Company
I-ETMS	Interoperable Electric Train Management System
IFG	International Freight Gateway
IL	Illinois
IKE	Eisenhower Legacy Transportation Program
JCAX	New Century AirCenter Railroad
KAW	Kaw River Railroad
K&O	Kansas & Oklahoma Railroad
KCS	Kansas City Southern Railway
KCT / KCTR	Kansas City Terminal Railway Company
KDA	Kansas Department of Agriculture
KDC	Kansas Department of Commerce
KDOT	Kansas Department of Transportation
KS	Kansas
KYLE	Kyle Railroad
LA	Louisiana
LPKC	Logistics Park Kansas City
L RTP	Long Range Transportation Plan
MAP-21	Moving Ahead for Progress in the 21st Century Act
MID	Midland Railway
MIRPC	Midwest Interstate Passenger Rail Commission
MKT	Missouri-Kansas-Texas Railway

Acronym	Description
M&NA	Missouri & Northern Arkansas Railroad
MO	Missouri
MPH	Miles per hour
MPO	Metropolitan Planning Organization
MUTCD	Manual of Uniform Traffic Control Devices
MWRRRI	Midwest Regional Rail Initiative
NHFP	National Highway Freight Program
NKCR	Nebraska, Kansas, & Colorado Railway
NE	Nebraska
NM	New Mexico
NS	Norfolk Southern Railway
NTAD	National Transportation Atlas Database
ODOT	Oklahoma Department of Transportation
OK	Oklahoma
OTM	Other Track Material
OTP	On-Time Performance
PRIIA	Passenger Rail Investment and Improvement Act
PRRF	Passenger Rail Revolving Fund
PSR	Precision Scheduled Railroading
PTC	Positive Train Control
RAISE	Rebuilding American Infrastructure with Sustainability and Equity
ROW	Right-of-way
RPAC	Rail Plan Advisory Committee
RSIA	Rail Safety Improvement Act
RSIF	Rail Service Improvement Fund
SAP	Kansas Highway-Rail Grade Crossing State Action Plan
SDP	Service Development Plan
SF	Square Foot
SFY	State Fiscal Year
SLRIF	Short Line Rail Improvement Fund
SLSF	Saint Louis-San Francisco Railway
SKOL	South Kansas & Oklahoma Railroad
STB	Surface Transportation Board

Acronym	Description
SWOT	Strengths, Weaknesses, Opportunities, and Threats
TF	Track Foot
TIGER	Transportation Investment Generating Economic Recovery
TOFC	Trailer-on-flatcar
T-WORKS	Transportation Works for Kansas
UP	Union Pacific Railroad
USDA	U.S. Department of Agriculture
U.S.	United States
U.S. DOT	U.S. Department of Transportation
V&S	V&S Railway

Executive Summary

About the Kansas State Rail Plan

Purpose

The Kansas Department of Transportation (KDOT) has developed the Kansas State Rail Plan to guide the state's vision for railroad transportation and to identify strategies to achieve this vision. This Kansas State Rail Plan serves as an update to KDOT's 2017 Kansas Statewide Rail Plan and meets federal requirements established under the Passenger Rail Investment and Improvement Act (PRIIA) from 2008.

The Kansas State Rail Plan will provide a clear understanding of the freight and passenger rail systems, how industries and people use the rail system, and the system needs, issues, and opportunities, so KDOT can make better-informed policy and investment decisions.

Vision and Goals

The framework for developing the State Rail Plan is based on the relevant visions, goals, and objectives identified in the Kansas 2045 Long-Range Transportation Plan (LRTP). The LRTP focus areas (Figure ES 1) guided the development of the State Rail Plan, to align the Plan's rail investments and recommendations with Kansas' overarching statewide transportation guidance.

The Kansas State Rail Plan has been developed with extensive public participation and involvement by the state's rail stakeholders, including both freight and passenger railroads and rail users.

Figure ES 1: State Long-Range Transportation Planning Focus Area



Safety and Security



Transportation System Management



Asset Preservation



Freight and Economic Vitality



Stewardship



Workforce

Source: CPCS, 2021.

Kansas Rail System

Freight System

In 2020, Kansas' Class I railroads moved over 5.7 million carloads, while its short line railroads moved almost 162 thousand carloads.

Kansas' rail system supports freight movements to, from, and through the state. The rail system also facilitates goods movement throughout the nation and to key international ports. Top commodities moved by rail in Kansas include coal, mixed freight, and cereal grains. The majority of goods movement on the state's rail system – almost 86 percent – consists of freight passing through Kansas, with origins and destinations outside the state. The remainder of freight rail movements moves to or from Kansas, with a small share of additional movements moving within the state.¹

¹ STB Waybill, 2019 data; Analysis by CPCS, 2021.

Kansas is served by over 4,600 miles of active rail in the state, with four Class I railroads, 13 short lines, and 2 switching and terminal railroads.

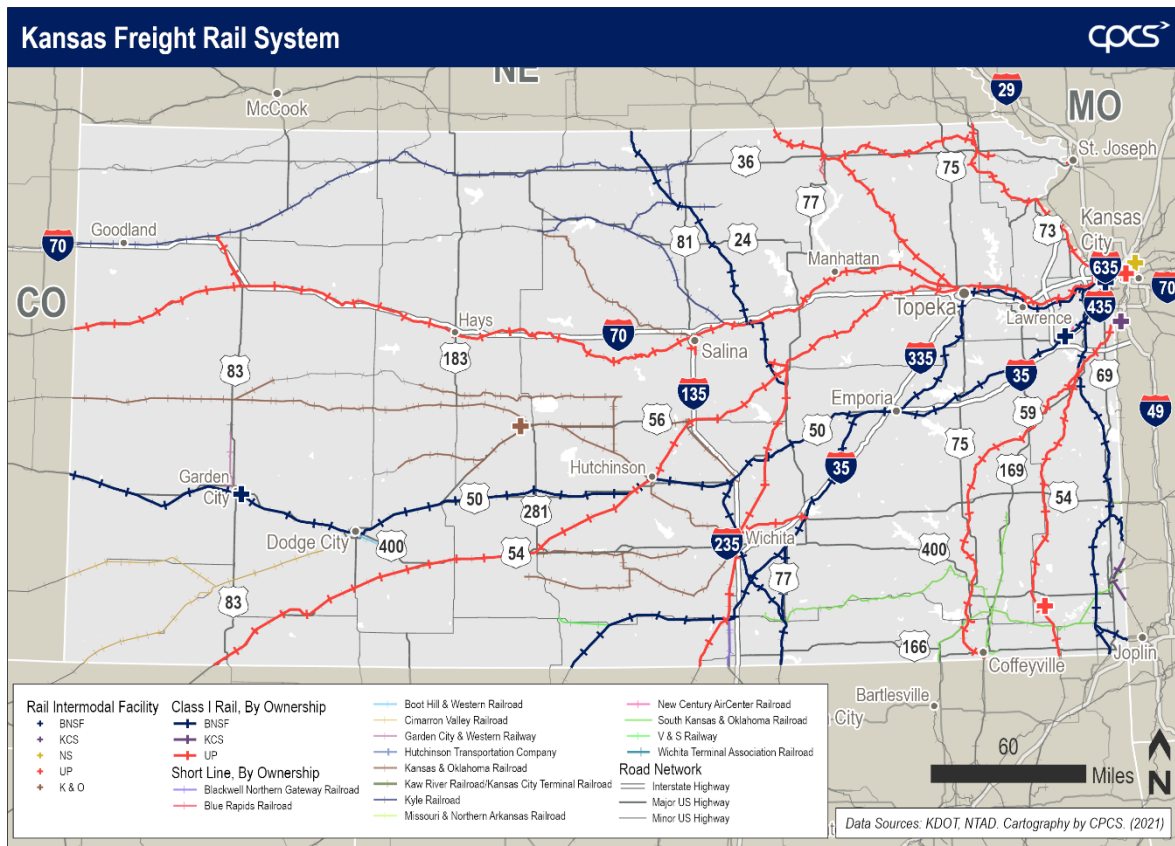
Three Class I railroads – BNSF, UP, and KCS – own 2,823 active rail miles in Kansas. NS also operates over 3 miles of trackage rights in the state.² Among Class I rail, 83 percent is classified as FRA Track Class 4 or higher. Short line and switching/terminal railroads also provide key connections, with 1,800 active rail miles owned and exclusively operated, making up 39 percent of the state's active rail infrastructure. Among short line and switching/terminal rail, 73 percent is classified as FRA Track Class 2 or higher. Figure ES 2 details Kansas' active freight rail system, which is further mapped in Figure ES 3. There are also 142 miles of inactive rail and 3,192 miles of abandoned rail in the state.

Figure ES 2: Kansas Freight Rail System (Summary Table)

Operator Name	Operating Miles	Miles Owned (Active)	Trackage Rights Miles	Miles Leased (Operational Rights, Lessor)	Miles Leased (Operational Rights, Lessee)	No. of Sub-divisions	No. of Open Grade Crossings
Class I	3,827	2,823	1,005	298.5	--	61	3,801
Short Line	1,909	1,510	100.3	--	298.5	53	3,434
Switching/ Terminal	10.3	10.3	--	--	--	5	34

Source: KDOT; FRA crossing Inventory Database, 2021; Kansas Railroads, 2021. Analysis by CPCS, 2021.

Figure ES 3: Kansas Freight Rail System



² Note: Information pending validation by railroads.

Passenger System

Kansas is served by one intercity, long-distance passenger rail route at six stations, operated exclusively over BNSF owned track.

The Amtrak Southwest Chief national route, operating between Chicago and Los Angeles supports the movement of Kansas' population – which reached 2.9 million people in 2019³ – throughout the state and country.

In Kansas, 53 percent of residents live within 25 miles of a passenger rail station, and 75 percent within 50 miles of a station.

Amtrak's Southwest Chief (Figure ES 4) operates one daily trip in each direction on its 2,265-mile route from Chicago to Los Angeles, serving many markets as it travels across the country. Tourism and business travel dominate the rider profile. For many communities in Kansas, long-distance passenger rail provides access to destinations for passengers who are unable to drive or reach their destination conveniently through other modes. The six Amtrak stations in Kansas all handle substantial numbers of riders, even though most Southwest Chief stops are scheduled in the middle of the night.

Figure ES 4: Existing Amtrak Kansas Route









³ U.S. Census, American Community Survey (ACS), 2010-2019. Analysis by CPCS, 2021.

Planning for the Future

Trends

Various trends will continue to impact Kansas' freight and passenger rail system use and operation in the future. A snapshot of key trends is presented below.

 Growing urban population , declining rural population in Kansas.	 Positive Train Control technology is in operation on all of the over 57,500 required freight and passenger railroad route miles, promoting a safer rail system for users.
 Increasing median household income in Kansas, through growing at a slower pace than the national rate.	
 A well-trained workforce is required to minimize staffing shortages and maintain rail system safety.	
 Disruptive events over the past few years, including the COVID-19 pandemic, congestion, and major weather events impacted all parts of the freight transportation system, underscoring the importance of freight system resiliency and planning.	 Today, most Class I railroads in the US employ some form of precision scheduled railroading (PSR). While the goal of PSR is to streamline operations, it also results in moving traffic in fewer, but longer trains, with average train length increasing over the past decade.

Strengths, Weaknesses, Opportunities, and Threats

Based on data and stakeholder inputs, Figure ES 5 identifies Kansas' top Strengths, Weaknesses, Opportunities, and Threats (SWOT) for the freight and passenger rail system.

Figure ES 5: Kansas Rail System SWOT








Strengths	Weaknesses
<ul style="list-style-type: none"> Kansas' central location. Short line rail system. The majority of Kansas' rail system meets FRA track class standards. Steady passenger rail ridership. Accessible passenger rail system. KDOT coordinates and partners with railroads on large capital projects, administers Section 130 funds, supports and on occasion has provided matching funds for federal grant applications, and administers several state-funded rail programs. Positive feedback from rail stakeholders for KDOT's existing rail-dedicated workforce and rail programs. 	<ul style="list-style-type: none"> Occurrence of incidents at highway-rail grade crossings. Need for more double track and more, longer sidings. Rail maintenance and issues cannot be serviced during night hours when it is dark. Existing schedule for passenger rail service is largely in the middle of the night. Short lines have difficulty making investments for needed rail infrastructure maintenance and upgrades. Less than one-third of the active short line system is known to be at the industry-standard 286K capable. Difficulty recruiting and maintaining private sector rail workforce, and a limited/diminishing public sector rail-dedicated workforce.
Opportunities	Threats
<ul style="list-style-type: none"> Advance policy and program recommendations in line with state long-range transportation planning focus areas. Evaluate opportunities to support planned and potential railroad projects that may address quantitatively-identified needs on Kansas' freight and passenger rail network. Enhanced grant funding opportunities for rail infrastructure improvements, passenger rail expansion, and highway-rail crossing improvements through the federal Bipartisan Infrastructure Law (BIL). 	<ul style="list-style-type: none"> Trains are getting longer. Port and container volume growth, combined with system disruptions, impact the availability of equipment and capacity, and threaten efficient and reliable rail movements. Increasing customer demand and growing traffic. Aging rail infrastructure with limited speed and weight capacity limit the ability to capture growing demands. Rates are highly controlled by Class I's, exacerbated by potential mergers. COVID-19 has resulted in less passenger train service and lagging passenger volumes. Private sector workforce challenges, and turnover or retirement of public and private sector rail-dedicated workforce.

Action Plan

Policy and Program Recommendations

KDOT identified 20 policy and program recommendations to guide next steps for freight and passenger rail planning, project identification, funding strategies, safety improvements, and emissions reductions in Kansas (Figure ES 6). These recommendations are informed and validated by data analysis and stakeholder outreach efforts, including through RPAC, freight and passenger rail consultations, and an agriculture stakeholder roundtable. Each recommendation is classified into one of seven policy areas, each of which enhances various KDOT focus area(s) in alignment with the state's overall transportation vision and goals.

Figure ES 6: Policy and Program Area Recommendations

	Improve highway-rail grade crossings		Improve ability to attract businesses to locate or expand in Kansas
	Provide and/or support efforts to secure funding support for rail projects		Coordinate Kansas' rail workforce to accomplish State Rail Plan goals
	Work with railroads to identify opportunities to invest in infrastructure improvements		Monitor and support opportunities to implement new rail technologies
	Improve economic efficiency and benefits for Kansas rail system users		

Rail Service Investment Plan

Kansas' Rail System Funding and Development

KDOT works with various public and private stakeholders to maintain and improve Kansas' freight and passenger rail system.

KDOT advocates for rail system improvements, supports and has on occasion provided matching funds for federal grant applications, and administers several state-funded programs that allocate funding to rail system improvement projects.

KDOT coordinates and partners with railroads on large capital rail improvement projects. Since 2000, KDOT has awarded more than \$87 million to support freight rail projects in the state through the state Rail Service Improvement Fund (RSIF). KDOT's new Short Line Rail Improvement Fund (SLRIF) has also provided over \$9.4 million to support the state's short line rail system. Freight rail projects are also eligible for funding through KDOT's Cost Share and Economic Development Programs.

Over the past two decades, KDOT has also provided support to federal grant applications, with short line system infrastructure improvement projects securing \$48.6 million in federal grant funds, and the Southwest Chief passenger route in and near Kansas securing \$61.2 million in federal grants. KDOT also administers funds for highway-rail grade crossings through the Section 130 program.

Freight Rail Project Opportunities

An evaluation of data analysis and performance measures, stakeholder consultations, and projects submitted for federal or state funding informed the identification of freight rail project opportunities for Kansas. Project opportunities were then classified into one of three categories based on project readiness – Ready Rail Projects, Rail Projects in Development, or Other Rail Project Opportunities. Figure ES 7 identifies Kansas' freight rail project opportunities.

Figure ES 7: Freight Rail Project Opportunities*Ready Rail Projects*

Project / Railroad	Description
V&S Railway	Major rehabilitation (20 miles).
Southwest Kansas Infrastructure Upgrade Project (CVR)⁴	Improve track conditions (85 miles).
KYLE Railroad Gateway⁵	Replace track (23.5 miles).

Rail Projects in Development

Railroad	Description
CVR	<ul style="list-style-type: none"> Joint elimination/flash-butt welding of rail Additional rail replacement of 85#/90# rail in unit train route Additional rail replacement of 85# rail Upgrade turnouts
K&O	Improve weight compliance, up to the industry 286K standard.
KYLE	<ul style="list-style-type: none"> Mainline crosstie upgrades and replacements (6 across multiple subdivisions) Mainline rail upgrades and replacements (3 across multiple subdivisions) New siding Cut and slide

Other Rail Project Opportunities

Project	Description
286K Upgrade	Improve weight compliance of short line railroads up to 286K standard
FRA Track Class Upgrade	Upgrade FRA track class of short line railroads.
Sidings	Build new and/or extend existing rail sidings
Grade Crossing Upgrade	Improve highway-rail grade crossing infrastructure – upgrade crossing surface.
Grade Crossing Upgrade	Improve safety at highway-rail grade crossing locations by upgrading safety devices and adding overhead lighting at crossings.
Transload Facility	Construct new or expand existing transload facility

Source: KDOT, WATCO (SKOL and K&O), Jaguar (CVR), Genesee & Wyoming (KYLE), CPCS, 2021

Passenger Rail Project Opportunities

Passenger rail project opportunities include passenger rail projects that KDOT has begun to implement, combined with additional opportunities identified through stakeholder consultations. Figure ES 8 provides a list of the potential passenger rail project opportunities in Kansas.

Figure ES 8: Passenger Rail Project Opportunities

<i>Service Development Plan Update – Heartland Flyer Extension</i>
<i>Amtrak Connects US Heartland Flyer Extension Project</i>
<i>Connections Between the Southwest Chief and Front Range Services</i>
<i>Extension of Missouri River Runner to Kansas Destinations</i>
<i>Passenger Rail Station Improvements</i>

Next Steps

KDOT has a long history of working with rail and industry stakeholders on rail projects and programs in the state. KDOT will continue to advocate for rail system improvements, support and provide matching funds for federal grant applications, and administer state-funded programs that allocate funding to rail system improvement projects to maintain and improve Kansas' freight and passenger rail system.

⁴ KDOT has submitted a CRISI Grant Application for this project, with \$10,991,971 in federal funds requested. If awarded, KDOT will provide \$500,000 in matching funds to the project.

⁵ KDOT has submitted a CRISI Grant Application for this project, with \$9,367,112.50 in federal funds requested. If awarded, KDOT will provide \$500,000 in matching funds to the project.

1 Kansas Rail Vision and Goals

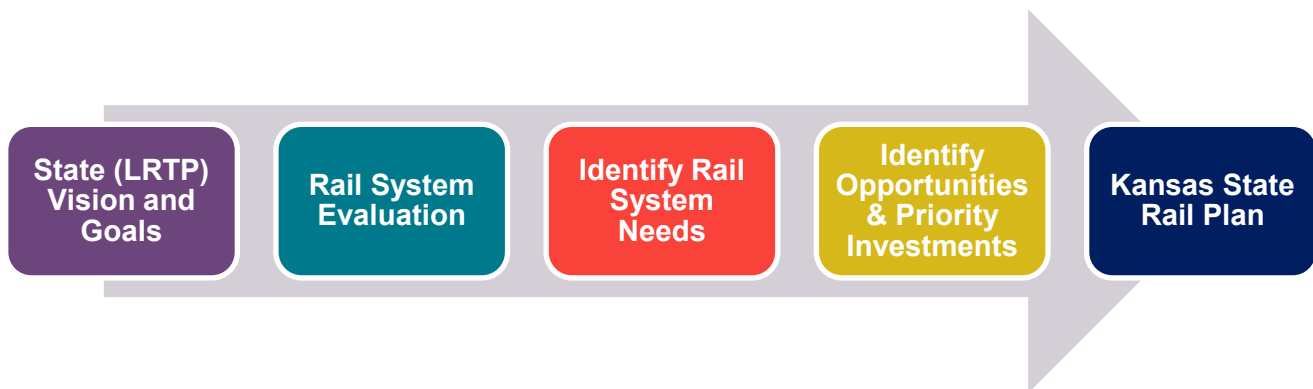
The Kansas Department of Transportation (KDOT) has developed the Kansas State Rail Plan to guide the state's vision for railroad transportation and identify strategies to achieve this vision. This Kansas State Rail Plan serves as an update to KDOT's 2017 Kansas Statewide Rail Plan and meets federal requirements established under the Passenger Rail Investment and Improvement Act (PRIIA) of 2008. PRIIA tasks states seeking federal assistance for passenger or freight improvements with developing a statewide rail plan to set freight and passenger rail transportation policy, guide rail planning, and prioritize rail investments. The Kansas State Rail Plan has been developed with extensive public participation and involvement by the state's rail stakeholders, including both freight and passenger railroads and rail users.

1.1 Vision and Goals

The framework for developing the Kansas State Rail Plan is based on the relevant visions, goals, and objectives identified in the Kansas 2045 Long Range Transportation Plan (LRTP).

In addition to the statewide rail-related vision (policy) and goals, a detailed assessment of the rail system's conditions, needs, and investment opportunities will guide the development of the Kansas State Rail Plan. The process used to conduct the Kansas State Rail Plan, shown in Figure 1-1, promotes consistency between the Plan's rail investments and recommendations, and Kansas' overarching statewide transportation guidance.

Figure 1-1: Process for Conducting the Kansas State Rail Plan



Source: CPCS, 2021.

The 2045 LRTP reviews the factors impacting the statewide transportation system over the long term to present flexible and responsive strategies that will enable KDOT and the Kansas transportation system to support prosperity and quality of life for all Kansans over the next 25 years. The LRTP reflects the current and future states of the Kansas transportation system, as informed through input from and priorities of diverse Kansas stakeholders. Stakeholder priorities include safety, dialogue, preservation, flexibility, revenue, practical improvements, modal choices, broadband, and economic development.

Based on an analysis of trends and issues in transportation, and in collaboration with stakeholders about transportation needs, the LRTP formulates recommendations for how KDOT and its partners can continue to work together to maintain and enhance the Kansas transportation system through strategies, spread across the six major areas presented in Figure 1-2.

Figure 1-2: State Long-Range Transportation Planning Focus Area



Safety and Security: Enhance the safety and security of the transportation system for all users and workers.



Freight and Economic Vitality: Improve reliability and increase flexibility for cost-efficient movement of people, goods, and information to strengthen the Kansas economy.



Transportation System Management: Maximize the performance of the existing system by investing in transportation choices and intelligent transportation systems.



Stewardship: Continuously improve the quality of the transportation system and surrounding communities through strong partnerships and focused, lower cost, and higher value improvements.



Asset Preservation: Address risks and maintain assets through investments that provide high-value returns and make the best use of limited funds.



Workforce: Get the best from our workforce by attracting and retaining talent, modeling diversity, supporting professional development, and inspiring action.

Source: CPCS, 2021.

1.2 Rail Governance in Kansas

State rail planning requires collaboration and coordination among various public and private stakeholders. KDOT works with other federal, state, regional, and local level public agencies, the private sector, freight and passenger rail system users, and the general public, to advance freight and passenger rail system planning in Kansas.

Among these stakeholders, federal and state agencies shape key policies and provide governance over freight and passenger operations in Kansas. Public agencies also oversee funding support for the transportation network. While this is primarily focused on the highway network, funding is also available for non-highway freight modes, including rail. Although rail has historically been privately owned, operated, and financed, funding has been made available at the federal and state levels for rail investments that provide public benefits. Federal policies also provide support for Amtrak, which operates the U.S. intercity passenger rail service. The following section provides further details on federal, state, and local agencies and governance relevant to the freight and passenger rail transportation systems in Kansas.

Federal

Agencies

U.S. Department of Transportation (U.S. DOT)

The U.S. Department of Transportation (U.S. DOT) and its operating administrations guide and support the development and improvement of transportation across modes, including for freight and passenger rail, by providing funding programs and promoting safety regulations. The U.S. DOT – specifically the Federal Railroad Administration (FRA) – is tasked with guiding, reviewing, and approving State Rail Plans, as mandated under federal law.

Federal Railroad Administration (FRA)

Under the U.S. DOT, the FRA's mission is to enable the safe, reliable, and efficient movement of goods and people, as well as to enhance intermodal transportation by engaging stakeholders and developing effective policies, programs, and technology. Among its duties, FRA regulates railroads, plans and administers grant funding, and conducts research. FRA has also provided operating, capital, and debt service assistance to Amtrak since 1970.⁶

⁶ FRA, About FRA, Updated October 21, 2020, <https://railroads.dot.gov/about-fra/program-offices/program-offices-overview>; FRA, Amtrak, Updated November 1, 2019, <https://railroads.dot.gov/passenger-rail/amtrak/amtrak>.

Amtrak

The National Railroad Passenger Corporation, commonly known as Amtrak, is a for-profit corporation that operates the U.S. intercity passenger rail services. Congress established Amtrak through the Rail Passenger Service Act of 1970, giving Amtrak the duty of assuming common carrier obligations of the private railroads, in exchange for priority access to their tracks at an incremental cost.⁷

Surface Transportation Board (STB)

The STB is an independent federal agency tasked with the economic regulation of surface transportation modes, primarily freight rail. Created in 1996 under the ICC Termination Act of 1995 and established as an independent agency under the STB Reauthorization Act of 2015, the STB has statutory authority over railroad rate, practice, and service issues, restructuring transitions (e.g., mergers, line sales, line construction, line abandonment), certain passenger rail matters, the intercity bus industry, and household goods carriers' tariffs. Through these activities, the STB supports an efficient, competitive, and economically viable surface transportation network that meets the needs of its users. The STB also has jurisdiction over certain non-energy pipelines and manages rate regulation for non-contiguous domestic waterway transportation.⁸

Existing Policies and Governance

Bipartisan Infrastructure Law (BIL)

The Bipartisan Infrastructure Law (BIL) was enacted on November 15, 2021. BIL provides \$550 billion in additional funding over the next five years to support the continuation, expansion, and establishment of processes and programs that support transportation and infrastructure in the U.S. This includes \$66 billion for passenger and freight rail.

Fixing America's Surface Transportation (FAST) Act

The FAST Act was signed into law on December 4, 2015. The FAST Act continues existing financing for surface transportation programs and establishes new funding programs to support freight and highway projects. In total, the FAST Act authorizes \$305 billion to fund surface transportation programs from fiscal years 2016 through 2020. The FAST Act continues the majority of funding programs and processes established under the Moving Ahead for Progress in the 21st Century Act (MAP-21), which was enacted in 2012 to support the streamlining and reform of statewide and metropolitan transportation processes.

Passenger Rail Reform and Investment Act of 2015

Title XI of the FAST Act, otherwise referred to as the "Passenger Rail Reform and Investment Act of 2015," includes provisions specific to rail, including those related to rail safety, Amtrak, rail development grants and policy, financing programs, and project delivery.⁹

Federal Rail Safety Improvements in 2008

On October 16, 2008, Federal Rail Safety Improvements were enacted, making sweeping changes to FRA and rail legislation to improve rail safety in light of recent rail incidents. These improvements were enacted in two parts: the Rail Safety Improvement Act of 2008 (Division A) and the Passenger Rail Investment and Improvement Act of 2008 (Division B).¹⁰

⁷ FRA, Amtrak, <https://railroads.dot.gov/passenger-rail/amtrak/amtrak>, Accessed June 14, 2021.

⁸ STB, About STB, <https://prod.stb.gov/about-stb/>, Accessed June 14, 2021.

⁹ FRA, FAST Act, Updated November 12, 2019, <https://railroads.dot.gov/legislation/fast-act/fast-act>; Public Law 114-94, December 4, 2015, FAST Act, <https://www.congress.gov/114/plaws/publ94/PLAW-114publ94.htm>.

¹⁰ U.S. PUBLIC LAW 110-432—OCT. 16, 2008, Federal Rail Safety Improvements, <https://www.congress.gov/110/plaws/publ432/PLAW-110publ432.pdf>.

Rail Safety Improvement Act of 2008 (RSIA)

RSIA reauthorized FRA's safety program and includes requirements for FRA to promulgate new safety regulations. RSIA directs the FRA on a range of topics related to railroad safety, including hours of service requirements, highway-rail grade crossings, positive train control implementation, and standards for track inspection, among others.¹¹

Passenger Rail Investment and Improvement Act of 2008 (PRIIA)

PRIIA reauthorizes the National Railroad Passenger Corporation, commonly known as Amtrak. PRIIA also set provisions tasking Amtrak, U.S. DOT, FRA, states, and other stakeholders with enhancing the U.S. passenger rail network. In addition to authorizing the appropriation of funds to award grants to Amtrak, the legislation establishes three new federal intercity rail capital assistance programs and addresses opportunities for enhanced private sector involvement. PRIIA also tasks states with designating a state rail transportation authority to develop statewide rail plans to set freight and passenger rail transportation policy, guide rail planning, and prioritize rail investments. States must satisfy the rail plan requirement to become eligible for the three federal intercity rail capital assistance programs authorized under PRIIA: an intercity passenger rail service corridor capital assistance program, a high-speed rail corridor development program, and grants to finance capital costs in support of congestion reduction or intercity rail passenger transportation ridership growth.¹²

The Kansas State Rail Plan is Kansas' effort to align with PRIIA, FAST Act, and FRA requirements. The update of the Plan is completed in consultation with the Kansas Rail Plan Advisory Committee (RPAC), which includes state agencies, local agencies, and other public and private freight stakeholders. The State Rail Plan includes both freight and passenger rail components that clarify Kansas' rail service objectives and addresses immediate and long-term service needs and investments.

State

Agencies

Kansas Department of Transportation (KDOT)

The Kansas Department of Transportation oversees freight and rail planning in Kansas, including the development of the State Rail Plan. The following divisions and bureaus within Kansas have specific responsibilities related to freight and passenger rail within the state.

Bureau of Transportation Planning: Freight and Rail Unit

The Bureau of Transportation Planning collects, analyzes, and reports information and coordinates with partners on matters related to Kansas' statewide multimodal transportation system, including freight and passenger rail. Among its duties, the Bureau of Transportation Planning administers KDOT's multimodal surface transportation programs.

Specifically, within the Bureau of Transportation Planning, the Freight and Rail Unit develops and coordinates state policy, analyzes performance, and administers funding related to rail issues. The Freight and Rail Unit is the specific unit within KDOT that produces Kansas' State Rail Plan and oversees the RPAC.

¹¹ FRA, Rail Safety Improvement Act of 2008, Updated November 12, 2019, <https://railroads.dot.gov/legislation-regulations/legislation/rail-safety-improvement-act-2008-rsia>.

¹² FRA, Overview, Highlights and Summary of the Passenger Rail Investment and Improvement Act of 2008 (PRIIA), March 10, 2009, https://railroads.dot.gov/sites/fra.dot.gov/files/fra_net/1333/PRIIA%20Overview%20031009.pdf.

The Freight and Rail Unit also coordinates with the KDOT Coordinating Section, as well as other states and federal agencies, on matters related to freight and passenger rail activity.¹³

Bureau of Road Design: Coordinating Section

The KDOT Coordinating Section – Railroads secure permanent and temporary easement agreements with railroads on highway improvement projects when joint use of railroad right-of-way is needed. The Coordinating Section also assists with management of the Railroad/Highway Safety Improvement Program. As required under the FAST Act, the Coordinating Section led the development of the 2022 Kansas Highway-Rail Grade Crossing State Action Plan (SAP), which identifies highway-rail and pathway-rail grade crossings that experienced recent incidents and identifies specific strategies to improve safety at grade crossings (e.g., closures, grade separations).

Other Kansas State Public Agencies

Rail planning requires collaborative efforts between multiple state and local agencies in Kansas. The Kansas Department of Transportation has continuously coordinated with its sister agencies – the Kansas Department of Agriculture (KDA) and the Kansas Department of Commerce (KDC) – to address concerns and interests related to the state’s rail system in order to develop a rail system that aligns with each agency’s needs and goals.

Existing Policies and Governance

Secretary of Transportation Authority

Under Kansas state law, the Kansas Railroad Statutes grant the Kansas Secretary of Transportation the power to qualify and disburse federal rail funding, establish loan and other funding programs, and distribute funding to assist and improve railroad conditions and rail service in the State.

K.S.A. 75-5025,¹⁴ enacted in 1976, authorized the State Secretary of Transportation to execute the duties to qualify for rail service continuation subsidies according to the Provisions of the Railroad Revitalization and Regulatory Reform Act of 1976. Authorities include the following:

- “(1) To establish a state plan for rail transportation and local rail services;*
- (2) to administer and coordinate the state plan;*
- (3) to provide in the plan for equitable distribution of federal rail service continuation subsidies among state, local and regional transportation authorities;*
- (4) to maintain adequate programs of investigation, research, promotion, and development in connection with such purposes and to provide for public participation therein;*
- (5) to 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 an account for federal funds paid to the state as rail service continuation subsidies;*
- (6) to comply with the regulations of the secretary of transportation and the United States department of transportation affecting federal rail service continuation programs; and*

¹³ KDOT, Freight and Rail, <http://www.ksdot.org/bureaus/burRail/Rail/default.asp#>; KDOT, Bureau of Transportation Planning, <http://www.ksdot.org/Assets/wwwksdotorg/bureaus/burTransPlan/burovr/pdf/TransPlanResponsibilities.pdf>.

¹⁴ K.S.A. 75-5025; http://www.kslegislature.org/li/b2021_22/statute/075_000_0000_chapter/075_050_0000_article/075_050_0025_section/075_050_0025_k/

(7) to do all things otherwise necessary to maximize federal assistance to the state under title VIII of public law 94-210.”

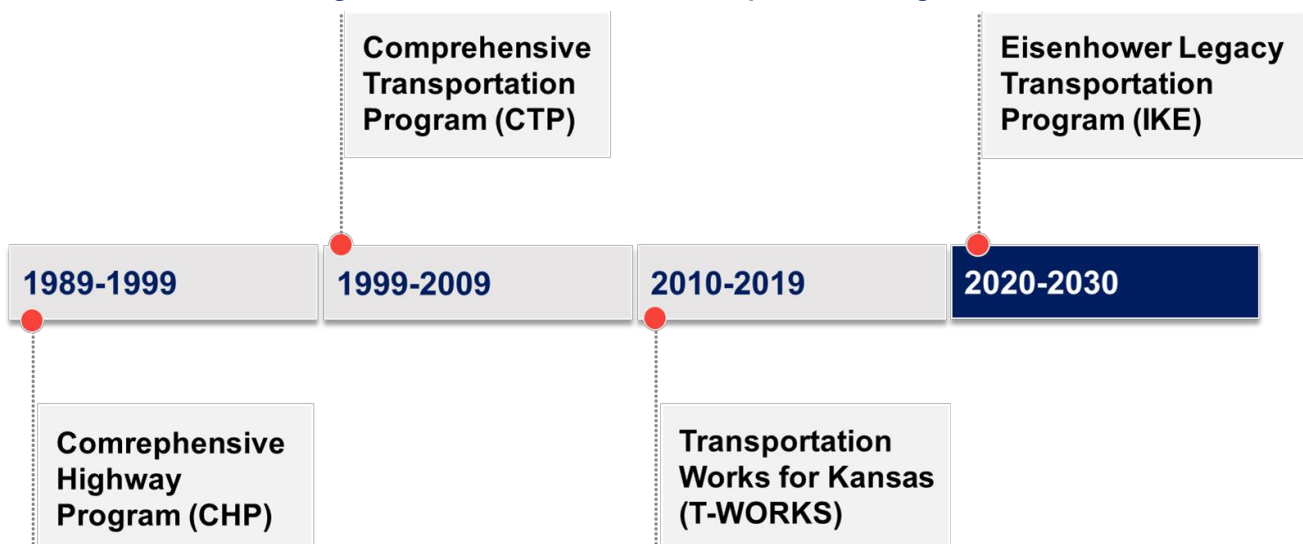
Kansas Passenger Rail Development Act

K.S.A. 75-5089,¹⁵ also known as the Kansas Passenger Rail Development Act, was enacted on July 1, 2010. The Act granted the Secretary of Transportation the authority to establish and implement a passenger rail service program. This includes allowing agreements between KDOT and Amtrak to enhance existing passenger rail services and develop future rail connections between Kansas and other states. The Act also established the Passenger Rail Revolving Fund, as well as other loan or grant opportunities, to continue the facilitation of rail economic development projects that improve rail facilities. Projects include the construction of branch lines, sidings, rail connections, intermodal yards, stations, equipment defined as locomotives, and rolling stock, including passenger coaches and other rail-related improvements that spur economic development and job growth.

Multimodal Freight and Rail Funding Programs

The Kansas Legislature has enacted legislation to provide funding through statute for multimodal freight and rail transportation programs in Kansas. Figure 1-3 provides an overview of the state’s historical and current ten-year transportation programs established by the Kansas Legislature. The following page provides additional information about these ten-year transportation programs, and Chapter 10 provides further details on the specific rail programs established and continued within the transportation programs.

Figure 1-3: Kansas Ten-Year Transportation Programs



Source: KDOT

Local

Public Agencies

Local public agencies, including cities, counties, and metropolitan planning organizations (MPOs) coordinate with federal and state agencies in an effort to plan for and enhance the freight and passenger rail systems. KDOT frequently coordinates with local jurisdictions and MPOs, who provide regional expertise to inform the state’s freight and passenger rail planning efforts. KDOT also works

¹⁵ K.S.A. 75-5089, http://www.kslegislature.org/li/b2021_22/statute//075_000_0000_chapter/075_050_0000_article/075_050_0089_section/075_050_0089_k/

with local economic development agencies to identify and advance opportunities to improve rail service and associated economic development in the state.

A Transportation Planning Legacy

In Kansas, long range transportation planning is a well-established tradition. Over the last 30 years, Kansas has benefited from a series of well thought out transportation programs. In each program, KDOT has worked in partnership with the Kansas Legislature and stakeholders across Kansas to guide vital outlays that have helped preserve the transportation system, while generating mobility improvements and strong economic and quality of life returns on investment. Key milestones in the state's transportation planning and programming legacy include:

- The **Comprehensive Highway Program** established an 8-year program of highway construction between 1989 and 1997. Overall funding of \$3.8 billion was largely dedicated to building a predefined list of highway projects across the state that were selected based on sound engineering criteria embodied in KDOT's data-driven project 'priority formula' system first created in the mid-1980s. This multi-year program structure proved to be a model for collaboration, direction setting, and predictability that has enabled Kansas to make important investments in its transportation infrastructure.
- Beginning in 1999, Kansas embarked on the largest public works program in state history – the 10-year **Comprehensive Transportation Program (CTP)** – with \$5.62 billion in funding, which included support not just for highways, but for transit, rail, and aviation. Created under the guidance of the *Transportation 2000* statewide taskforce, the CTP's success was based on providing certainty about how regions of the state would benefit from scheduled completion of specific project needs announced at the outset of the CTP.
- In 2010, following a report produced by the *Transportation Leveraging Investing in Transportation (T-LINK) Task Force*, the Kansas Legislature passed an innovative and strategic follow-up 10-year program to the CTP called **Transportation Works for Kansas (T-WORKS)**, which provided \$4.7 billion for projects designed to preserve the system, make it safer, and promote economic opportunity. Notably, T-WORKS legislation authorized KDOT to move across the state and economic modeling of projected benefits from investments into investment choices.
- In 2018, the Kansas Legislature appointed a **Joint Legislative Transportation Vision Task Force** to evaluate progress on T-WORKS, solicit local input on transportation needs, and examine the health of transportation funding in Kansas among other objectives. Some of the Joint Task Force's key findings included providing "consistent, stable [transportation] funding," and establishing a new multi-year program to support preservation, modernization, and expansion" projects.
- In March 2020, the Kansas Legislature approved, and Governor Kelly signed into law, the **Eisenhower Legacy Transportation Program (IKE)**, which builds on the 2018 Joint Task Force's recommendations and is a 10-year transportation program that preserves, modernizes, and expands the existing system and provides flexibility to address current and future opportunities and challenges. The \$9.9 billion IKE program uses existing revenue to invest in safety, highway preservation, broadband, and multimodal transportation with transit, aviation, rail, bicycle, and pedestrian elements.

The legacy of long-range planning in Kansas means back-to-back multi-year comprehensive investment programs have created a network of well-maintained highways, bridges, and transit that enables Kansas workers to get to their jobs safely and allows Kansas businesses to get their goods and services to market efficiently.

Source: KDOT, 2020-2045 Kansas Long Range Transportation Plan, July 2021.

2 Stakeholder Outreach

KDOT conducted outreach with over 60 stakeholder organizations throughout the development of the Kansas Rail Plan. KDOT engaged with rail stakeholders through the Rail Plan Advisory Committee (RPAC), one-on-one consultations, and group roundtables. Through these outreach efforts, stakeholders validated information and provided feedback on the existing rail system's conditions, needs, and issues. They also shared input on potential opportunities to enhance the state's freight and passenger rail systems.

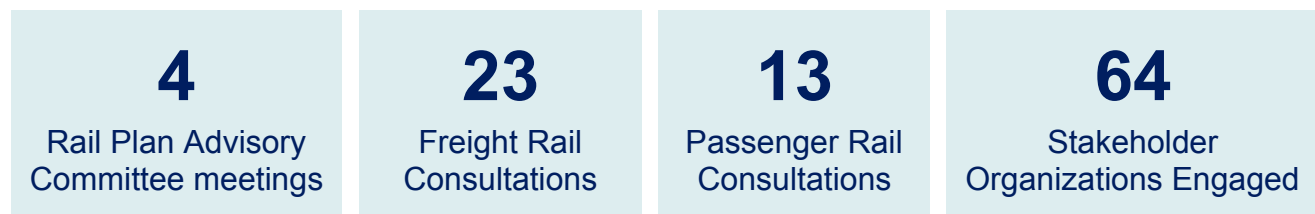
Numerous freight and passenger rail stakeholders participated in outreach efforts (**Appendix A**) conducted throughout the development of the Kansas State Rail Plan. Stakeholders shared data and validated information about Kansas' existing rail operations, as well as perspectives on the performance, needs, and opportunities of the state's rail system.

KDOT engaged in extensive outreach with freight and passenger rail stakeholders in Kansas to inform the State Rail Plan.

KDOT developed a Communications Plan to guide stakeholder outreach efforts. During the development of the Kansas State Rail Plan, KDOT:

- ✓ Regularly communicated plan updates and findings to Kansas rail stakeholders
- ✓ Provided opportunities for Kansas rail stakeholders to share data and information, insights, and perspectives, and provide feedback on plan content
- ✓ Listened and responded to feedback provided by Kansas rail stakeholders, and incorporated information as appropriate into the plan

Figure 2-1: Kansas State Rail Plan Stakeholder Outreach



Note: Stakeholder Organizations Engaged refers to the number of unique stakeholder organizations engaged across all outreach efforts, including RPAC meetings, one-on-one consultations, roundtables, and outreach for information validation.

Rail Plan Advisory Committee (RPAC)

The Kansas RPAC convenes a small group of rail stakeholders to guide the development of the Kansas State Rail Plan. A total of four RPAC meetings were held throughout Rail Plan development, with stakeholders providing input on freight and passenger rail system needs, issues, and opportunities. Figure 2-2 provides an overview of the topics presented and discussed during the RPAC meetings.

Figure 2-2: RPAC Meeting Topics



Appendix A provides a list of stakeholder organizations and agencies represented in the RPAC and summaries of RPAC meetings.

Freight Rail Consultations

Consultations were held with 23 freight rail stakeholders, representing Class I railroads, short line railroads, state agencies, and freight rail system users and support services. **Appendix B** provides a list of freight rail stakeholder organizations and agencies consulted. In addition to consultations, freight rail profiles were sent to railroad owners/operators in Kansas, to validate information related to Kansas' rail system.

Passenger Rail Consultations

Consultations were held with 13 passenger rail stakeholders, representing Class I railroads, Amtrak, state DOTs, MPOs, counties, cities, and economic development agencies. **Appendix B** provides a list of passenger rail stakeholder organizations and agencies consulted.

Agriculture Stakeholder Roundtable

KDOT, in collaboration with the KDA, held a roundtable on July 12, 2021, with 26 agriculture stakeholders to gather feedback related to agricultural commodity movements in Kansas. The agriculture stakeholder roundtable aimed to obtain a list of freight and rail transportation system strengths, needs, and opportunities from Kansas' diverse agricultural stakeholders to aid in developing the Kansas State Rail Plan and Freight Plan Updates. **Appendix C** provides a list of agriculture stakeholder organizations and agencies represented and offers a summary of findings from the roundtable.

3 History of Rail in Kansas

Since its origins, the Kansas rail system has significantly evolved. Kansas' freight rail system has grown from a single five-mile railroad with one operator in 1859, to four Class I, 13 short line, and 2 switching/terminal railroads operating on over 4,600 active miles of rail in the present day. Of the four Class I railroads operating in Kansas, three own and operate their rail system in the state and one operates over trackage rights. Meanwhile, though the passenger rail system has adjusted based on demand and modal choice for passengers, the Southwest Chief continues to provide Kansans with access to long distance passenger trains.

3.1 Establishing the Freight Rail System in Kansas

History

The Elwood and Marysville Railroad, completed in 1859, was the first operating railroad in Kansas, stretching the five miles between Wathena and Elwood, located across the Missouri River from St. Joseph, MO. This initial Kansas line was a westward extension of the Hannibal and St. Joseph Railroad, which had completed its line westward from the Mississippi River, across northern Missouri, and into St. Joseph in 1857.¹⁶

Soon afterward, the number of railroads serving the state swelled. Between 1860 and 1880, the state's population increased ten-fold from 100,000 to almost one million people. Railroads supported and served this increased population. By 1878, 16 railroads were operating in Kansas, including the Missouri-Kansas-Texas Railway (Katy or MKT), the Atchison, Topeka, and Santa Fe Railway (ATSF), and the Rock Island Railroad (CRIP).¹⁷

Many of these early lines were later abandoned or absorbed into larger railroad systems. By the early 1970s, the following eight major rail systems served Kansas:

- Atchison, Topeka, and Santa Fe Railway (ATSF)
- Chicago, Rock Island, and Pacific Railroad (Rock Island or CRIP)
- Union Pacific Railroad (UP)
- Missouri Pacific Railroad (MoPac)
- Missouri-Kansas-Texas Railway (Katy or MKT)
- Saint Louis-San Francisco Railway (Frisco or SLSF)
- Kansas City Southern Railway (KCS)
- Burlington Northern Railroad (BN)

Present Day

Following the deregulation of railroads through the Staggers Act of 1980, several consolidations of these mainline carriers occurred. These consolidations were attempts to control costs and gain market power. Today, three Class I rail systems¹⁸ own and operate rail lines in Kansas:

¹⁶ Kansas Heritage, Railroads in Kansas, <http://kansasheritage.org/research/rr/rhistory.html>

¹⁷ Kansas Heritage, Railroads in Kansas, <http://kansasheritage.org/research/rr/rhistory.html>

¹⁸ Norfolk Southern (NS) Railway operates on 3 miles of trackage rights in Kansas, but does not own any rail line in Kansas.

- 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 north-south through Kansas for 18 miles in the southeast corner of the state.

Along with consolidation, the mainline railroads began programs to convert some of their branch lines into independent Class III railroads, or local, terminal, and switching railroads, also known as short lines. Currently, there are 13 short lines and two terminal/switching railroads in the state.

Today, Kansas' rail system – which spans over 4,600 miles – plays an essential role in the transportation of freight. The state's central location provides freight rail users with access to all regions of the U.S., including ports of entry that connect the U.S. to the world. Chapter 4 further details the importance of rail to goods movement in and through Kansas, and Chapter 5 profiles the Class I and short line railroads that own and operate rail in Kansas.

3.2 Developing the Passenger Rail System in Kansas

History

Historically, railroads provided both passenger and freight services on all their lines. Rail lines virtually blanketed the state in an attempt to bring rail freight service within half a day's travel by horse and wagon to all farmers. With the advent of the automobile and then trucks, followed by widespread paved roads in the 1920s, use of the infrequent and slow passenger train service on the many branch lines in Kansas, and elsewhere, declined precipitously and it was gradually discontinued.

Long distance passenger trains remained in use. Kansas was served by more than a dozen named trains through the 1950s, and the Santa Fe operated essentially its full fleet of trains between Chicago and the West Coast or Texas until the late 1960s. However, long distance passenger rail ridership declined with the expansion of the Interstate Highway System, upgrades to other federal and state highways, and the advent of commercial jet passenger service. When the Post Office canceled its contracts for moving mail on the U.S. passenger train network in 1968, all railroads rapidly reduced service. In 1960, Congress passed the Rail Passenger Service Act to create the National Railroad Passenger Corporation (which uses the Amtrak brand name), with the responsibility to provide a skeletal nationwide intercity passenger rail service network. Amtrak started operations in 1971.

Initially, Amtrak trains provided daily service on two routes in Kansas – one running from Chicago to Los Angeles (since renamed the Southwest Chief), and the other from Chicago to Houston (eventually named the Lone Star). Amtrak made several changes to its Texas service through the 1970s, including the addition of a Chicago-to-Texas service train via St. Louis in 1976. The Lone Star was discontinued in October 1979, along with a few other long distance routes. The national long distance network has remained virtually unchanged since that time. For over 40 years, the Southwest Chief has been the only passenger train route in Kansas. Chapter 6 profiles this service.

Present Day

While the Southwest Chief is currently the only passenger train route in Kansas, there continues to be great interest in expanding intercity passenger rail service in the U.S., particularly focused on corridors with significant travel demand that may be considered “too short to fly but too far to drive” (i.e., trips where travel time is less than four hours). One area of interest for expansion is the extension of the existing Heartland Flyer service from Oklahoma City to Newton, via Wichita. Chapter 10 provides additional information about ongoing efforts to explore the expansion of passenger rail in Kansas.

4 Role of Rail in Kansas' Multimodal System

Kansas' central location makes the state critical to rail movements nationwide, further connecting its users to international origins and destinations through access to international ports across the country. The rail system carries 9 percent of goods moving to, from, and within Kansas by volume, and 2.3 percent by value. However, passthrough movements make up the majority – almost 86 percent – of rail volume activity in Kansas. Coal, mixed freight, and cereal grains are the top commodities moved by rail in Kansas. The Kansas rail system also provides a modal option for passenger movements, connecting Kansans to Chicago in the east and Los Angeles in the west along the Southwest Chief.

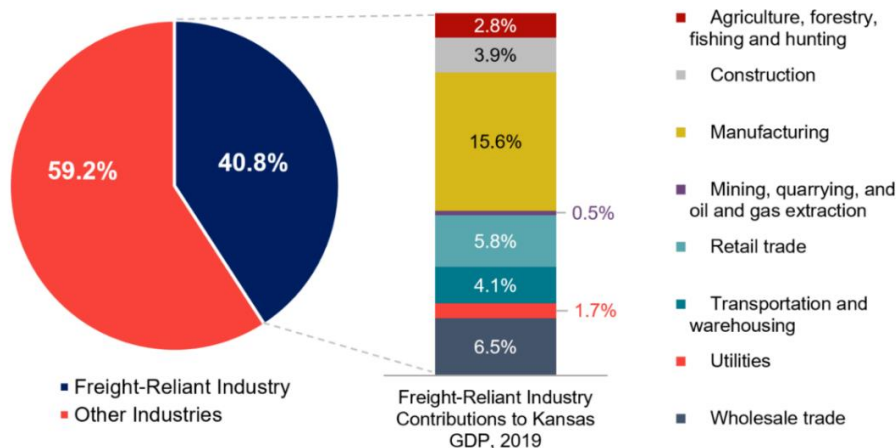
4.1 Economic Profile

Kansas' rail system supports freight movements to, from, and through the state. Freight is critical to the state's economy, with freight-reliant industries contributing over \$72 billion, or 40.8 percent, to the state's gross domestic product (GDP) in 2019¹⁹ (Figure 4-1) and employing over half a million Kansans.

Freight-reliant industries refer to industries designated as particularly dependent on the multimodal freight system.

As illustrated in Figure 4-2, many freight-reliant industry establishments are located along the state's rail system. The rail system particularly supports the agriculture, manufacturing, and transportation and warehousing sectors in Kansas.

Figure 4-1: Freight Contribution to Kansas GDP, 2019



Source: Bureau of Economic Analysis (BEA), GDP by State, 2019. Analysis by CPCS, 2021.

The Amtrak Southwest Chief national route also supports the movement of Kansas' population – which reached 2.9 million people in 2019²⁰ – throughout the state and country. Figure 4-3 maps Kansas' population by county, relative to the location of the passenger rail system in Kansas.

¹⁹ Bureau of Economic Analysis (BEA), GDP by State, 2019. Analysis by CPCS, 2021.

²⁰ U.S. Census, American Community Survey (ACS), 2010-2019. Analysis by CPCS, 2021.

Figure 4-2: Employment in Freight-Reliant Industry Establishments

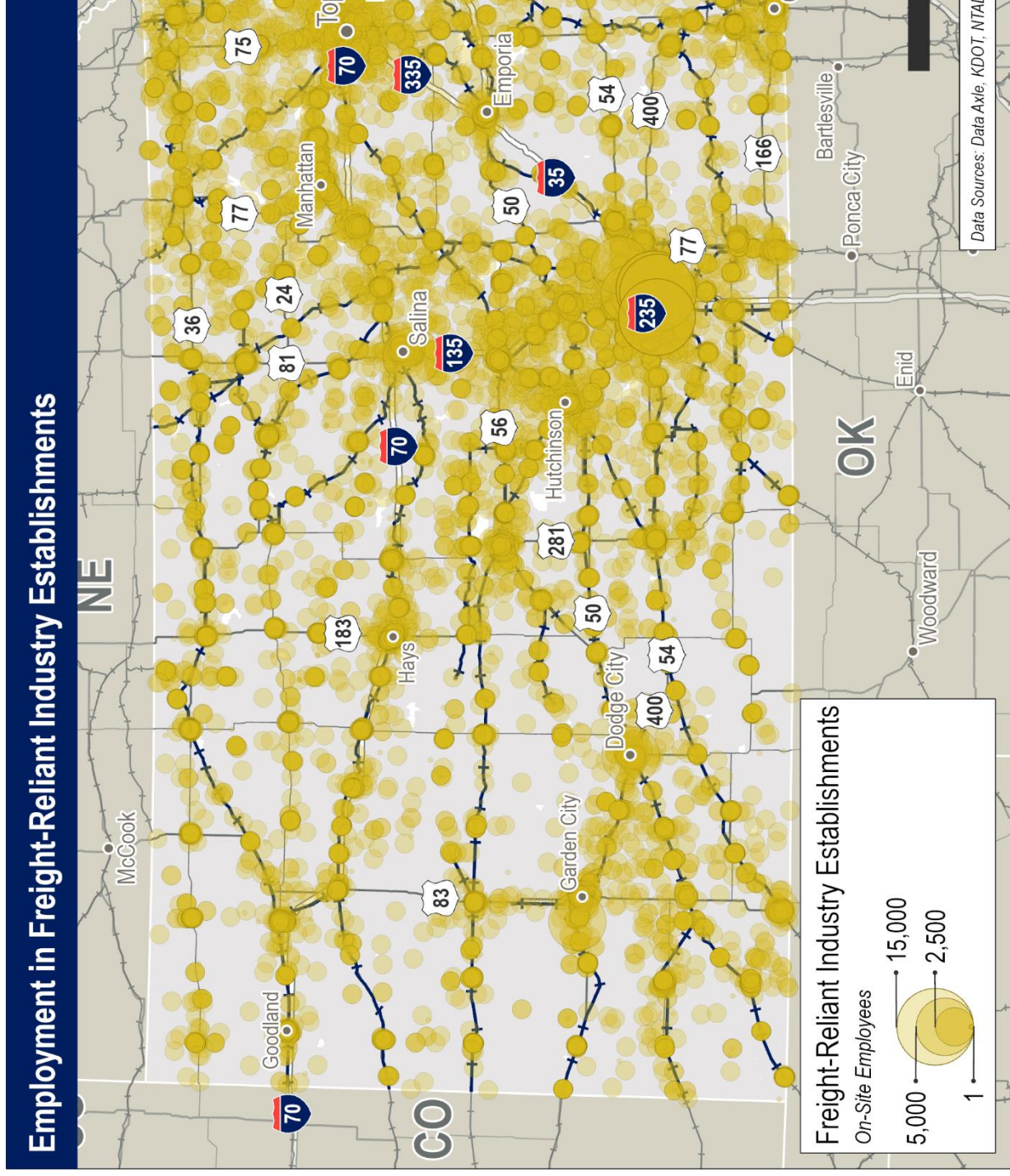
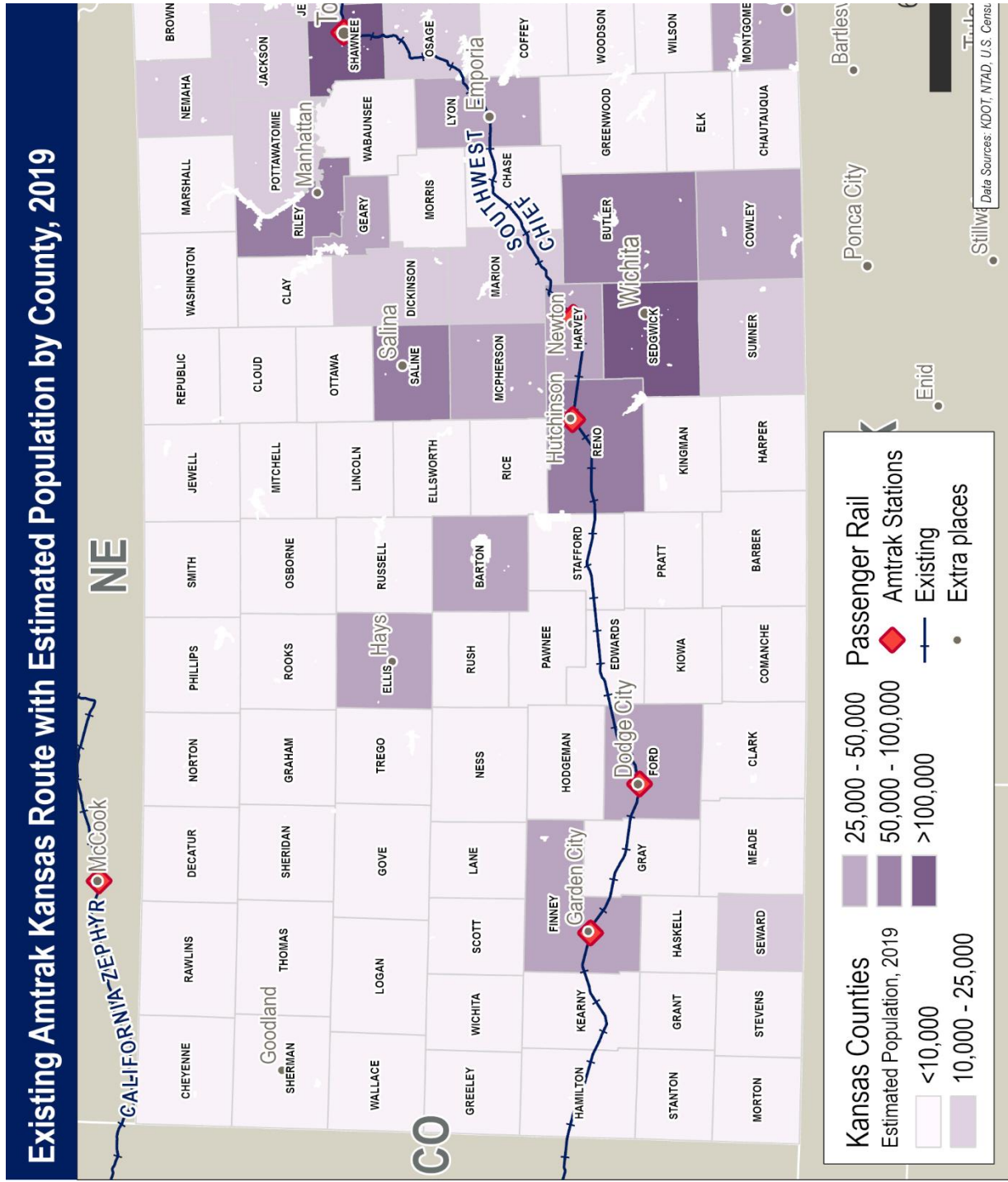


Figure 4-3: Kansas Passenger Rail System with Estimated Population by County, 2019



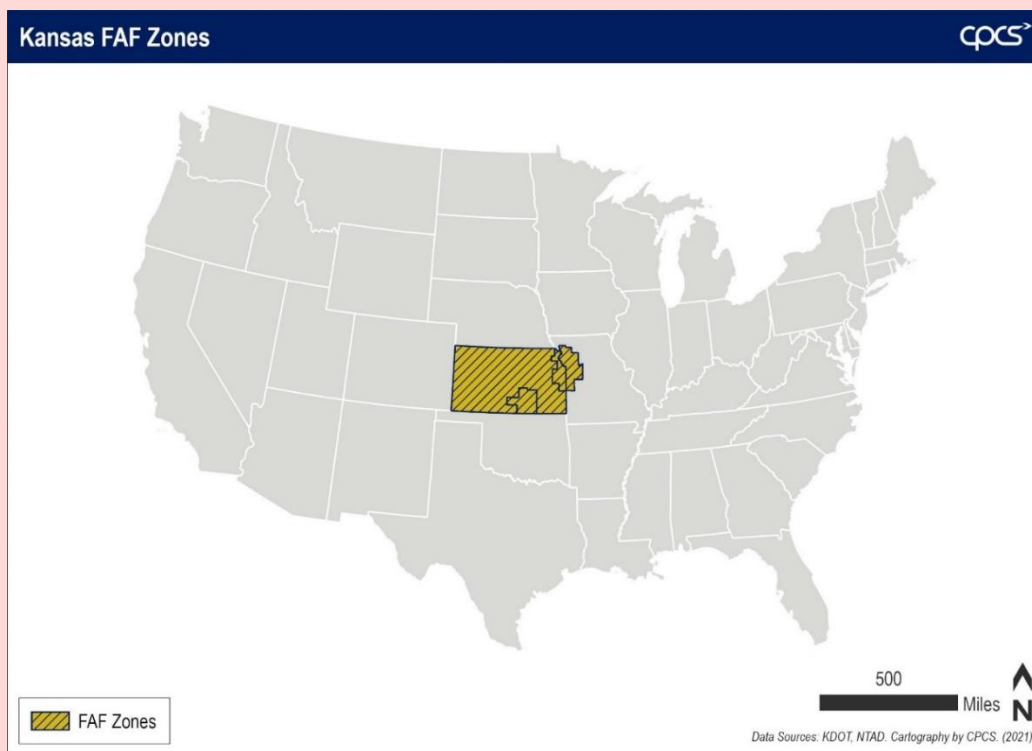
4.2 Kansas Rail Movements

Among the 574.4 million tons of freight worth over \$457.4 billion that moved to, from, and within Kansas in 2017, rail carried 9 percent by volume and 2.3 percent by value.

The Freight Analysis Framework (FAF) provides a comprehensive picture of freight movement among states and major metropolitan areas in the U.S. Through a partnership between the Bureau of Transportation Statistics (BTS) and the Federal Highway Administration (FHWA), the current FAF version 5 (FAF5) provides information for the base year 2017 using data from the 2017 Commodity Flow Survey (CFS), international trade data from the U.S. Census Bureau, and data from other sectors.²¹

For the purposes of the Kansas State Rail Plan, the Kansas FAF5 analysis includes the entire state of Kansas (metropolitan region of Kansas City, metropolitan region of Wichita, and the rest of Kansas), in addition to the metropolitan region of Kansas City in Missouri.²² Kansas City is critical to freight movements in the state of Kansas, with infrastructure assets that serve both the states of Kansas and Missouri.²³ Therefore, for the FAF5 analysis exclusively, “Kansas” refers to the area as defined by the four FAF zones depicted in Figure 4-4.

Figure 4-4: Kansas FAF5 Analysis FAF Zones



“Total flows” for Kansas include the movement of domestic goods originating from Kansas, domestic goods destined for Kansas, international goods (exports) originating from Kansas, international goods (exports) exiting the U.S. from Kansas, international goods (imports) destined for Kansas, and international goods (imports) entering the U.S. into Kansas.

²¹ FHWA, Freight Analysis Framework, https://ops.fhwa.dot.gov/freight/freight_analysis/faf/

²² The following four FAF zones were analyzed in reference to “Kansas”: 201 - Kansas City MO-KS (KS Part); 202 - Wichita KS; 209 - Rest of KS; 291 - Kansas City MO-KS (MO Part).

²³ FHWA FAF5, https://ops.fhwa.dot.gov/freight/freight_analysis/faf/.

The share of freight tonnage and value handled by rail is depicted in Figure 4-5 and Figure 4-6, respectively. When removing goods moved by pipeline, the share of freight moved by rail increases for both tonnage (Figure 4-7) and value (Figure 4-8). When measured by tonnage, the share of rail increases to 12.3 percent of all goods movement to, from, and within Kansas.²⁴

Multiple modes and mail,²⁵ which includes intermodal movements, move higher value goods compared to just rail. Multiple modes and mail make up 4 percent of goods by volume and 12.7 percent of goods by value. Similar to rail movements, the share of multiple modes and mail increases when removing goods moved by pipeline – up to 5.5 percent by tonnage and 13.9 percent by value.

Figure 4-5: Kansas Total Flows by Mode (Tonnage)

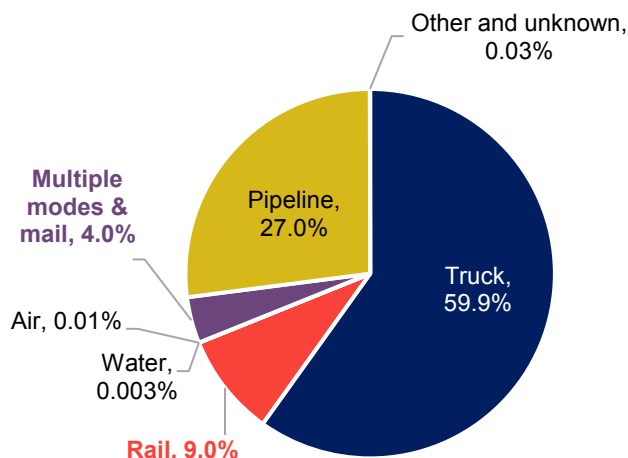


Figure 4-6: Kansas Total Flows by Mode (Value)

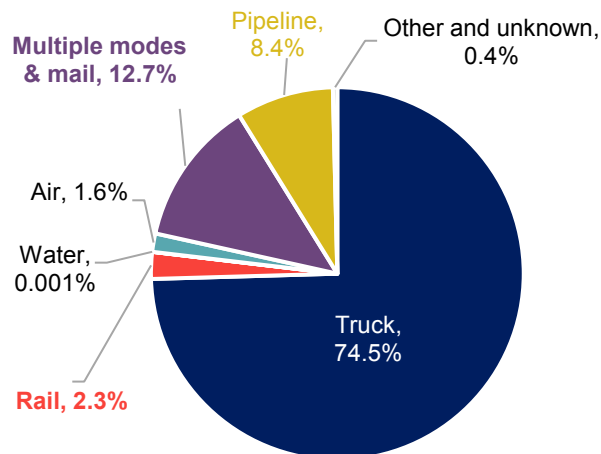


Figure 4-7: Kansas Total Flows by Mode, Without Pipeline (Tonnage)

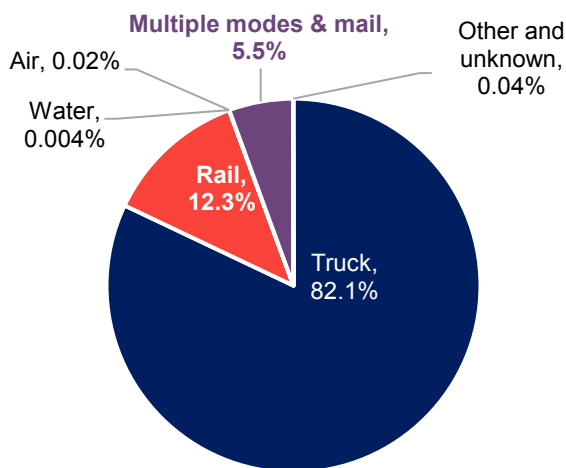
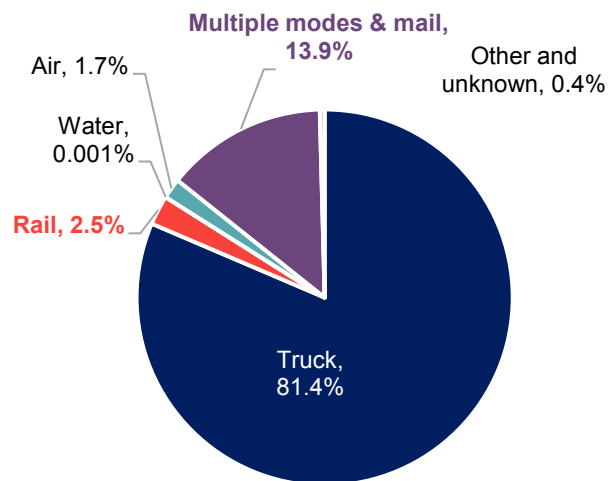


Figure 4-8: Kansas Total Flows by Mode, Without Pipeline (Value)



Source: FHWA FAF5. Analysis by CPCS, 2021. Note: Modal shares represent modes used for the domestic movement of goods. Therefore, for international goods movement (i.e., imports and exports) within the total flows, "mode" refers to the domestic movement of import and export goods within the US.

²⁴ FHWA FAF5. Analysis by CPCS, 2021.

²⁵ Refers to movements of commodities that utilize more than one mode. FAF and the CFS use Multiple Modes and Mail rather than intermodal to represent these movements. Intermodal typically refers to containerized cargo that moves between ship and surface modes or between truck and rail. Shipments reported as Multiple Modes can include anything from containerized cargo to coal moving from mine to railhead by truck and rail to harbor. The "Mail" component recognizes that shippers who use parcel delivery services typically do not know what modes were involved after the shipment was picked up. From BTS and FHWA, FAF5 User Guide, January 20, 2021, <https://faf.ornl.gov/faf5/data/FAF5%20User%20Guide.pdf>.

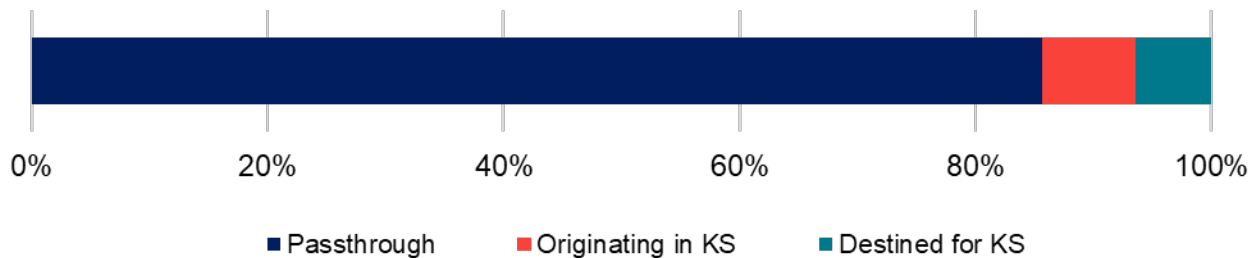
While the FAF analysis provides insight into rail movements to, from, and within Kansas compared to other modes, it does not include a critical component of goods movement on Kansas’ rail system – pass-through movements. Pass-through movements encompass the movement of goods through Kansas, with origins and destinations outside the state. These movements are represented in the STB Waybill Sample, which provides information on rail movements by tonnage, origin and destination, and commodity for 2019.

The STB Waybill Sample data is used for the rail commodity flow analysis presented in this section. The data stratifies sample carload waybills of all U.S. railroads to show rail traffic volumes and values flowing between various origins and destinations.

Given Kansas’ central location, the state’s rail system serves as a key connector for goods moving across the nation.

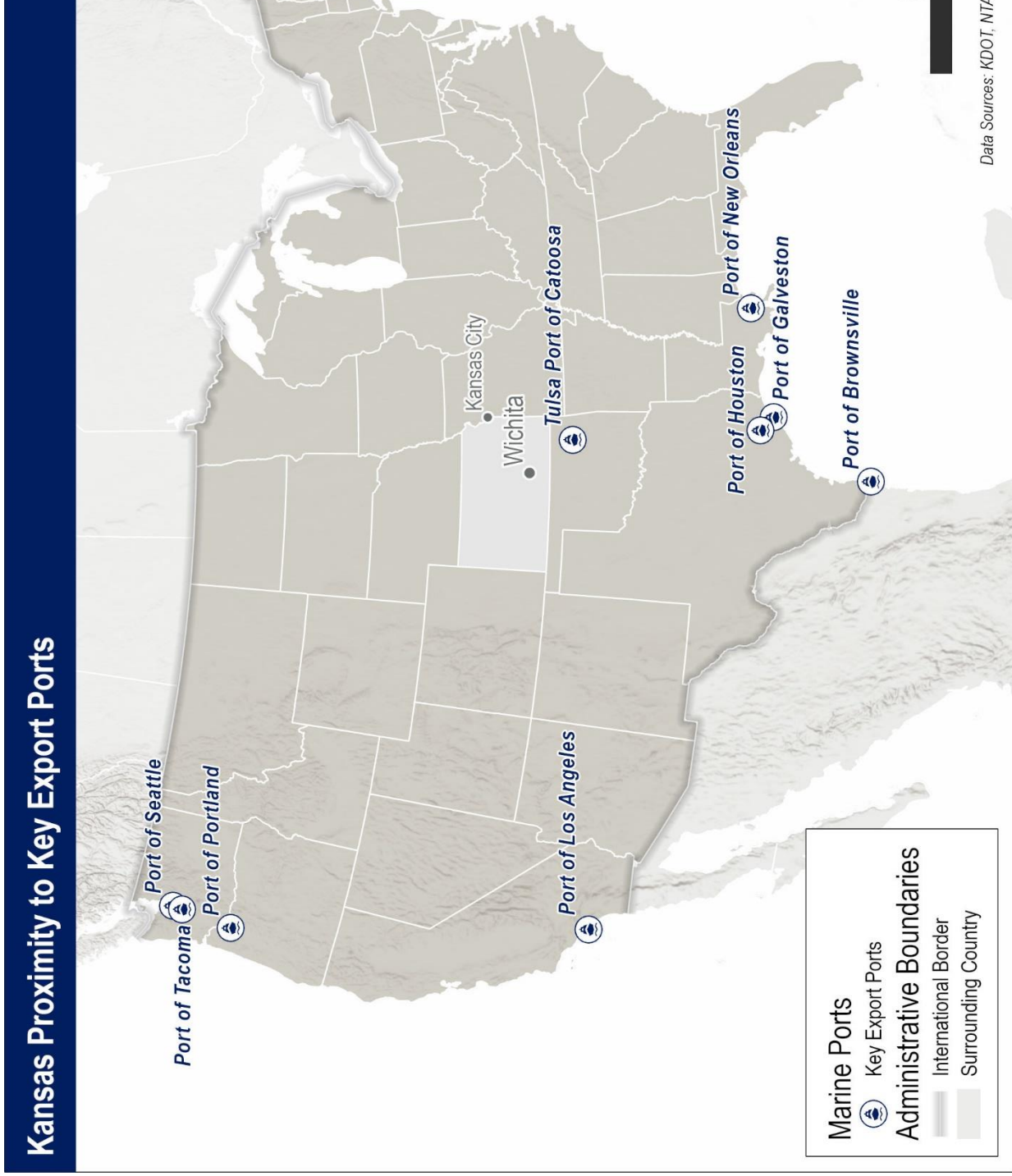
As demonstrated in Figure 4-10, Kansas is proximate to many of the nation’s key ports, including the nearby Tulsa Port of Catoosa in Oklahoma, located just about 60 miles south of the Kansas border. As a result, the majority of goods movement on Kansas’ rail system – almost 86 percent – is freight moving through Kansas (Figure 4-9). The remaining rail freight primarily originates in or is destined for the state, with some additional movements moving intrastate within Kansas.

Figure 4-9: Rail Movements To, From, and Through Kansas



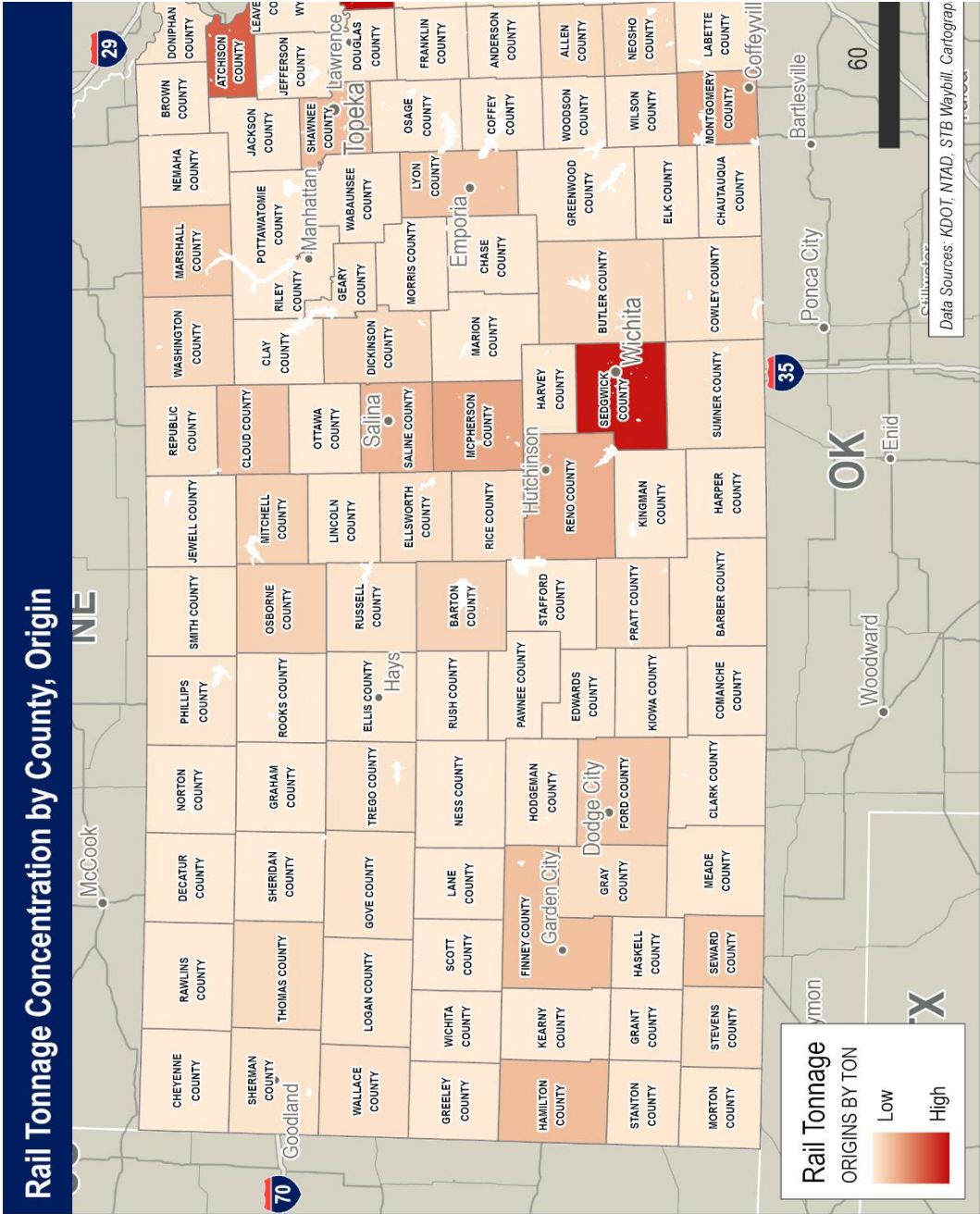
Source: STB Waybill, 2019 data; Analysis by CPCS, 2021. Note: Within KS movements classified into both Originating in KS *and* Destined for KS movements.

Figure 4-10: Kansas' Proximity to Key Ports



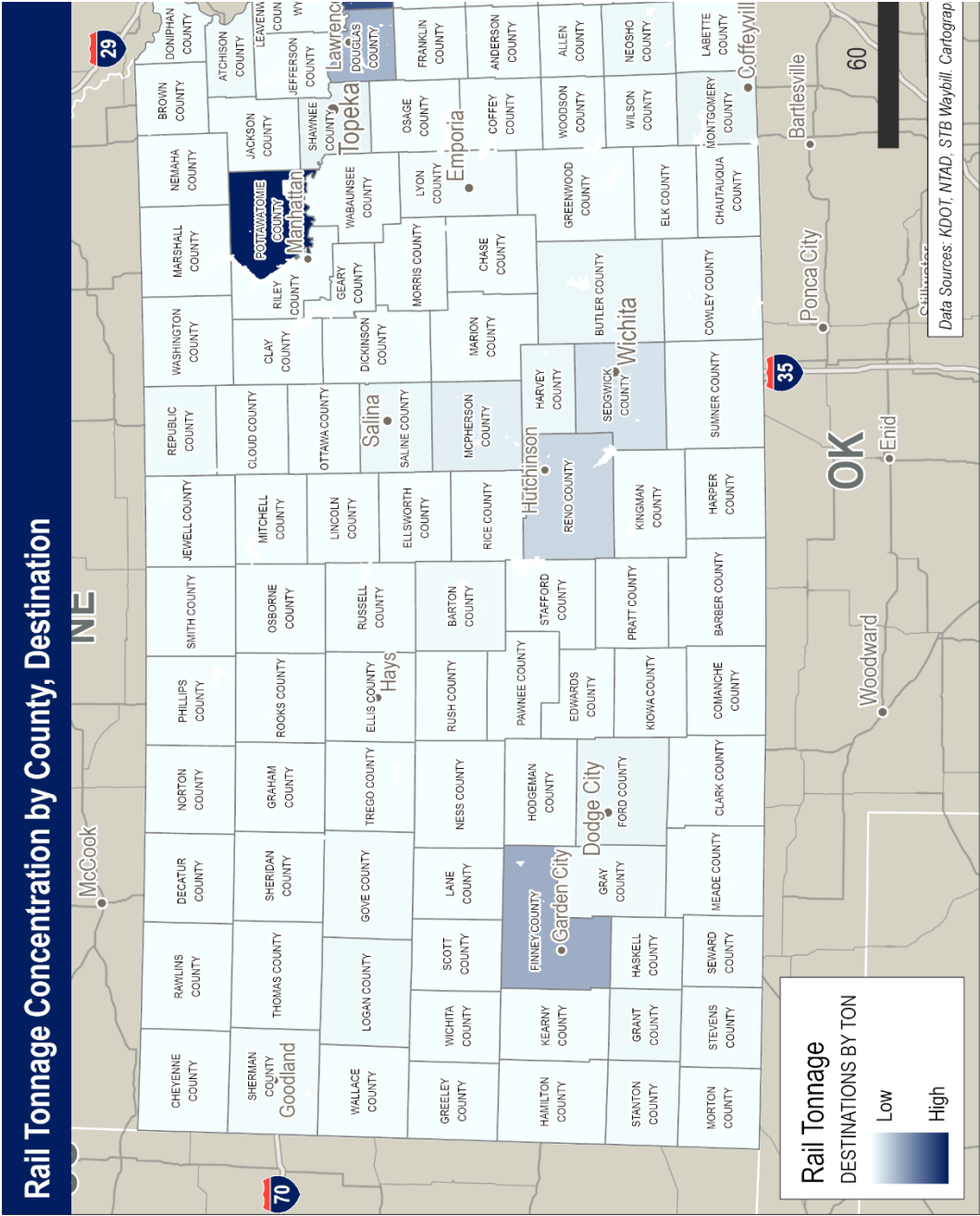
The following maps illustrate concentrations of rail activity in Kansas, based on counties of rail tonnage origin and shows the concentration of rail tonnages originating from counties in Kansas. As shown, Johnson County (near Kansas City) and Sedgewick County (Wichita) have the highest concentration of originated rail volumes, followed by Atchison, Wyandotte, and McPherson Counties. Several rail-served terminals and transload facilities are located in these counties and disproportionate share of the total originated rail tonnages compared to other counties in Kansas.

Figure 4-11: Kansas Rail Tonnage Concentration by County Origin



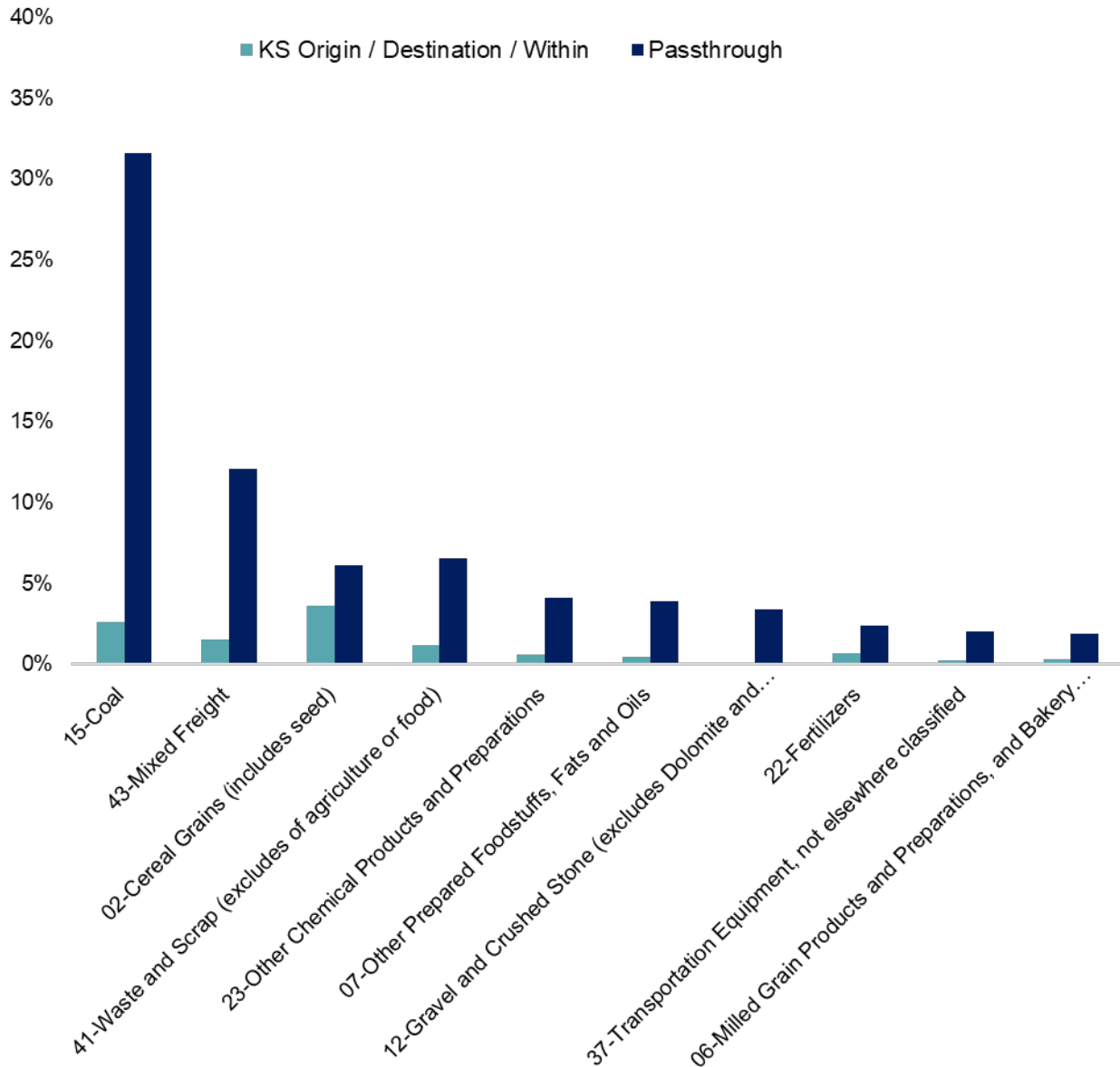
Meanwhile, Figure 4-12 shows the concentration of rail tonnages destined to counties in Kansas. As shown, the top destination county for rail volume in Kansas, with large volumes of coal destined for energy establishments (e.g. in the county. Wyandotte and Johnson Counties are also among the top destination counties for rail tonnages in K

Figure 4-12: Kansas Rail Tonnage Concentration by County Destination



The top three commodities moved on the Kansas rail system by volume are coal, mixed freight, and cereal grains, as shown in Figure 4-13. The majority of Kansas' coal movements pass through the state, with additional volumes destined for Kansas. No coal volumes originate in Kansas. Meanwhile, cereal grains are the top commodity moving to, from, and within Kansas. Mixed freight is also a top commodity moving to, from, and through Kansas.

Figure 4-13: Top 10 Commodities by Rail To, From, Within, and Through Kansas



Source: STB Waybill, 2019 data; Analysis by CPCS, 2021.

Rail Commodity Profiles

The following section provides details on the volumes, connections, and routes for mixed freight and cereal grains, which are the two top commodities – by tonnage – originating from, destined for, and moving within Kansas by rail. Note that coal is not profiled because no coal volumes originate in Kansas.

Mixed Freight

About 40 million tons of mixed freight commodities are carried by rail in Kansas annually, nearly 89 percent of which is passthrough traffic. These mixed freight flows are directly linked to intermodal rail activities in Kansas City (both on the Kansas and Missouri sides), with key facilities such as Logistics Park Kansas City (Johnson County, KS), International Freight Gateway (Jackson County, MO), and Kansas City Intermodal Terminal (Jackson County, MO) serving shippers and customers in Kansas.

Figure 4-14 shows the top trade lanes for mixed freight moved to, from, and through Kansas by rail. The line thicknesses represent the relative amount of railed volumes (tonnages). As shown, mixed freight travels on north-south routes between Canada and US ports at the Gulf of Mexico, with key origins and destinations in:

- Kansas City, MO, Omaha, and North Platte, NE, and Galesburg, IL intermodal rail yards;
- Ports of Beaumont and Port Arthur in Jefferson County, TX;
- Ports of Baton Rouge and New Orleans, LA;
- Intermodal Terminals in northern Denver area, CO; and
- Noyes border crossing in MN and then rail yards in Alberta Province, Canada.

The high volumes of mixed freight carried by rail between Kansas City, MO and Kansas City, KS, and between Kansas City, MO and Wichita, KS, primarily represent passthrough traffic for Kansas.

Figure 4-14: Mixed Freight Trade Lanes Moving To, From, Within, and Through Kansas



Source: CPCS analysis of STB Waybill Sample Data, 2021. Note: Line running to Canada connects to Edmonton, Alberta.

Among mixed freight rail movements in Kansas, 5.6 million tons originate from or are destined to Kansas. Key origins and destinations for these movements include:

- Dallas-Fort Worth, TX, and Harris and Brazoria Counties, TX;
- Cook County, IL; and

- Several counties in California at the US-Mexico border and San Pedro Bay area.

As illustrated in the following maps, Johnson County is the top origin (Figure 4-15) and destination (Figure 4-16) county for mixed freight rail movements in Kansas, due to activity at key intermodal rail facilities – notably Logistics Park Kansas City.

Figure 4-15: Kansas Rail Tonnage Concentration (Mixed Freight) by County Origin

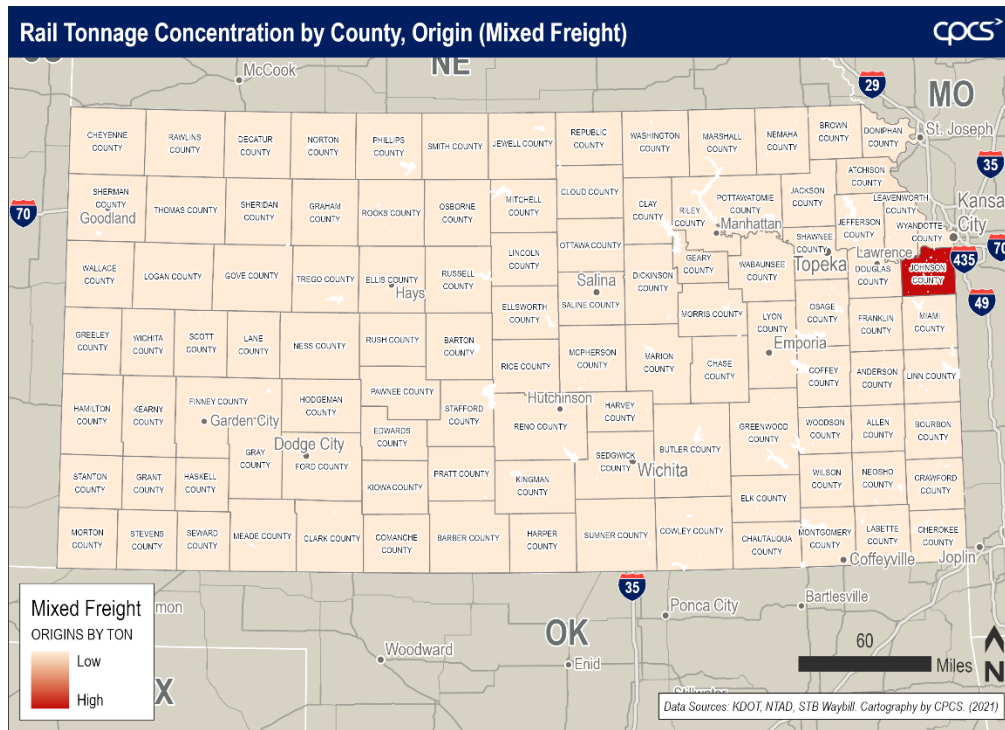
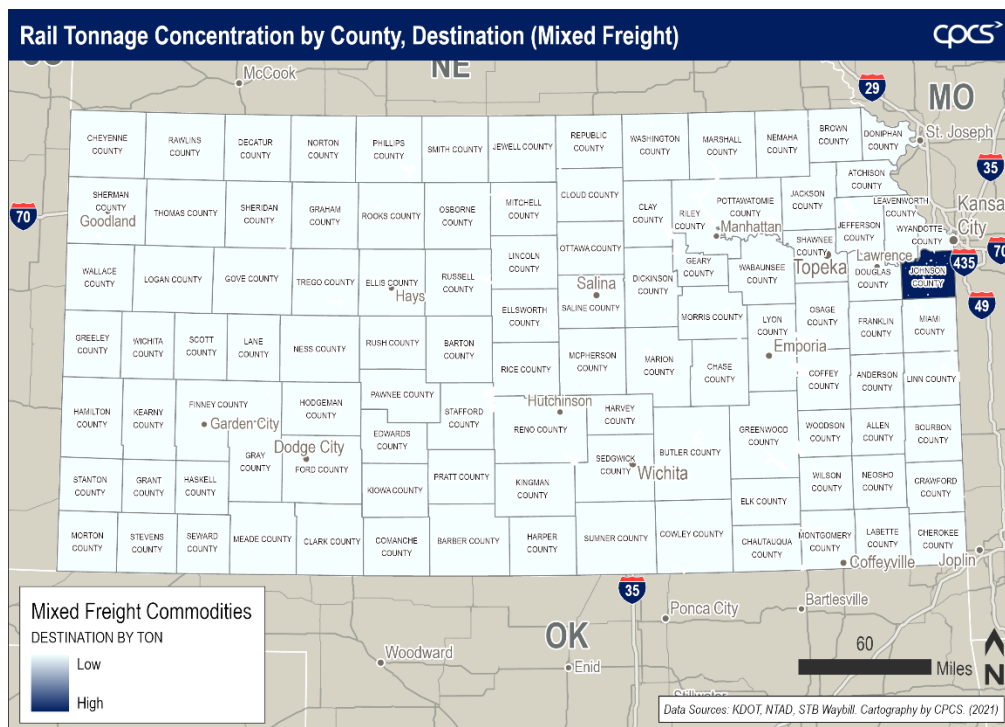


Figure 4-16: Kansas Rail Tonnage Concentration (Mixed Freight) by County Destination



Cereal Grains

Agriculture is a key industry for Kansas, with over 58,569 farms and over 45 million acres of farmland located in the state.²⁶ Kansas is a top U.S. producer of agricultural commodities such as wheat, corn, and sorghum. Kansas' exports of agricultural products have also grown in recent years, particularly for cereal exports, which increased by 15.47 percent between 2018 and 2020.²⁷ Figure 4-19 and Figure 4-20 map the location of corn, sorghum, soybeans, and wheat crops in the state, relative to the Kansas rail system.

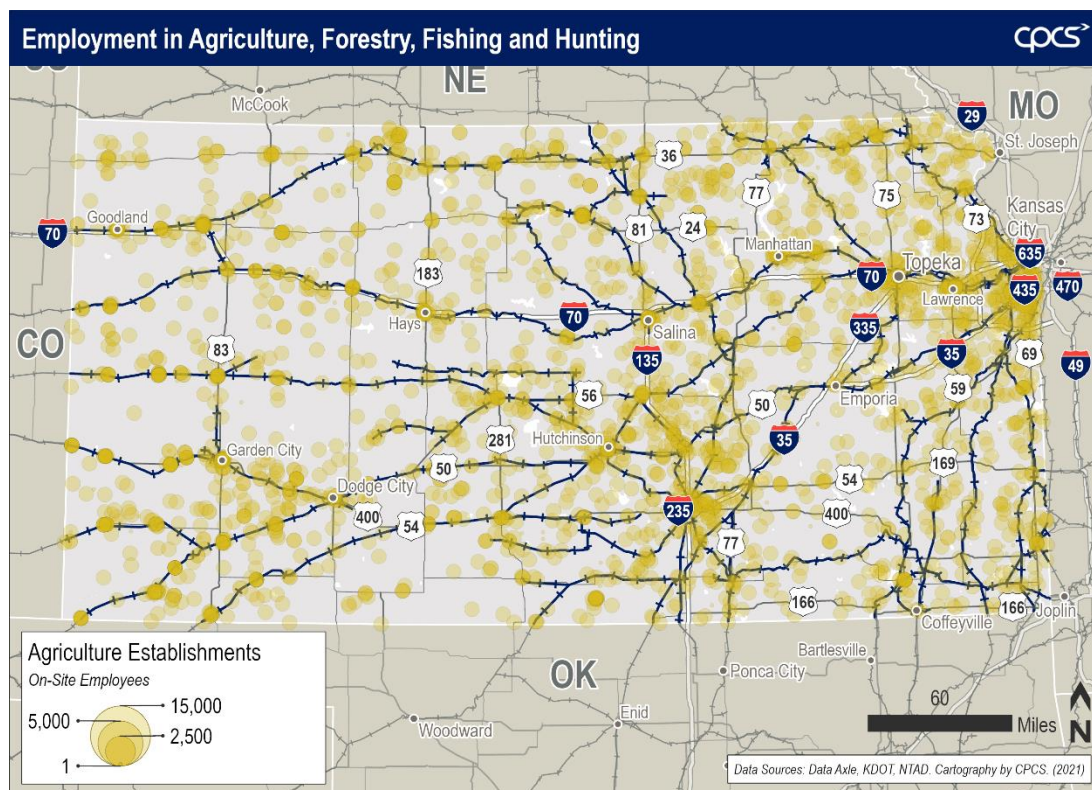
Figure 4-17 lists the top five counties in Kansas by sales volume for the agriculture, forestry, fishing, and hunting industry. All five counties are served by rail. Unlike other freight-reliant industries, agriculture-related business establishments are not concentrated in metropolitan areas or along the highway network; rather, they are spread out across the state, in both rural and urban areas. As mapped in Figure 4-18, many agriculture-related business establishments are located along the Kansas rail system.

Figure 4-17: Top 5 Counties by Sales Volume for Agriculture, Forestry, Fishing and Hunting (in billions of dollars)

County	Johnson County	Sedgwick County	Reno County	Hamilton County	Gray County
Sales Volume	\$0.196	\$0.113	\$0.081	\$0.075	\$0.061

Source: Data Axle, Business Establishment Data, 2021. Analysis by CPCS, 2021.

Figure 4-18: Employment in Agriculture, Forestry, Fishing and Hunting Establishments



²⁶ Kansas Department of Agriculture, Kansas Agriculture's Economic Contribution. https://agriculture.ks.gov/docs/default-source/ag-marketing/ag-contribution-2020.pdf?sfvrsn=10dc92c1_4.

²⁷ Kansas Department of Commerce 2020 Kansas Exports of Commodity. <https://www.kansascommerce.gov/wp-content/uploads/2021/02/2020-Kansas-Exports-by-Commodity.pdf>.

Figure 4-19: Kansas Crop Location by Type

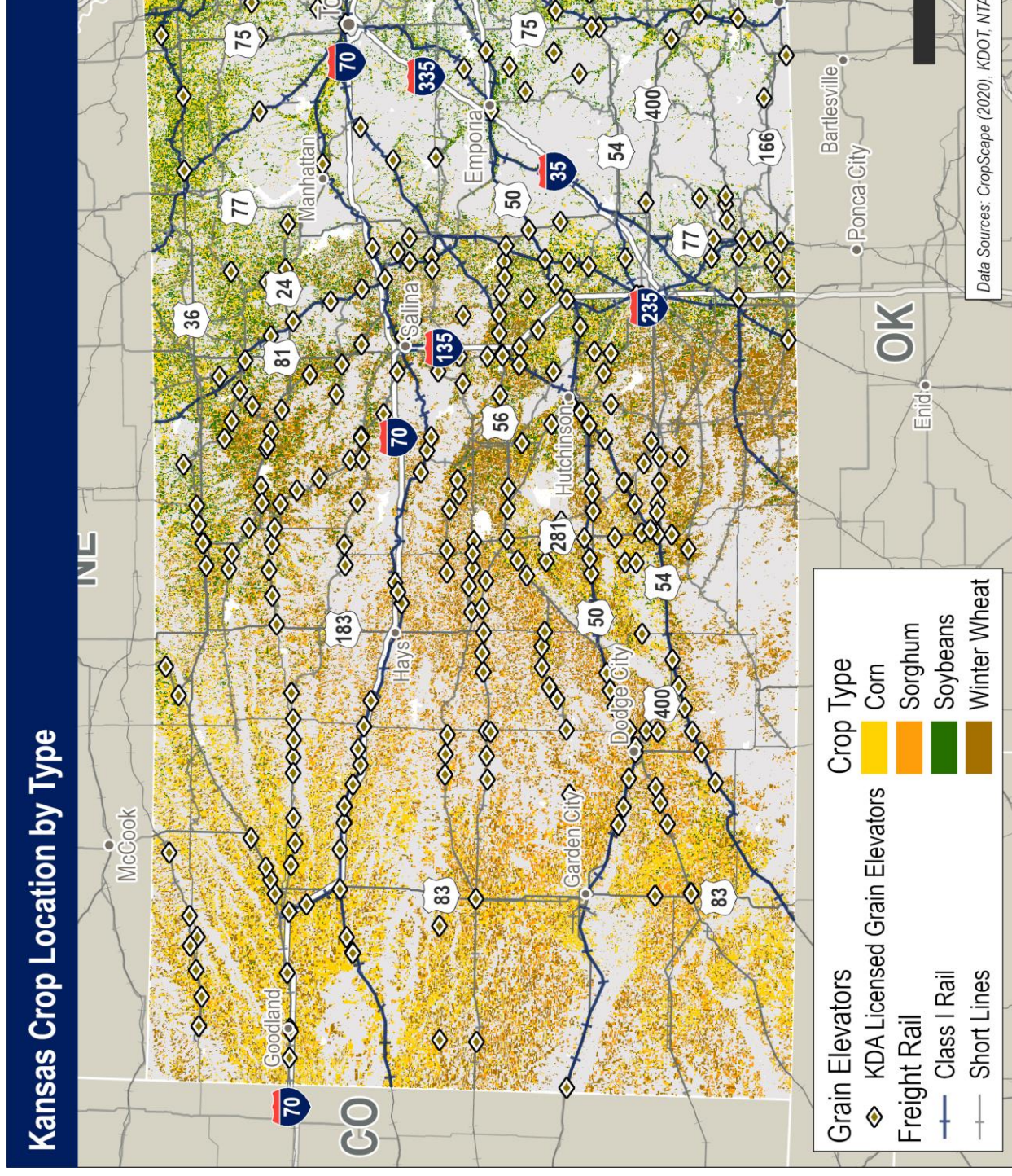
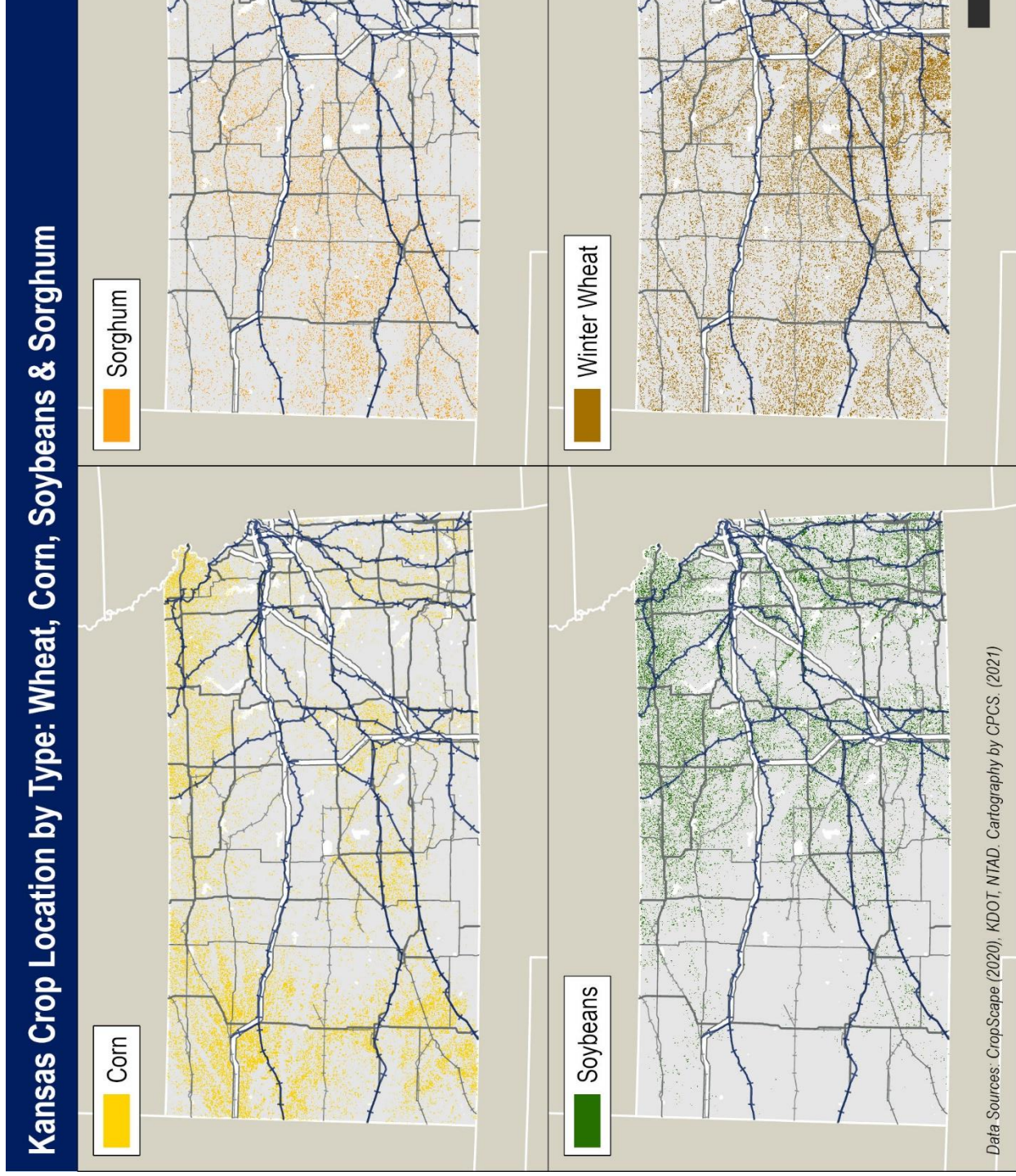


Figure 4-20: Kansas Crop Location by Type: Wheat, Corn, Soybeans, and Sorghum



About 30 million tons of cereal grain commodities are carried by rail in Kansas annually, nearly 63 percent of which are passthrough. Figure 4-21 shows the top trade lanes for cereal grains moved to, from, and through Kansas by rail. The line thicknesses represent the relative amount of railed volumes (tonnages). As shown, high volumes of cereal grains move by rail between Kansas City, MO, and Wichita, KS, as well as between Kansas and Texas, California, Oregon, Wyoming, North Dakota, and Mississippi, among other locations. These rail routes carry cereal grains that originate from, are destined for, or pass through Kansas.

Figure 4-21: Cereal Grain Trade Lanes Moving To, From, Within, and Through Kansas



Source: CPCS analysis of STB Waybill Sample Data, 2021.

In Kansas, Atchison County is the top origin county for cereal grain rail movements in the state, as shown in Figure 4-22 on the following page. Top destinations for these cereal grains originated from Atchison County include several major marine ports as well as ports of entries that enable shipments to Mexico, Canada, Northeast and Southeast Asia, and Europe:

- Harris, Galveston and Brazoria Counties, TX, where Ports of Houston, Galveston, and Texas City are located;
- Webb and Maverick Counties, TX, where the Laredo and Eagle Pass border crossings are located on the Texas-Mexico border;
- Imperial County, CA, where Calexico border crossing is located at California-Mexico border;
- Los Angeles County in CA, where the San Pedro Bay ports are located;
- Multnomah County in OR, where Port of Portland facility is located; and
- Facilities in Cook County, IL, and the greater Chicago region.

The following maps further illustrate concentrations of cereal grain moved by rail in Kansas, based on counties of rail tonnage origin (Figure 4-22) and destination (Figure 4-23). In addition to Atchison County, high volumes of cereal grains moved by rail originate from Sedgwick, Hamilton, and Saline Counties. Meanwhile, Wyandotte County, followed by Sedgwick, Saline, and Shawnee Counties, are the top destination counties for cereal grain rail movements in the state.

Figure 4-22: Kansas Rail Tonnage Concentration (Cereal Grain) by County Origin

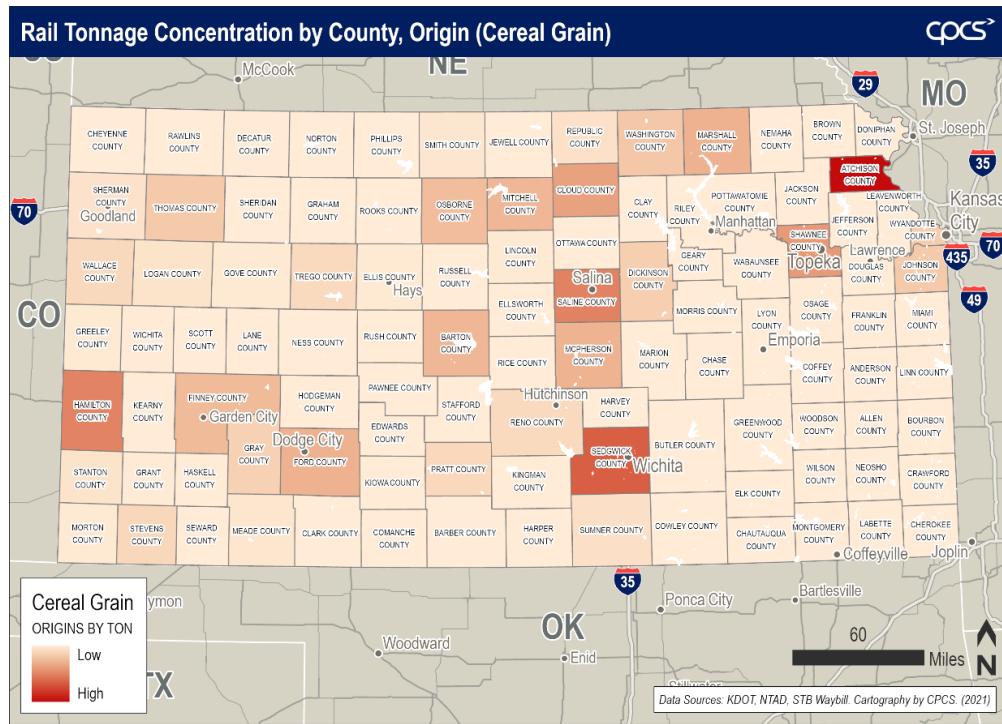
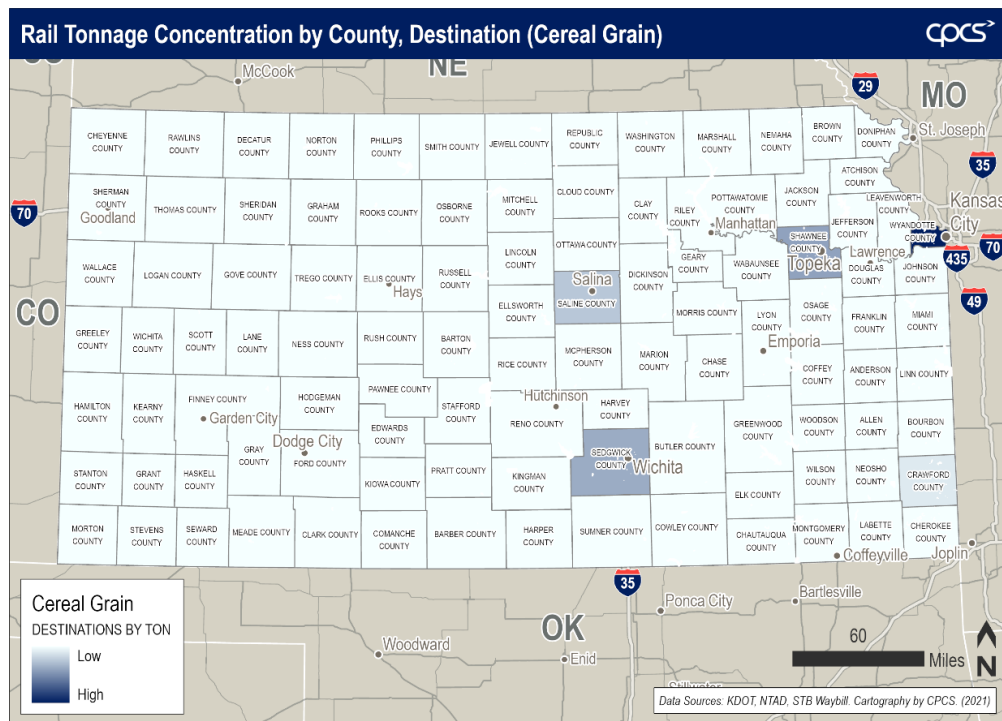


Figure 4-23: Kansas Rail Tonnage Concentration (Cereal Grain) by County Destination



Rail Hub Profiles

The following section provides details on the rail hubs that are located outside of Kansas, but provide critical connections between Kansas and other freight origins and destinations in the nation.

Tulsa Port of Catoosa, OK

Tulsa Port of Catoosa is located in Tulsa, Oklahoma, about 60 miles south of the Kansas border. As one of the nation's key riverports, Tulsa Port of Catoosa is a major contributor to the freight rail volumes that pass through Kansas.

Figure 4-24 shows the top trade lanes for Tulsa Port of Catoosa when considering rail volumes that move to, from, and through Kansas, based on an analysis of STB Waybill sample data. The line thicknesses represent the relative amount of rail volumes (tonnages). As shown, the Kansas rail system provides connections to and from the Tulsa Port of Catoosa, including:

- Between Tulsa Port of Catoosa and Kansas City, including cargo that originated from or is destined to rail-served facilities in Knox and Cook Counties, IL;
- Between Tulsa Port of Catoosa and the rail yards in east and south of Nebraska;
- Between Tulsa Port of Catoosa and railyards in Amarillo, TX; and
- Between Tulsa Port of Catoosa and the ports of San Pedro Bay in Southern California.

Rogers County in Oklahoma is home to the Tulsa Port of Catoosa. In 2019, primary commodities that originated from Rogers County and touched Kansas included fertilizer, followed by transportation equipment (not elsewhere classified) and other chemical products and preparations. Many of these movements were destined for Nebraska. Meanwhile, the primary commodity destined for Rogers County that also touched Kansas was coal. Many of these movements originated from Wyoming.

Figure 4-24: Tulsa Port of Catoosa Rail Activity Moving To, From, and Through Kansas



Source: CPCS analysis of STB Waybill Sample Data, 2021.

The following figures illustrate Kansas county destinations (Figure 4-25) and origins (Figure 4-26) for goods moving between the state and the Tulsa Port of Catoosa. These figures illustrate the existing connection between the Port of Catoosa and Wichita. The Tulsa Port of Catoosa is a major port located

near Kansas' borders, and Kansas rail users indicate an opportunity to improve Kansas' connection to the port.

Figure 4-25: Destinations for Goods Originating from Tulsa Port of Catoosa (Rogers County, OK)

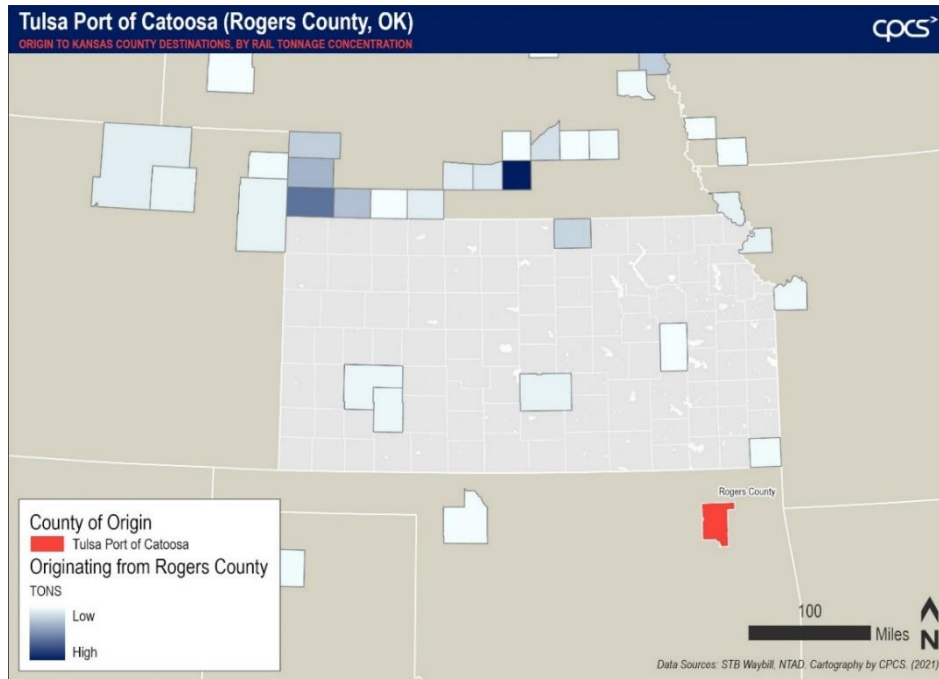
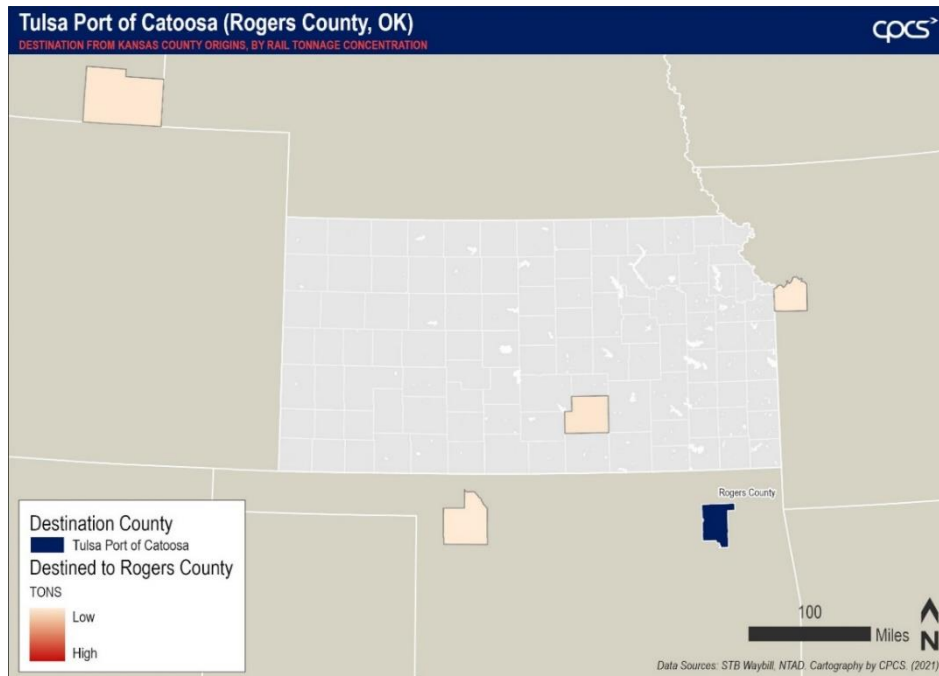


Figure 4-26: Origins for Goods Destined for Tulsa Port of Catoosa (Rogers County, OK)



Kansas City, MO

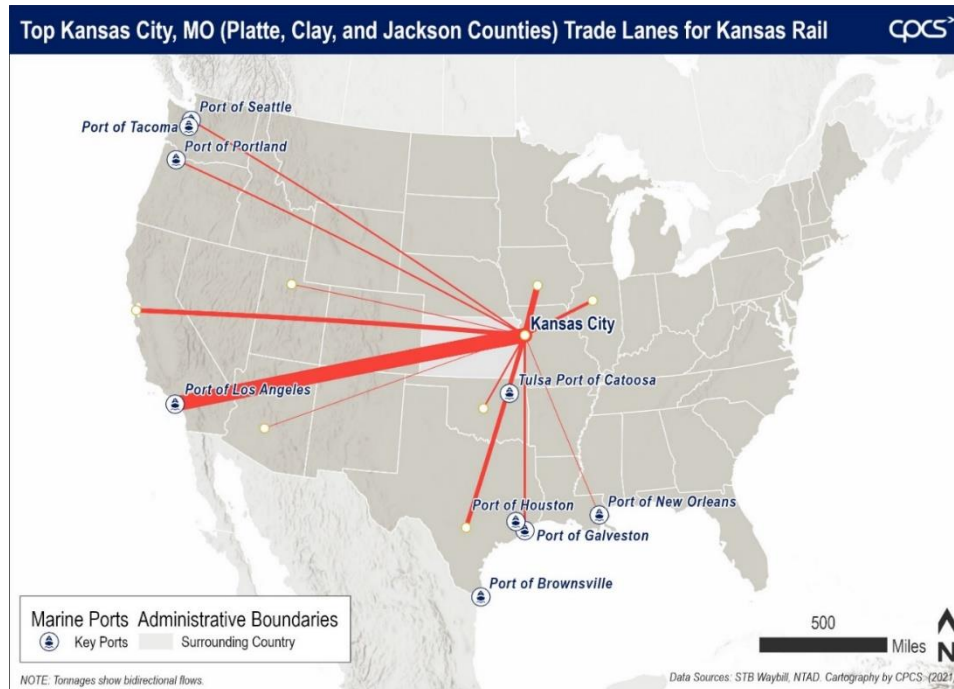
Facilities in Kansas City, Missouri serve rail users in and freight movements through Kansas. Kansas City, Missouri spans three counties – Clay, Jackson, and Platte Counties.

Figure 4-27 illustrates top trade lanes for Kansas City, MO for rail volumes moving to, from, and through Kansas, by volume, based on an analysis of STB Waybill sample data. The line thicknesses represent the relative amount of rail volumes (tonnages). As illustrated, high volumes of rail move through Kansas between Kansas City, MO, and:

- the Port of Los Angeles; and
- Coastal ports in the west, northwest, and south to the Gulf.

Among rail movements that touched Kansas in 2019, over 7 million tons *originated from* Kansas City, MO. Top commodities included other chemical products and preparations and motorized and other vehicles (includes parts), followed by mixed freight, waste, and scrap (excludes of agriculture or food), and other prepared foodstuffs, fats, and oils. Goods originating in Kansas City, MO and moving through Kansas were primarily destined for Los Angeles County, CA, followed by St. James Parish, LA (adjacent to the Port of New Orleans), St. Clair County, IL (across St. Louis, MO separated by the Mississippi River), and Riverside County, CA (just outside Los Angeles). Meanwhile, over 12.8 million tons of rail movements that touched Kansas were *destined for* Kansas City, MO. Many of these movements originated from Wyoming.

Figure 4-27: Kansas City, MO Rail Activity Moving To, From, and Through Kansas



Source: CPCS analysis of STB Waybill Sample Data, 2021.

In 2019, among rail movements that touched Kansas, over 7 million tons originated from Kansas City, MO. Of these movements, top commodities included other chemical products and preparations and motorized and other vehicles (includes parts), followed by mixed freight, waste, and scrap (excludes of agriculture or food), and other prepared foodstuffs, fats, and oils. Goods originating in Kansas City, MO and moving through Kansas were primarily destined for Los Angeles County, CA, followed by St. James Parish, LA (adjacent to the Port of New Orleans), St. Clair County, IL (across St. Louis, MO separated by the Mississippi River), and Riverside County, CA (just outside Los Angeles). Meanwhile, over 12.8 million tons of rail movements that touched Kansas were destined for Kansas City, MO. Many of these movements originated from Wyoming.

The following figures illustrate Kansas county destinations for goods originating from Kansas City, MO (Figure 4-28) and Kansas county origins for goods destined for Kansas City, MO (Figure 4-29).

Figure 4-28: Kansas Destinations for Goods Originating from Kansas City, MO (Platte, Clay, and Jackson Counties)

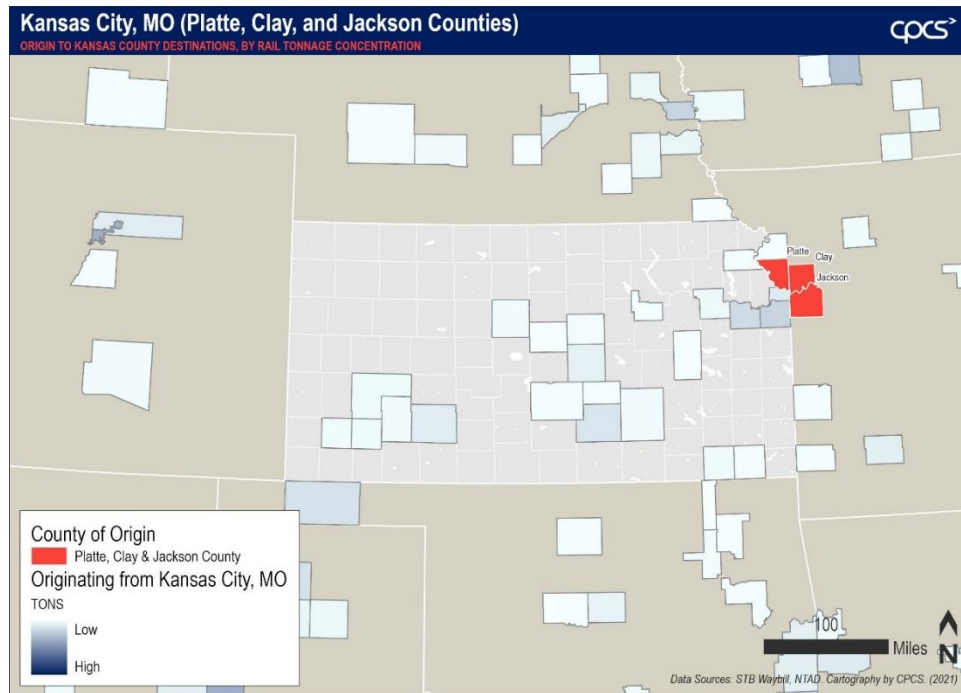
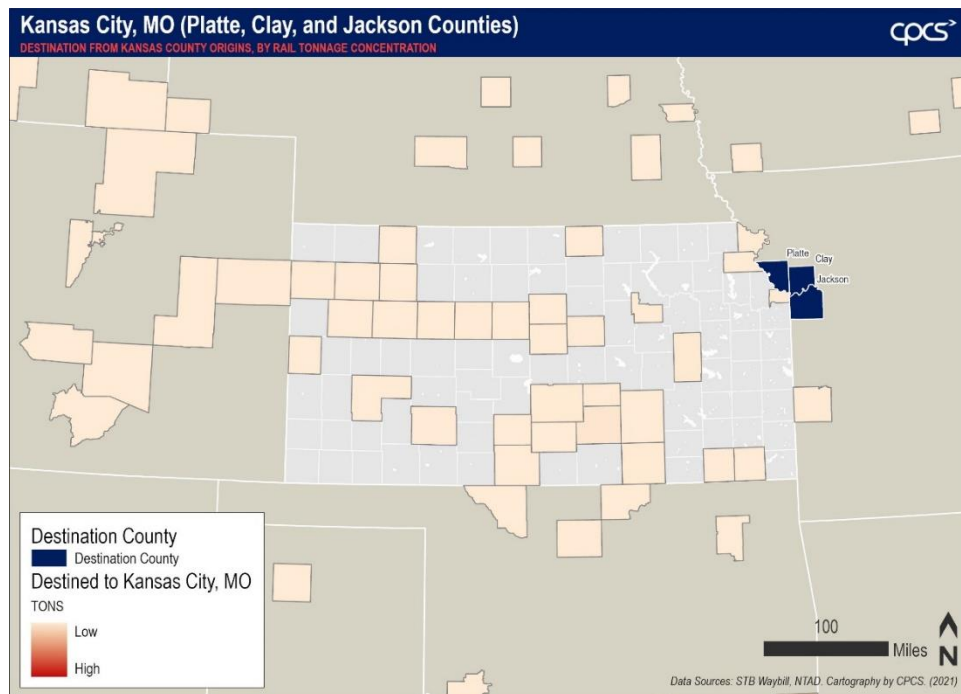


Figure 4-29: Kansas Origins for Goods Destined for Kansas City, MO (Platte, Clay, and Jackson Counties)



Bailey Yard, NE

Union Pacific's facility in North Platte, NE, is known as Bailey Yard and is the world's largest rail classification yard. Bailey Yard is located about 80 miles north of the Kansas border, 300 miles north of Wichita, and approximately 400 miles northwest of Kansas City. The Yard has 200 classification tracks with a total of 300-miles in length and handles around 14,000 railcars per day.²⁸

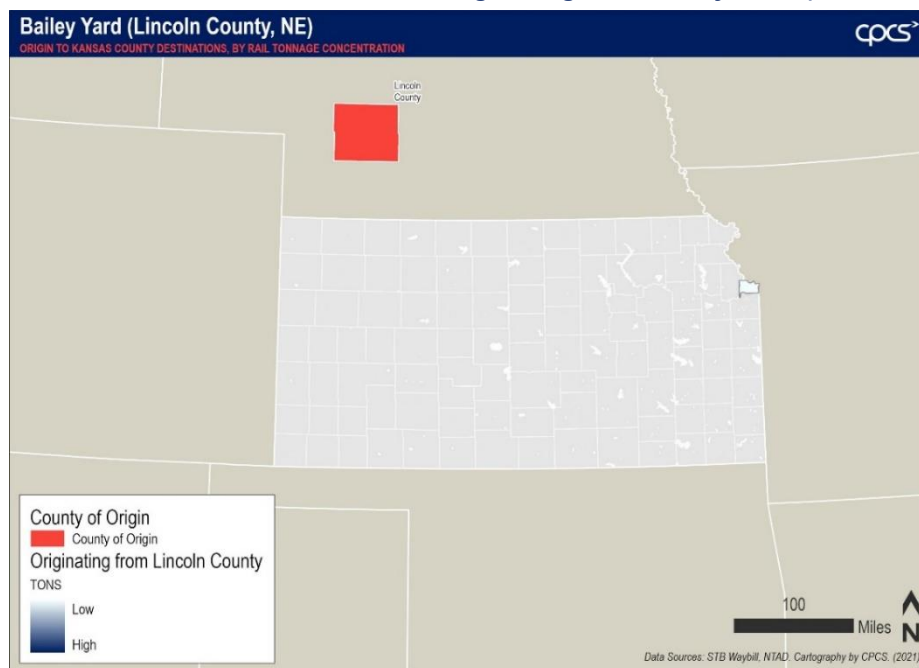
Kansas' railroads carry high volumes of freight that move between Bailey Yard in Nebraska and major US ports of entry, including:

- The Ports of Brownsville, Houston, and Corpus Christi in Texas;
- San Pedro Bay in Southern California;
- the Ports of Seattle and Tacoma in Washington;
- the Port of Portland in Oregon;
- and border crossing facilities at the US-Mexico and the US-Canada borders.

Lincoln County in Nebraska is home to Bailey Yard. In 2019, top commodities for rail movements that *originated from* Lincoln County and touched Kansas included agricultural products, followed by waste and scrap. Goods that originated from Lincoln County and moved through Kansas reached destinations such as St. Louis City, MO, and St. Charles Parish, LA, which is adjacent to the Port of New Orleans. Meanwhile, among rail movements that touched Kansas and were *destined for* Lincoln County, the primary commodity was fertilizer, and the top origin for all goods was Montgomery County, KS.

The following figures illustrate the Kansas county destination (Wyandotte County, which covers part of Kansas City where transload facilities are located) for goods originating from Lincoln County (Figure 4-30) and the Kansas county origin (Montgomery County) for goods destined for Lincoln County (Figure 4-31).

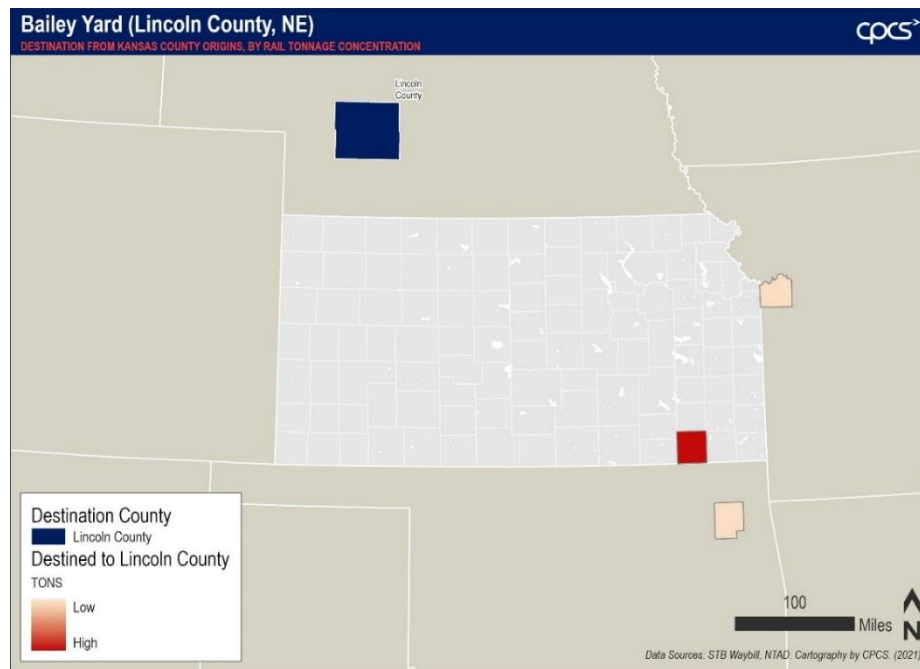
Figure 4-30: Kansas Destinations for Goods Originating from Bailey Yard (Lincoln County, NE)



²⁸ UP Fact Sheets, Union Pacific in Nebraska, 2020.

https://www.up.com/cs/groups/public/@uprr/@corprel/documents/up_pdf_natedocs/pdf_nebraska_usguide.pdf

Figure 4-31: Kansas Origins for Goods Destined for Bailey Yard (Lincoln County, NE)



5 Freight Rail System in Kansas

The Kansas rail system spans over 4,600 active miles. Four Class I railroads, 13 short lines, and 2 switching and terminal railroads own and/or operate rail lines in Kansas. While BNSF and UP are the primary Class I owners and operators, the short line and switching/terminal railroads are critical to the state's rail network. Short lines provide connections to the Class I rail system and offer switching/terminal railroads that switch the railcars between railroads or accommodate railcar movements at railyards and terminals. In Kansas, the short line and switching/terminal rail system owns and exclusively operates 39 percent of all railways in Kansas.

5.1 Freight Railroads

Kansas is served by four Class I railroads, 13 short lines, and 2 switching and terminal railroads, spanning over 4,600 active miles of rail in the state.

Class I Railroads

Four Class I railroads operate on 3,827 miles of rail, which includes the sum of active track owned and trackage rights.³⁰ It does not include miles leased to other railroads.³¹

Figure 5-1 summarizes Class I rail operations in Kansas. This section further details the operations of each Class I railway in Kansas. Figure 5-2 on the following page provides a map of Kansas' freight rail system.

STB classifies rail carriers into three classes, based on carrier annual operating revenues, for regulatory purposes. For 2019, the classifications are as follows:²⁹

- *Class I: carriers earning revenue greater than \$504,803,296*
- *Class II (or Regional): carriers earning revenue between \$40,384,263 and \$504,803,296*
- *Class III (or Short Lines): carriers earning revenue less than \$40,384,263*

Figure 5-1: Class I Railroads in Kansas (Summary Table)

Operator Name	Operating Miles (Total) ³²	Miles Owned (Active)	Trackage Right Miles	Miles Leased (Operational Rights, Lessor)	Miles Leased (Operational Rights, Lessee)	No. of Sub-divisions	No. of Open Grade Crossings
BNSF	1,632	1,198	434	--	--	19	1,669
KCS	20.7	20.7		--	--	1	28
NS*	3	--	3	--	--	--	--
UP	2,172	1,604	568	298.5	--	41	2,104
Total	3,827	2,823	1,005	298.5	--	61	3,801

Source: KDOT; FRA Crossing Inventory Database, 2021; Kansas Railroads, 2021. Analysis by CPCS, 2021. * Note: Information pending validation by railroads.

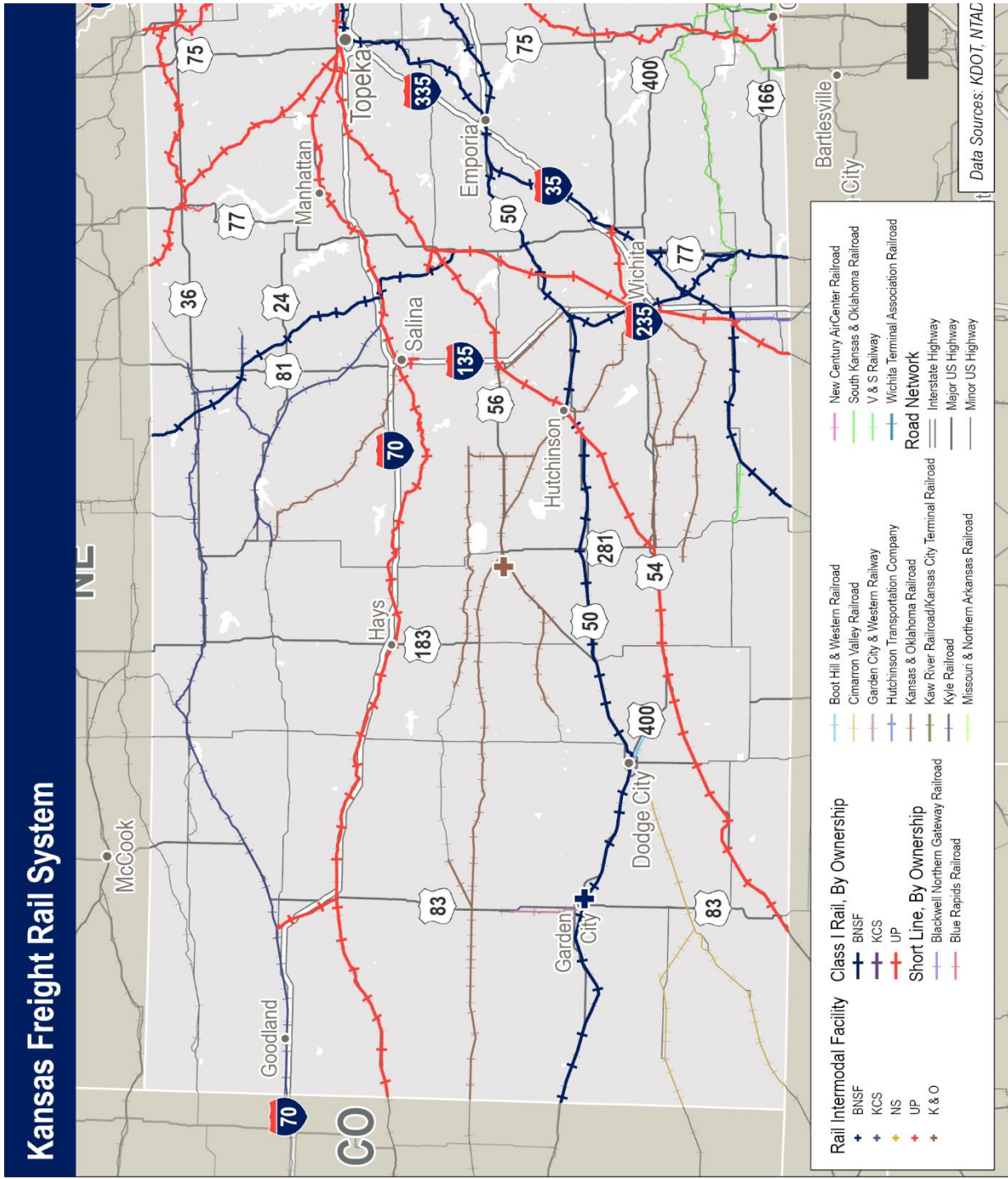
²⁹ STB, Economic Data, <https://prod.stb.gov/reports-data/economic-data/>

³⁰ A trackage rights agreement enables a railroad (tenant) to operate its trains over the tracks of another railroad (owner). Through trackage rights, railroads can expand their operations beyond their owned tracks and serve a wider range of customers. The tenant typically compensates the owner railroad through per car-mile or per ton-mile annual payments. Trackage rights agreements are regulated by the Surface Transportation Board. In a trackage right agreement, the owner railroad can restrict the number of trains per day and the types of cargoes the tenant railroad can carry.

³¹ A trackage right agreement allows for shared usage of tracks by both the tenant(s) and the owner railroads. In such an agreement, the owner railroad can restrict the number of trains per day and the types of cargoes the tenant railroad can carry to promote its operational efficiency. In contrast, a lease agreement gives the lessee railroad full control of the line and operations. Therefore, the number of leased miles should not be included in the lessor railroad's total operating miles.

³² Operating miles (total) represents the sum of miles owned (active) and trackage right miles.

Figure 5-2: Kansas Freight Rail System



Burlington Northern Santa Fe Railway

The BNSF Railway (BNSF) is a Class I railroad operating 32,500 miles of track in 28 U.S. states and three Canadian provinces.³³ In Kansas, BNSF operates on 1,632 miles of active track. This serves the entire state of Kansas, including major urban centers of Kansas City, Topeka, and Wichita. BNSF rail lines in Kansas serve key regional networks, including the Southern Transcon corridor, which connects Chicago and Los Angeles. BNSF rail lines also support passenger rail service, with Amtrak trains running on 473 miles of active BNSF track through Kansas City, Topeka, Emporia, Newton, Dodge City, and Garden City along the Southwest Chief connecting Chicago to Los Angeles.

Figure 5-3 summarizes BNSF operations in Kansas. BNSF owns 1,198 miles of active track and 1.9 miles of inactive track in Kansas. Active track owned by BNSF makes up 26 percent of mileage of active railroads in Kansas. BNSF also has trackage rights on 434 miles of UP-owned track.

Figure 5-3: BNSF Railroad in Kansas (Summary Table)

Operating Miles	Miles Owned (Active)	Trackage Right Miles	No. of Subdivisions	No. of Open Grade Crossings
1,632	1,198	434	19	1,669

Source: KDOT; FRA Crossing Inventory Database, 2021.

In Kansas, BNSF operates 19 unique subdivisions (Figure 5-4). The Topeka subdivision connects Kansas City to Emporia through Topeka, while the Emporia subdivision runs from Kansas City and through Emporia toward Oklahoma. The La Junta subdivision spans central and western Kansas, from Emporia through Newton, Dodge City, and Garden City to the state's western Colorado border. The Ft Scott and Afton subdivisions run south from Kansas City along Kansas' eastern border toward Joplin, MO, and Tulsa, OK. The Strong City subdivision also runs north-south from the Nebraska border. Figure 5-5 provides a map of the BNSF railroad in Kansas.³⁴

Figure 5-4: BNSF Subdivisions in Kansas

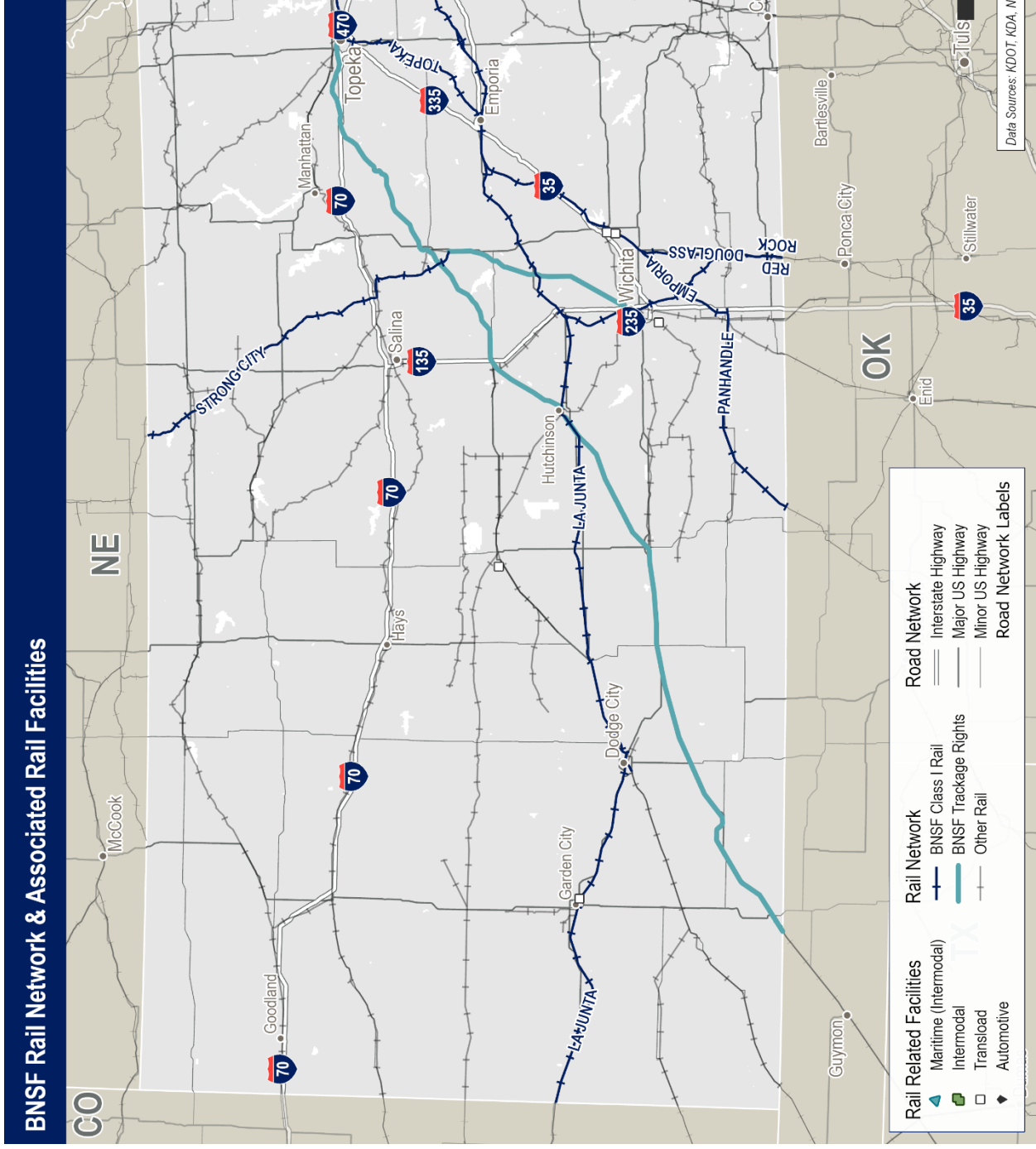
Subdivision Name	Track Length (Miles)	Subdivision Name	Track Length (Miles)
497	3.9	La Junta	332.4
68	1.0	Panhandle	68.7
Afton	58.9	Red Rock	5.8
Ardent Mills	0.3	Strong City	126.4
Arkansas City	83.4	Strong City to Hot Springs	0.2
Satanta	3.7	Topeka	116.3
Columbus Joplin	14.3	Topeka Connect	0.1
De Soto	3.4	Topeka Dist.	1.0
Douglass	29.7		
Emporia	256.7		
Ft Scott	114.5		

Source: KDOT

³³ BNSF Railroad, BNSF Railway Fact Sheet, May 2021, https://www.bnsf.com/bnsf-resources/pdf/about-bnsf/fact_sheet.pdf

³⁴ Please note that only subdivisions with track length of 50+ miles are shown on the map.

Figure 5-5: BNSF Railroad in Kansas (Map)



Kansas City Southern Railway

The Kansas City Southern (KCS') Railway is a Class I railroad operating 7,100 route miles that span the Midwest and southeast regions of the U.S. into Mexico.³⁵ In Kansas, KCS operates on 20.7 miles of track, with a rail yard in Pittsburg. KCS also interchanges with the South Kansas & Oklahoma Railroad (SKOL) in Pittsburg, KS.³⁶ KCS has significant operations in Kansas City, MO, across the Kansas state border. While KCS in Kansas carries some local traffic, the majority of commodities handled are for long-haul trips to and from markets throughout the country, and both north and south of the U.S./Mexico border.³⁷

Figure 5-6 summarizes KCS operations in Kansas. As displayed, KCS owns the 20.7 miles of active track it operates in Kansas. KCS's Pittsburg subdivision runs in southeast Kansas, with an 18-mile stretch crossing into Kansas from Missouri, running through Pittsburg, KS, and then re-entering Missouri. KCS also operates a 5.9-mile stretch of track from this line that leads into a coal utility plant in Missouri, with 2.66 miles in Kansas and 3.24 miles in Missouri. Figure 5-7 provides a map of the KCS railroad in Kansas.

Figure 5-6: KCS Railroad in Kansas (Summary Table)

Operating Miles	Miles Owned (Active)	Trackage Right Miles	No. of Subdivisions	No. of Open Grade Crossings
20.7	20.7	--	1	28

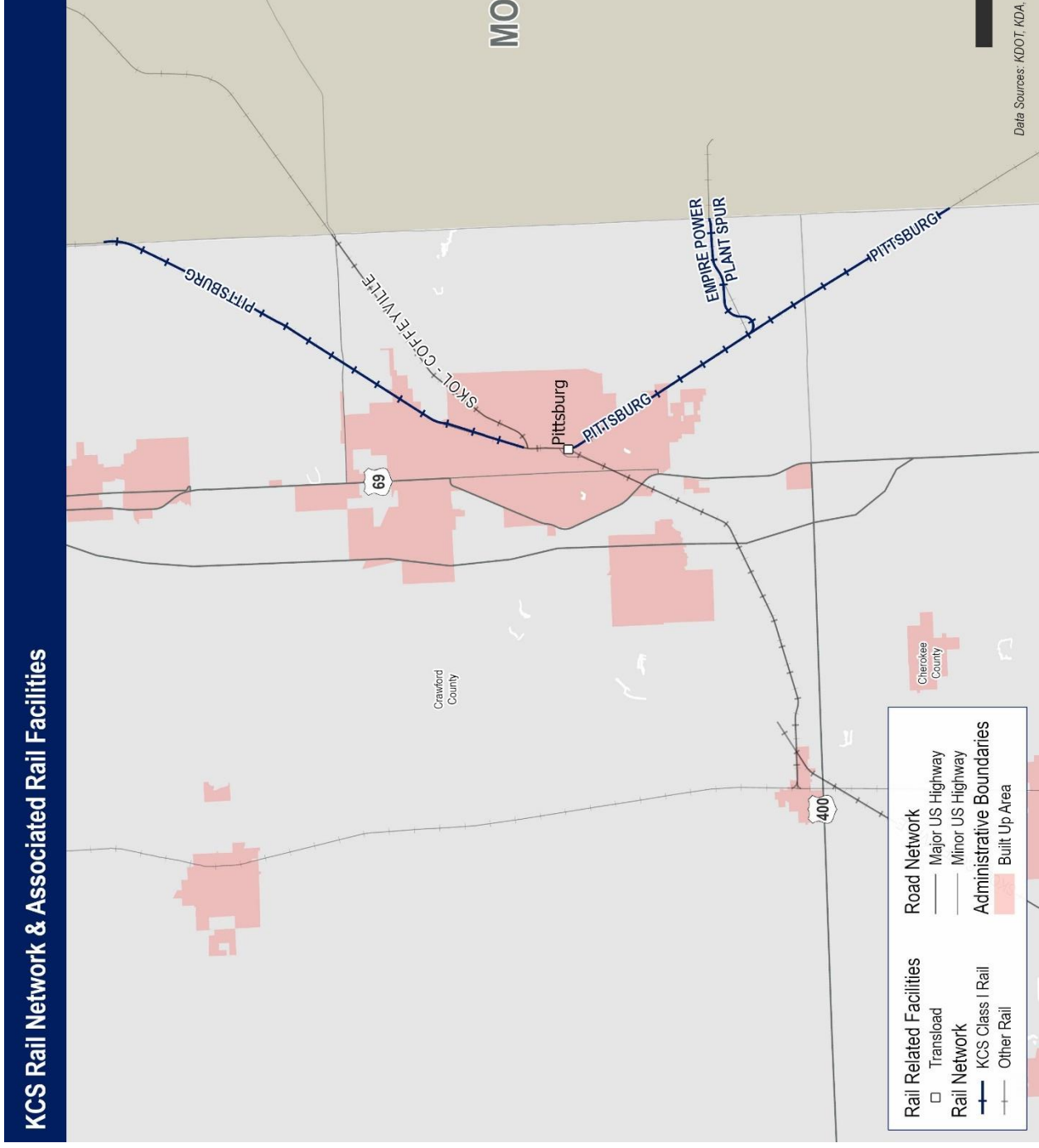
Source: KDOT, KCS, FRA Crossing Inventory Database, 2021. Analysis by CPCS, 2021.

³⁵ Kansas City Southern, Annual Report, 2020, <https://investors.kcsouthern.com/~media/Files/K/KC-Southern-IR-V2/annual-reports/annual-report-2020.pdf>

³⁶ KCS, Network Map, <https://www.kcsouthern.com/en-us/why-choose-kcs/our-network/network-map>.

³⁷ Consultation, Kansas City Southern, June 2, 2021

Figure 5-7: KCS Railroad in Kansas (Map)



Norfolk Southern

Norfolk Southern (NS) Railway is a Class I railroad that operates on 3 miles of trackage rights in Kansas, in the metropolitan Kansas City area.³⁸

Union Pacific Railroad

Union Pacific (UP) Railroad is a Class I railroad operating in 23 states across the western U.S.³⁹ In Kansas, UP operates on 2,172 miles of active track. This serves the entire state of Kansas, including major urban centers of Kansas City, Topeka, and Wichita.

Figure 5-8 summarizes UP operations in Kansas. UP owns 1,604 miles of active track in Kansas, which makes up more than 34 percent of active railroad mileage in Kansas. UP also has trackage rights on 397 miles of BNSF-owned track, 161 miles of SKOL-owned track, and 10 miles of BRR-owned track. Additionally, UP leases 163 miles of track to K&O and 135.5 miles of track to KYLE, providing K&O and KYLE exclusive operational rights along these UP-owned rail lines. There are an additional 7.4 miles of inactive UP track in Kansas.

Figure 5-8: UP Railroad in Kansas (Summary Table)

Operating Miles	Miles Owned (Active)	Trackage Right Miles	Miles Leased (Operational Rights, Lessor)	No. of Subdivisions	No. of Open Grade Crossings
2,172	1,604	568	298.5	41	2,104

Source: KDOT, FRA Crossing Inventory Database, 2021. Analysis by CPCS, 2021.

In Kansas, UP operates 41 unique subdivisions (Figure 5-9). The Coffeyville and Parsons subdivisions run south from Kansas City towards Independence and Parsons, respectively. Several subdivisions branch out westward from Topeka towards Wichita, Liberal, Colby, and Marysville. The Falls City subdivision runs north from Kansas City, along the Missouri River, and towards Omaha, NE. Figure 5-10 provides a map of the UP railroad in Kansas.⁴⁰

³⁸ Note: Information pending validation by railroads.

³⁹ Union Pacific Website, Company Overview, https://www.up.com/aboutup/corporate_info/uprover/index.htm.

⁴⁰ Note that only subdivisions with track length of 50+ miles are shown on the map.

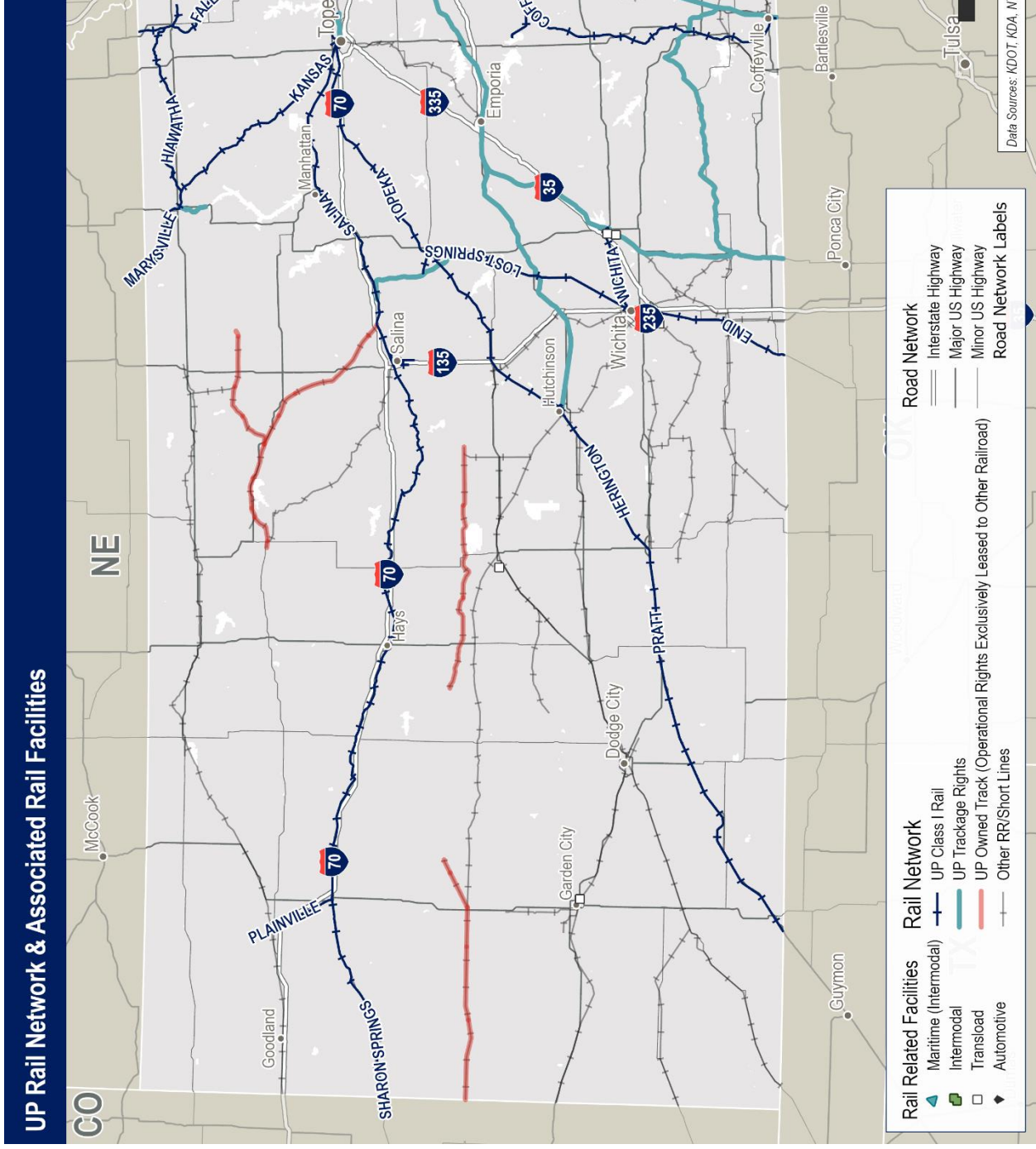
Figure 5-9: UP Subdivisions in Kansas

Subdivision Name	Track Length (Miles)	Subdivision Name	Track Length (Miles)
<i>Other</i>	2.9	Kansas	141.6
<i>Other</i>	0.2	Kansas Downtown	1.0
<i>Other</i>	0.3	Kansas Goodyear	2.6
<i>Other</i>	5.7	KC Metro	2.4
<i>Other</i>	7.6	KC Metro B	0.9
<i>Other</i>	2.0	KC Metro E	0.6
<i>Other</i>	0.2	Lost Springs	71.3
Atchison Yard	1.8	Marysville	30.1
Cherokee	25.8	NE KS & MO	10.2
Coffeyville	180.2	Parnell Industrial Track	3.7
Council Grove	7.8	Parsons	94.0
El Dorado	4.1	Plainville	21.9
Enid	51.5	Pratt	137.4
Fairfax Industrial Track	10.6	Salina	114.2
Falls City	99.5	Salina Yard	3.5
Herington	127.2	Sharon Springs	259.0
Herington I2	1.4	Topeka	81.8
Herington I3	0.1	Wichita	31.8
Herington I4	0.6	<i>Other</i> ⁴¹	0.6
Hiawatha	63.9	<i>Other</i> ⁴²	1.5
Industry	1.5		

Source: KDOT

⁴¹ Spur off NE KS & MO subdivision in Elwood⁴² Connects UP Herington to BNSF La Junta in Hutchinson

Figure 5-10: UP Railroad in Kansas (Map)



Short Line and Switching/Terminal Railroads

Kansas is served by 13 short line railroads (one currently inactive) and two switching/terminal railroads. These railroads operate on 1,919 miles of rail, which includes active track owned, trackage rights,⁴³ and miles exclusively leased from other railroads.⁴⁴ Figure 5-11 summarizes short line and switching/terminal rail operations in Kansas. This section further details the operations of each short line and switching/terminal railway in Kansas.

Figure 5-11: Short Line and Switching/Terminal Railroads in Kansas (Summary Table)

Operator Name	Operating Miles (Total) ⁴⁵	Miles Owned (Active)	Trackage Right Miles	Miles Leased (Operational Rights, Lessor)	Miles Leased (Operational Rights, Lessee)	No. of Sub-divisions	No. of Open Grade Crossings
Short Line Railroads							
BNGR	18.3	18.3	--	--	--	1	22
BRR	9.7	9.7	--	--	--	1	26
BH&W	9.6	9.6	--	--	--	1	13
CVR	182.5	178.8	3.7	--	--	3	219
GCW	35.5	35.5	--	--	--	2	65
HUTX	4.8	4.8	--	--	--	1	2
K&O	833.4	647.4	23	--	163	17	1,489
KYLE	431.5	285	11	--	135.5	6	667
M&NA	2.8	2.8	--	--	--	1	2
JCAX	6.06	6.06	--	--	--	1	13
NKCR ⁴⁶	--	--	--	--	--	--	110
SKOL	349.8	287.2	62.6	--	--	17	770
V&S	24.5	24.5	--	--	--	2	36
Switching and Terminal Railroads							
KAW/ KCTR	3.6	3.6	--	--	--	3	20
Wichita Terminal Association	6.7	6.7	--	--	--	2	14
Total	1,919	1,520	100	--	298.5	58	3,468

Source: KDOT; FRA Crossing Inventory Database, 2021; Kansas Railroads, 2021. Analysis by CPCS, 2021.

⁴³ A trackage rights agreement enables a railroad (tenant) to operate its trains over the tracks of another railroad (owner). Through trackage rights, railroads can expand their operations beyond their owned tracks and serve a wider range of customers. The tenant typically compensates the owner railroad through per car-mile or per ton-mile annual payments. Trackage rights agreements are regulated by the Surface Transportation Board. In a trackage right agreement, the owner railroad can restrict the number of trains per day and the types of cargoes the tenant railroad can carry.

⁴⁴ A railroad may enter into a lease agreement with another railroad to have full control of the latter railroad's lines. The lessee railroad pays the lessor railroad a certain annual rate, based on maintenance, profit, or overhead. Railroad lease agreements often include full control of operations by the lessee railroad, however, terms of lease can vary based on mutual agreement between the parties.

⁴⁵ Operating miles (total) represents the sum of miles owned (active), trackage right miles, and miles leased (operational rights, lessee).

⁴⁶ NKCR owns 74 miles of inactive rail line in Kansas.

Blackwell Northern Gateway Railroad

The Blackwell Northern Gateway Railroad (BNGR) is a Class III railroad owned by the Blackwell Industrial Authority (BIA) and Oklahoma Department of Transportation (ODOT) and operated by U.S. Rail Partners, Ltd.⁴⁷ In Kansas, BNGR owns and operates on 18 miles of track on its H & S subdivision. BNGR connects with BNSF in Wellington, KS at the northern end of its line. It then runs south through South Haven and Hunnewell and crosses the Kansas-Oklahoma border to Blackwell Industrial Park in Blackwell, OK at the southern end of its line.⁴⁸

BNGR provides car storage only. No revenue moves occurred on the rail line between 2016 and 2020.⁴⁹

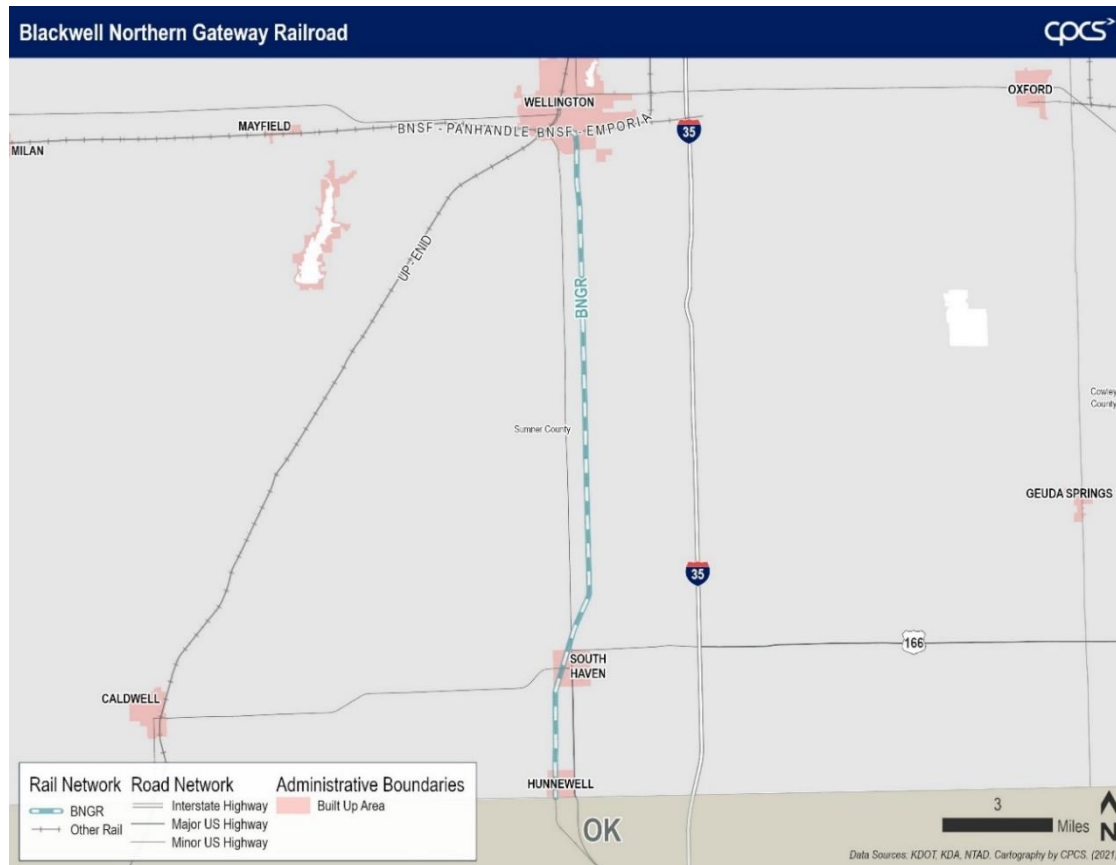
Figure 5-12 summarizes BNGR in Kansas. Figure 5-13 provides a map of the BNGR railroad in Kansas.

Figure 5-12: BNGR Railroad in Kansas (Summary Table)

Operating Miles	Miles Owned (Active)	Trackage Right Miles	No. of Subdivisions	No. of Open Grade Crossings
18.3	18.3	--	1	22

Source: KDOT; FRA Crossing Inventory Database, 2021.

Figure 5-13: BNGR Railroad in Kansas (Map)



⁴⁷ Blackwell Northern Gateway Railroad, <https://www.blackwellrr.com/>

⁴⁸ Blackwell Northern Gateway Railroad, <https://www.blackwellrr.com/>

⁴⁹ KDOT.

Blue Rapids Railroad

The Blue Rapids Railroad (BRR) is a Class III railroad and is owned by Georgia-Pacific, which is headquartered in Atlanta, GA. In Kansas, BRR owns and operates 9.7 miles of rail line in northeastern Kansas. BRR extends south from its connection with the UP Marysville subdivision to the Georgia Pacific gypsum plant. UP also has trackage rights on BRR rail line in Kansas. Figure 5-14 summarizes BRR operations in Kansas.

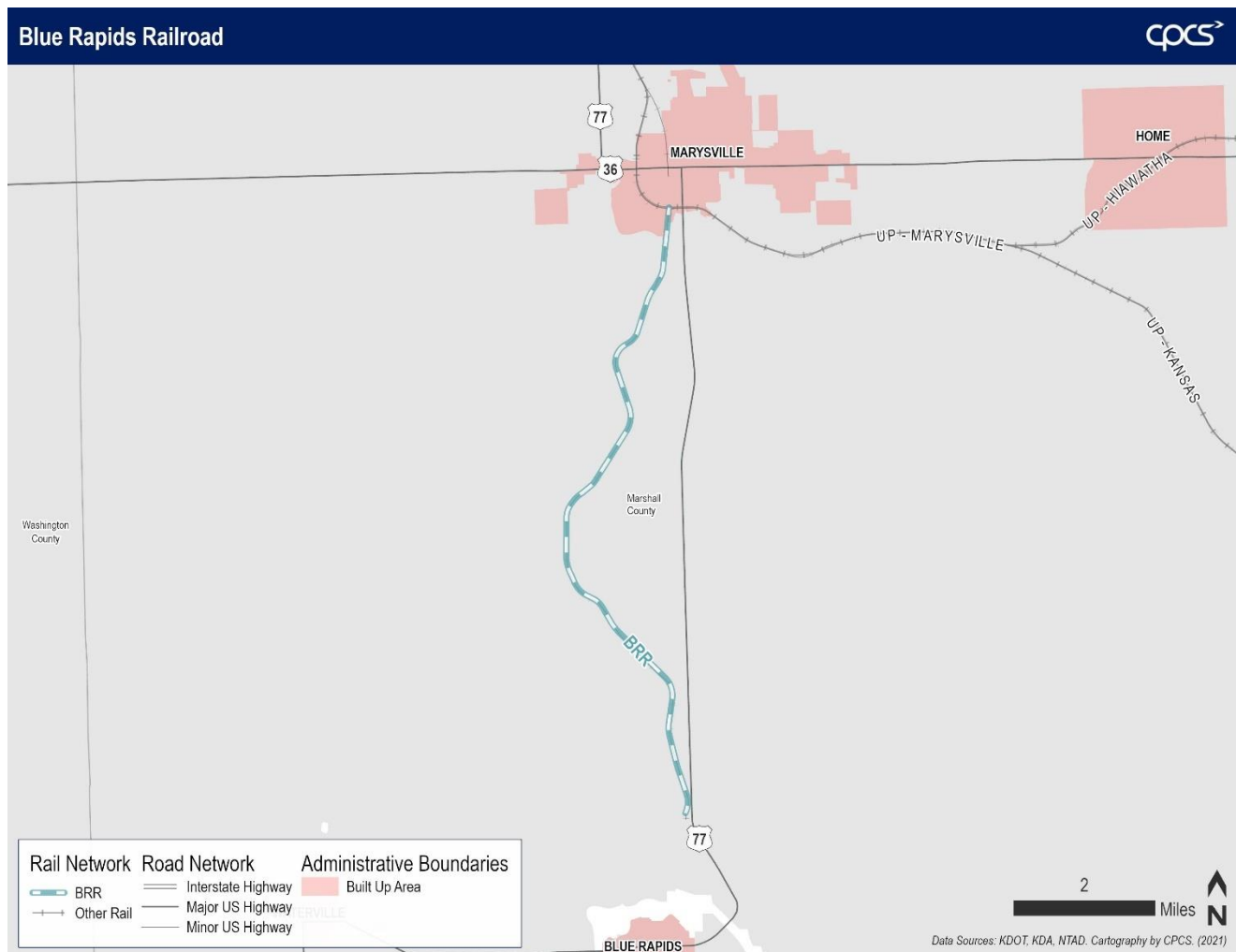
The BRR provides dedicated service to the Georgia-Pacific gypsum facility.⁵⁰ Figure 5-15 provides a map of the BRR railroad in Kansas.

Figure 5-14: BRR Railroad in Kansas (Summary Table)

Operating Miles	Miles Owned (Active)	Trackage Right Miles	No. of Subdivisions	No. of Open Grade Crossings
9.7	9.7	--	1	26

Source: KDOT; FRA Crossing Inventory Database, 2021. Analysis by CPCS, 2021.

Figure 5-15: BRR Railroad in Kansas (Map)



⁵⁰ Georgia-Pacific; Georgia-Pacific, Locations – Kansas, <https://www.gp.com/about-us/locations/kansas>.

Boot Hill & Western Railroad

The Boot Hill & Western Railroad (BH&W) is a Class III railroad based in Wright, KS, and is owned by Midwest Pacific Rail Net and Logistics, a logistics and short line operator in the western U.S. In Kansas, BH&W owns and operates 10 miles of rail line between Dodge City and Wilroads in Western Kansas. BH&W also owns 16 miles of inactive rail line.

BH&W connects to BNSF in Dodge City. The existing BH&W active line is what remains of a longer line that ran from Dodge City, through Wilroads, to Bucklin; the line extending from Wilroads to Bucklin is out of service.⁵¹

BH&W provides car storage only. No revenue moves occurred on the rail line between 2016 and 2020.⁵²

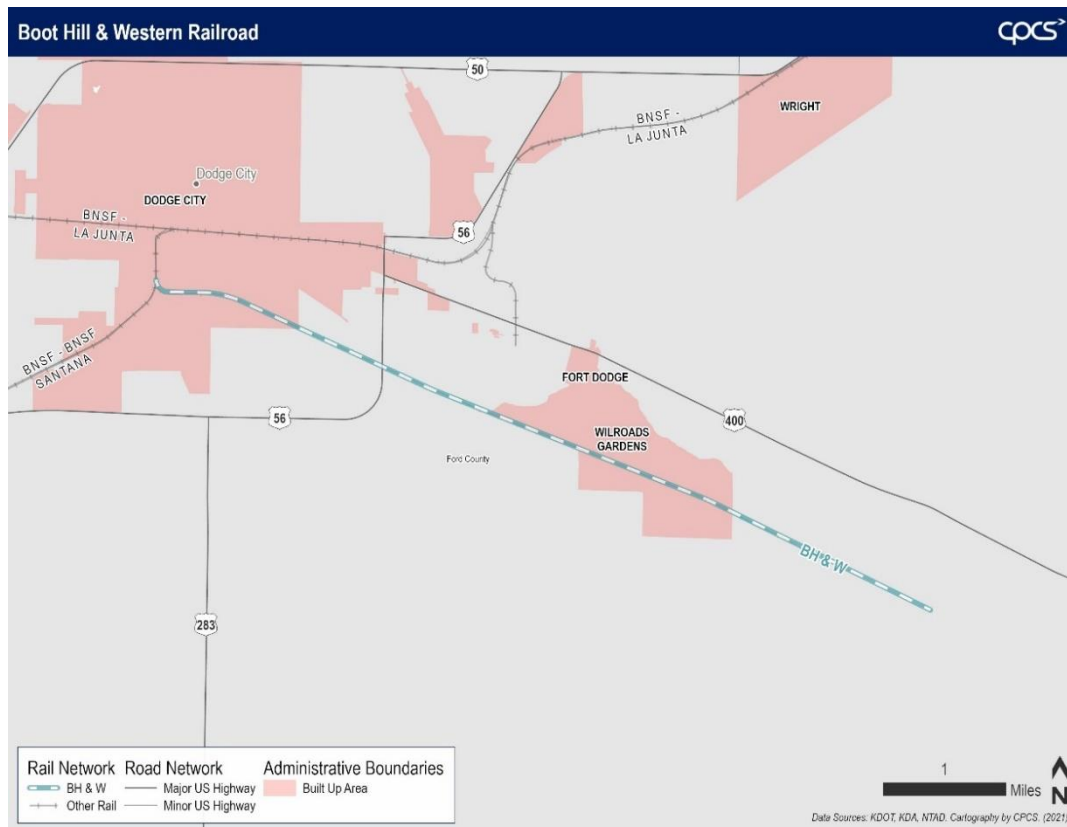
Figure 5-16 summarizes BH&W in Kansas. The following page also provides a map of the BH&W railroad in Kansas (Figure 5-17).

Figure 5-16: BH&W Railroad in Kansas (Summary Table)

Operating Miles	Miles Owned (Active)	Trackage Right Miles	No. of Subdivisions	No. of Open Grade Crossings
9.6	9.6	--	1	13

Source: KDOT; FRA Crossing Inventory Database, 2021.

Figure 5-17: BH&W Railroad in Kansas (Map)



⁵¹ KDOT; Midwest Pacific Rail Net & Logistics Website, Boothill and Western Railway, <https://midwestpacificrr.com/boot-hill-and-western-railway.html>.

⁵² KDOT.

Cimarron Valley Railroad

The Cimarron Valley Railroad (CVR) is a Class III railroad owned by Jaguar Transport Holdings, LLC.⁵³ In Kansas, CVR operates on 182.5 miles of active track in total in the southwestern corner of Kansas. CVR rail interchanges with BNSF in Dodge City, KS. From Dodge City, the rail line runs southwest to Satanta, KS on the Satanta subdivision, where CVR has a yard and base for operations.⁵⁴ In Satanta, CVR forks into two branches – the Manter subdivision toward Pritchett, CO, and the Keyes subdivision toward Boise City, OK. While CVR connects with BNSF in Springfield, CO, and Boise City, OK, no interchange occurs at these locations.⁵⁵ CVR also stores rail cars on the western sections of its line.⁵⁶

Figure 5-18 summarizes CVR operations in Kansas. CVR owns 178.8 miles, which makes up almost 4 percent in mileage of all active railroads in Kansas. CVR also has trackage rights on 3.7 miles of BNSF-owned track.

Figure 5-18: CVR Railroad in Kansas (Summary Table)

Operating Miles	Miles Owned (Active)	Trackage Right Miles	No. of Subdivisions	No. of Open Grade Crossings
182.5	178.8	3.7	3	219

Source: KDOT; Jaguar Transport; FRA Crossing Inventory Database, 2021.

In Kansas, CVR operates 3 unique subdivisions (Figure 5-19). Figure 5-20 provides a map of the CVR railroad in Kansas.

Figure 5-19: CVR Railroad Subdivisions

Subdivision Name	Track Length (Miles)
Satanta	56.2
Keyes	60.2
Manter	62.4

Source: Jaguar Transport.

There are approximately 36 rail service facilities on CVR, including grain elevators along its line in Southwest Kansas. Shuttle loading locations along CVR include Pride AG in Ensign and Skyland Grain LLC in Hugoton.⁵⁷ Additionally, CVR facilitates rail to truck transload in multiple locations depending on customer requirements. Key commodities moved along CVR include corn, wheat, sorghum, bio-diesel, and cattle and hog feed.⁵⁸

⁵³ Jaguar Transport Holdings Website, Locations, <https://jag-transport.com/locations/>.

⁵⁴ Consultation, Jaguar Transport, May 17, 2021.

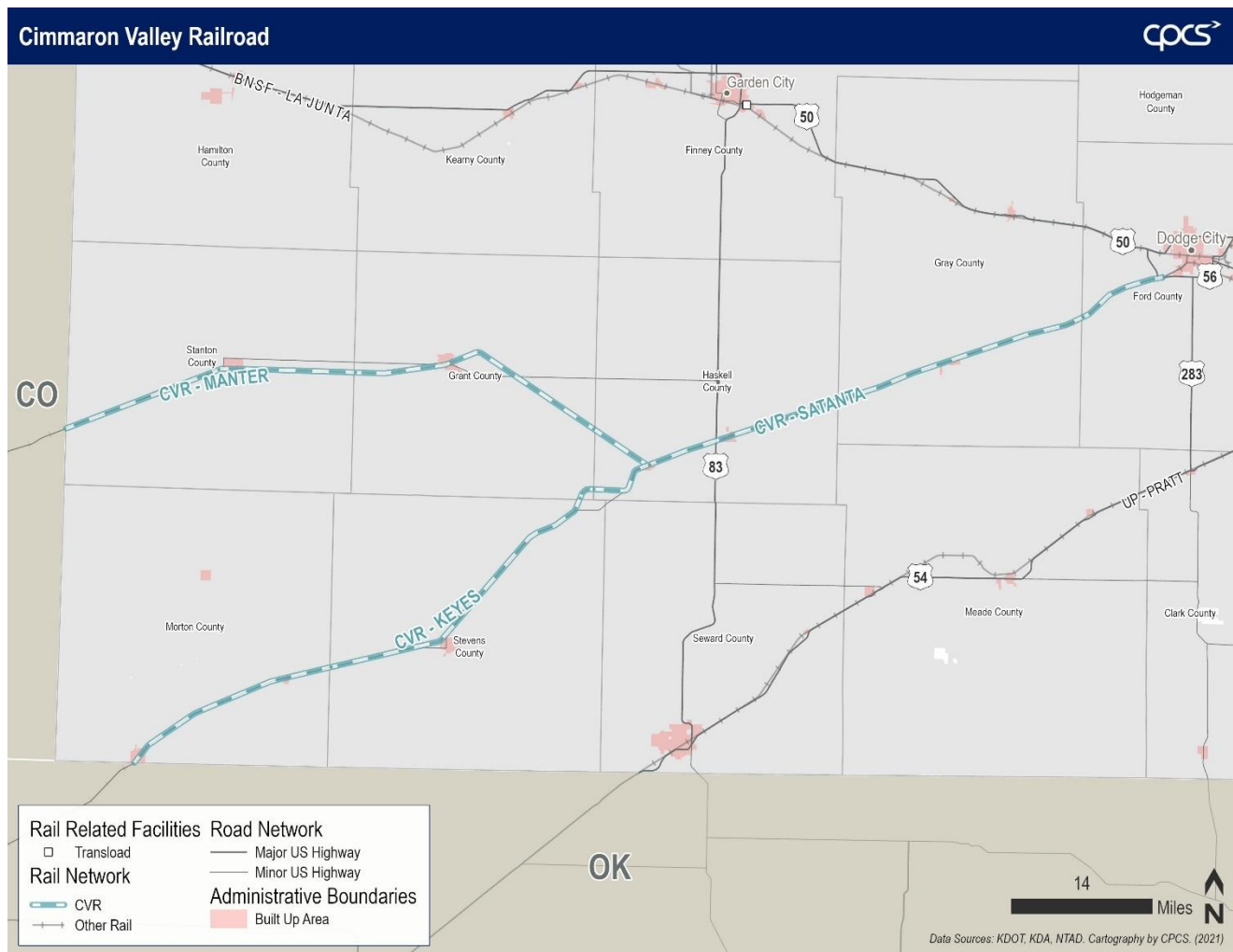
⁵⁵ Jaguar Transport Holdings Website, Locations, <https://jag-transport.com/locations/>; Consultation, Jaguar Transport, May 17, 2021.

⁵⁶ Consultation, Jaguar Transport, May 17, 2021.

⁵⁷ Consultation, Jaguar Transport, May 17, 2021; BNSF, Elevator Dictionary, <http://www.bnsf.com/ship-with-bnsf/agricultural-products/pdf/Elevators.xlsx>

⁵⁸ Consultation, Jaguar Transport, May 17, 2021.

Figure 5-20: CVR Railroad in Kansas (Map)



Garden City and Western Railway

The Garden City and Western Railway (GCW) is a Class III railroad based in Garden City, KS, and is owned by Pioneer Railcorp, a regional short line operator headquartered in Peoria, IL.⁵⁹ In Kansas, GCW owns and operates 35.5 miles of rail in western Kansas, in addition to owning 8.5 miles of inactive rail. GCW's active rail line interchanges with the BNSF La Junta subdivision in Garden City and extends north in two directions – the Shallow Water subdivision runs straight north for 25 miles and the 62 subdivision extends northwest for 11 miles. Figure 5-21 summarizes GCW operations and Figure 5-22 details GCW subdivisions in Kansas.

Figure 5-21: GCW Railroad in Kansas (Summary Table)

Operating Miles	Miles Owned (Active)	Trackage Right Miles	No. of Subdivisions	No. of Open Grade Crossings
35.5	35.5	--	2	65

Source: KDOT; FRA Crossing Inventory Database, 2021. Analysis by CPCS, 2021.

⁵⁹ Pioneer Lines, The Garden City and Western Railway, <https://pioneerlines.com/the-garden-city-western-railway-gcw/>

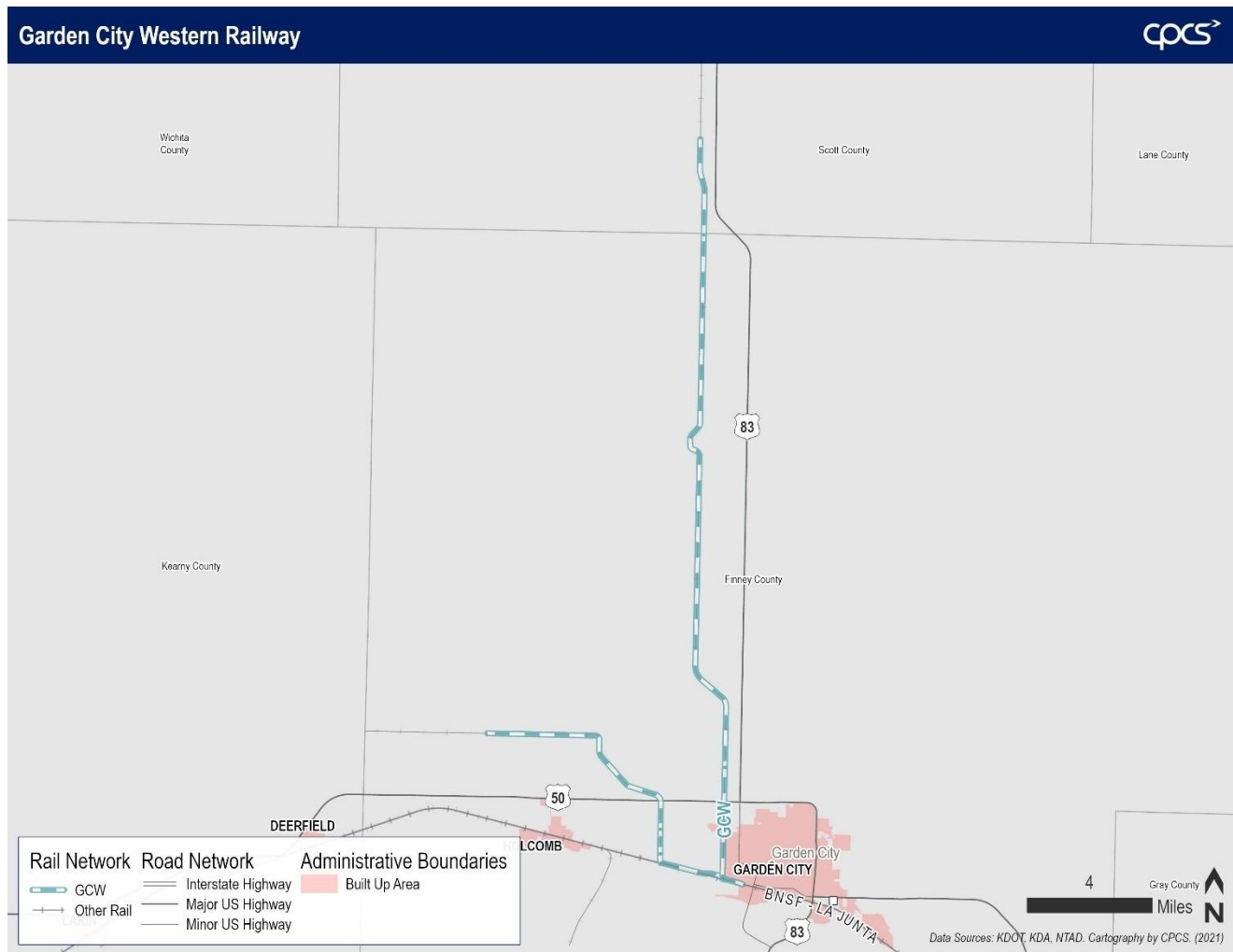
Figure 5-22: GCW Subdivisions

Subdivision Name	Track Length (Miles)
62	10.7
Shallow Water	24.8

Source: KDOT

The GCW serves several facilities along its lines, including Garden City Co-op, Helena Chemical, Nutrien Ag, Midwest PMS, Americold Logistics, and F&F Iron, among others.⁶⁰ GCW handles commodities such as cattle feed, food products, fertilizer, scrap iron, and steel.⁶¹ Figure 5-23 provides a map of the GCW railroad in Kansas.

Figure 5-23: GCW Railroad in Kansas (Map)



⁶⁰ Pioneer, Garden City Western (GCW)

⁶¹ Pioneer, Garden City Western (GCW), <https://pioneerlines.com/the-garden-city-western-railway-gcw/>

Hutchinson Transportation Company

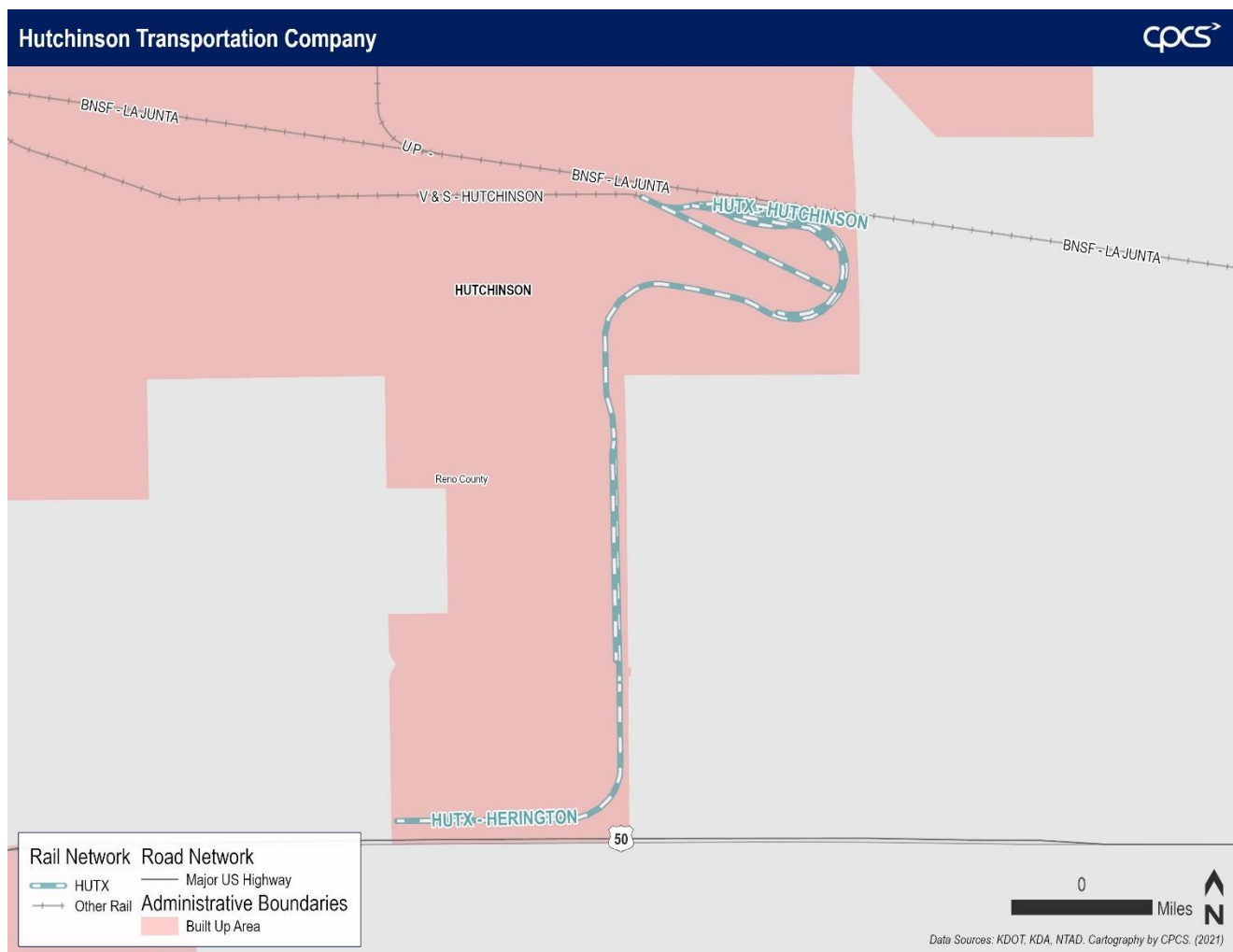
Hutchinson Transportation Company (HUTX) is a Class III railroad operating on 4.8 miles of active track in Kansas. HUTX serves the Hutchinson Salt Company and the Siemens facility, and interchanges with BNSF in Hutchinson. Figure 5-24 summarizes HUTX operations in Kansas and Figure 5-25 provides a map for the HUTX railroad in Kansas.

Figure 5-24: HUTX Railroad in Kansas (Summary Table)

Operating Miles	Miles Owned (Active)	Trackage Right Miles	No. of Subdivisions	No. of Open Grade Crossings
4.8	4.8	--	1	2

Source: HUTX; FRA Crossing Inventory Database, 2021

Figure 5-25: HUTX Railroad in Kansas (Map)



Kansas and Oklahoma Railroad

Kansas & Oklahoma (K&O) Railroad is a Class III railroad headquartered in Wichita, KS. It is owned by Watco Companies, a regional short line operator headquartered in Pittsburg, KS. In Kansas, K&O operates on 833 miles of active track in total. K&O rail lines run from southeast Kansas west toward Colorado, as well as northwest of Salina. K&O interchanges with BNSF in Abilene and Newton, with UP in McPherson and Salina, with BNSF and UP in Hutchinson, and with BNSF, UP, and SKOL in Wichita.⁶²

Figure 5-26 summarizes K&O operations in Kansas. K&O owns 647 miles of active track in Kansas, in addition to 22.5 miles of inactive track. K&O also has an operating lease agreement with UP – K&O has exclusive operating rights on 163 miles of UP-owned track. The combination of K&O-owned and K&O-exclusively operated active track (totaling 810 miles) makes up over 17 percent of the mileage of active railroads in Kansas. In addition, K&O has trackage rights on 23 miles of UP-owned track, 10.7 miles of which KYLE railroad also has trackage rights on.

In Kansas, the K&O owns 15 unique subdivisions, with exclusive operations over 2 additional subdivisions (Figure 5-27). Figure 5-28 provides a map of the K&O railroad in Kansas.

Figure 5-26: K&O Railroad in Kansas (Summary Table)

Operating Miles	Miles Owned (Active)	Trackage Right Miles	Miles Leased (Operational Rights, Lessee)	No. of Subdivisions	No. of Open Grade Crossings
833.4	647.4	23	163	17	1,489

Source: KDOT; WATCO.

Figure 5-27: K&O Railroad Subdivisions

Subdivision Name	Track Length (Miles)	Subdivision Name	Track Length (Miles)
282 (Owned)	0.9	Kingman (Owned)	60.2
283 (Owned)	2.6	Larned (Owned)	36
284 (Owned)	0.1	McPherson (Owned)	13.6
588 (Owned)	3.7	Newton (Owned)	33.5
Conway Springs (Owned)	103.3	Salina (Owned)	82.9
Great Bend (Owned)	84.7	Scott City (Owned)	120.4
H & S (Owned)	8.9	Towner (Leased)	80.5
Geneseo (Owned)	43.7	Hoisington (Leased)	82.5
Hutchinson (Owned)	52.9		

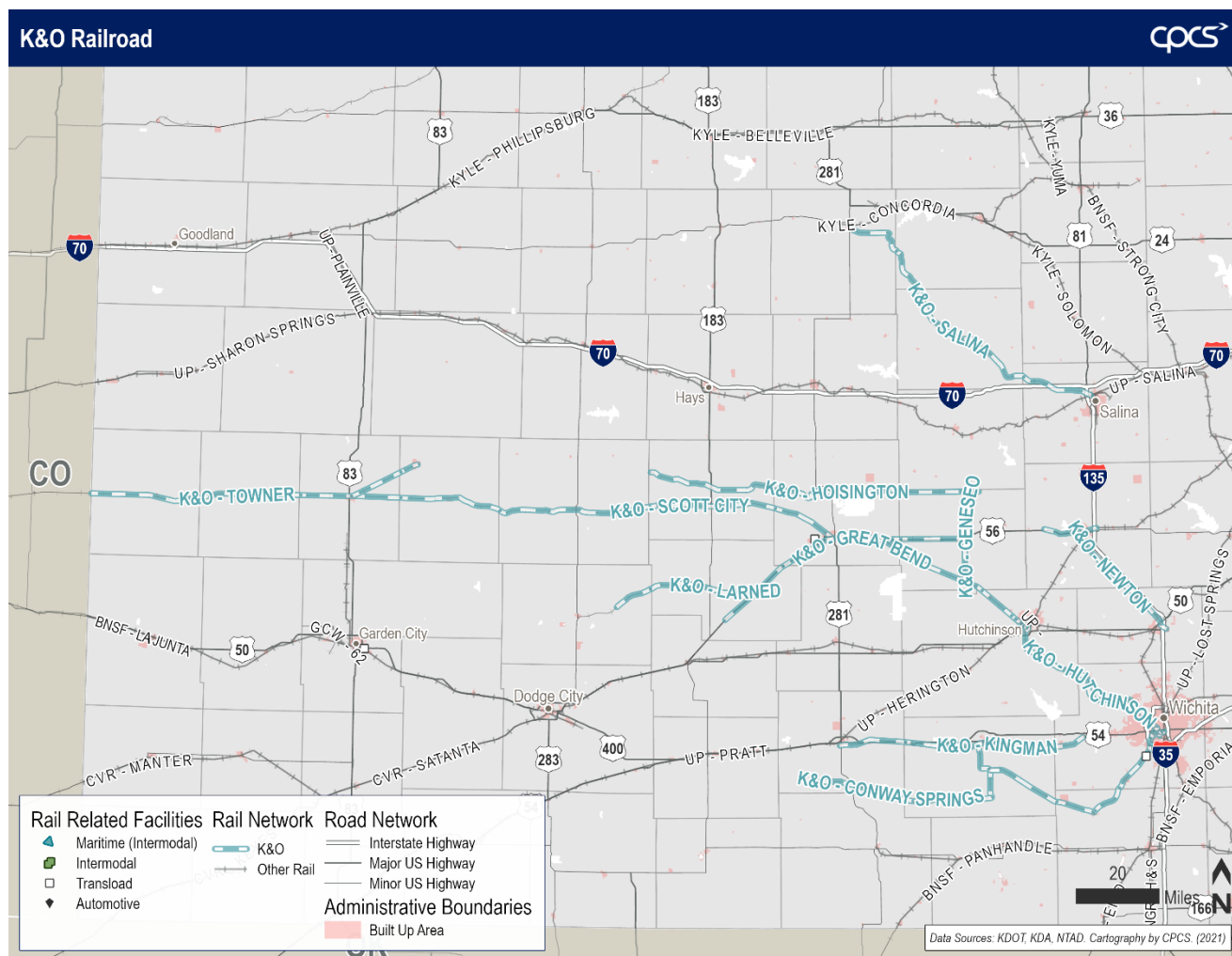
Source: WATCO.

K&O serves several facilities, including grain loading terminals, in Kansas.⁶³

⁶² WATCO, Kansas & Oklahoma Railroad (KO), <https://www.watco.com/service/rail/kansas-and-oklahoma-railroad-ko/>

⁶³ CPCS Analysis of Satellite Imagery on Google Maps.

Figure 5-28: K&O Railroad in Kansas (Map)



Kaw River Railroad/Kansas City Terminal Railroad

The Kaw River Railroad (KAW) is a short line railroad owned by Watco Companies with operations in eastern Kansas and western Missouri.⁶⁴ The Kansas City Terminal Railway Company (KCTR or KCT) is a Class III railroad with 95 miles of rail located in Kansas City (on both the Kansas and Missouri sides). KCTR serves as a terminal railroad for its five Class I railroad owners (Union Pacific, BNSF, Kansas City Southern, Norfolk Southern, and Canadian Pacific).⁶⁵

Figure 5-29 summarizes KAW/KCTR operations in Kansas. KAW operates 3.6 miles of KCTR railway in eastern Kansas, providing switching operations. KAW/KCTR interchanges with BNSF in Kansas City, KS, and with all five Class I owners in Kansas City, MO.⁶⁶ Amtrak also runs passenger rail service on portions of KAW/KCTR on the Missouri side through Union Station Kansas City.⁶⁷

In Kansas, KAW/KCTR operates 3 subdivisions (Figure 5-30). Figure 5-31 provides a map of the KAW/KCTR railroad in Kansas.

⁶⁴ Watco, Kaw River Railroad (KAW), <https://www.watco.com/service/rail/kaw-river-railroad-kaw/>

⁶⁵ KCT Railway, <http://kctrailway.com/>

⁶⁶ Watco, KAW Map, https://www.watco.com/wp-content/uploads/2020/11/KAW_MAP.pdf

⁶⁷ KCT Railway, <http://kctrailway.com/>

Figure 5-29: KAW/KCTR Railroad in Kansas (Summary Table)

Operating Miles	Miles Owned (Active)	Trackage Right Miles	No. of Subdivisions	No. of Open Grade Crossings
3.6	3.6	-	3	20

Source: KDOT; FRA Crossing Inventory Database, 2021. Analysis by CPCS, 2021.

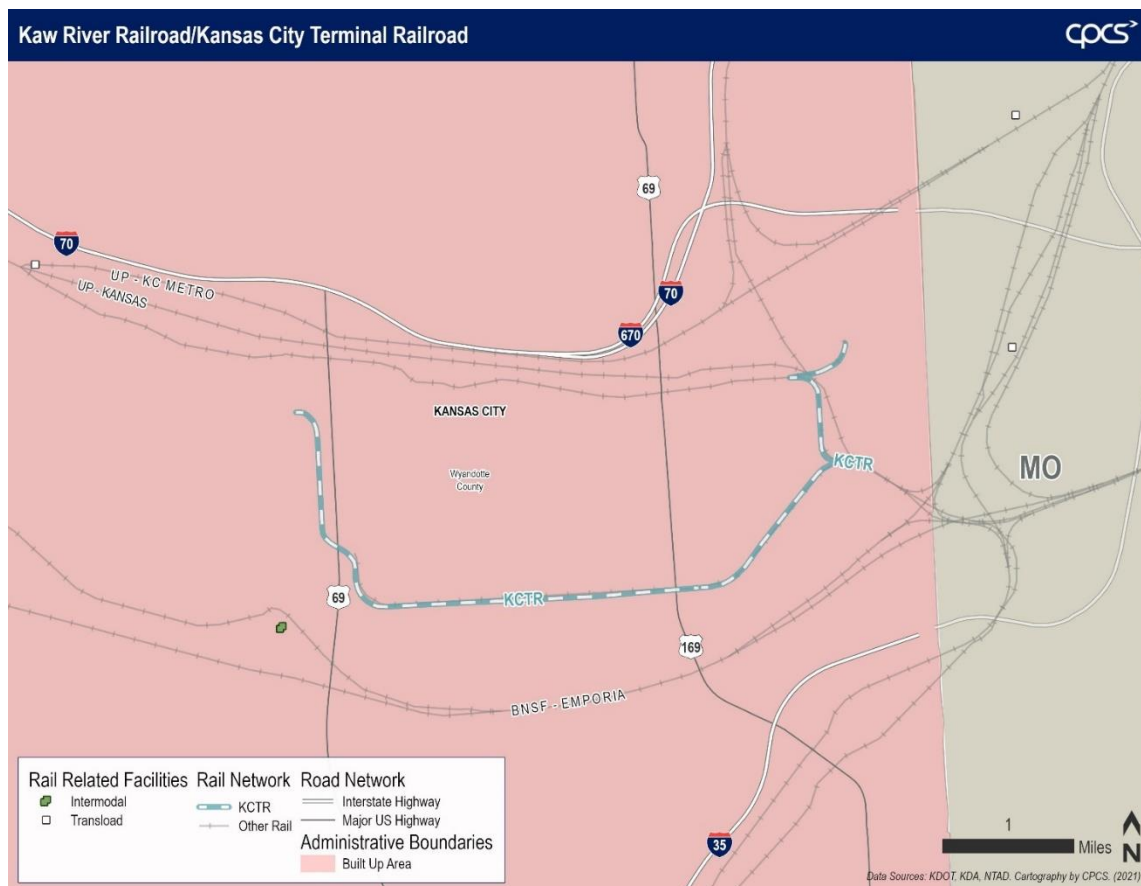
Figure 5-30: KAW/KCTR Subdivisions

Subdivision Name	Track Length (Miles)
Mainline	0.7
P & G	2.8
Versa	0.07

Source: KDOT

KAW/KCTR serves the Mill Street Yard and serves Kansas customers that include Proctor and Gamble, Advantage Metals Recycling, Carter Waters Corp, Darling Ingredients, Environmental Management of KC, Greenbrier Rail Services, Laminate Works, PQ Corporation, Transcoastal Supply, and VVF LLC, among others.⁶⁸

Figure 5-31: KAW/KCTR Railroad in Kansas (Map)



⁶⁸ CPCS Analysis of Satellite Imagery on Google Maps; KCS, KAW, <https://kcsouthern.com/pdf/short-line/kaw-river-railroad-kcti-kansas-city-transportation-co.pdf>

Kyle Railroad

The Kyle Railroad (KYLE) is a Class III railroad based in Phillipsburg, KS, and it is a subsidiary of short line operator Genesee and Wyoming Inc.⁶⁹ In Kansas, KYLE operates on 432 miles of active track in total across northern Kansas from Solomon, KS, east through the Colorado border to Limon, CO. KYLE interchanges with Class I railroads in Kansas – with BNSF in Courtland and Concordia, and with UP in Salina.

Figure 5-32 summarizes KYLE operations in Kansas. KYLE owns 285 miles of active track in Kansas, in addition to 6.6 miles of inactive track. KYLE also has an operational lease agreement with UP – KYLE has exclusive operation rights on 135.5 miles of UP-owned track. The combination of KYLE-owned and KYLE-exclusively operated active track (totaling 420 miles) makes up 9 percent of total active railroad mileage in Kansas. In addition, KYLE has trackage rights on 11 miles of UP-owned track (which K&O also has trackage rights on).

Figure 5-32: KYLE Railroad in Kansas (Summary Table)

Operating Miles	Miles Owned (Active)	Trackage Right Miles	Miles Leased (Operational Rights, Lessee)	No. of Subdivisions	No. of Open Grade Crossings
431.5	285	11	135.5	6	667

Source: Genesee & Wyoming, KYLE; FRA Crossing Inventory Database, 2021.

KYLE owns 4 subdivisions and exclusively operates 2 additional subdivisions (Figure 5-33) in Kansas. Figure 5-34 provides a map of the KYLE railroad in Kansas.

Figure 5-33: KYLE Railroad Subdivisions

Subdivision Name	Track Length (Miles)
Belleville (Owned)	101.9
Goodland (Owned)	27.7
Phillipsburg (Owned)	140.9
Yuma (Owned)	14.44
Concordia (Leased)	78.5
Solomon (Leased)	56.96

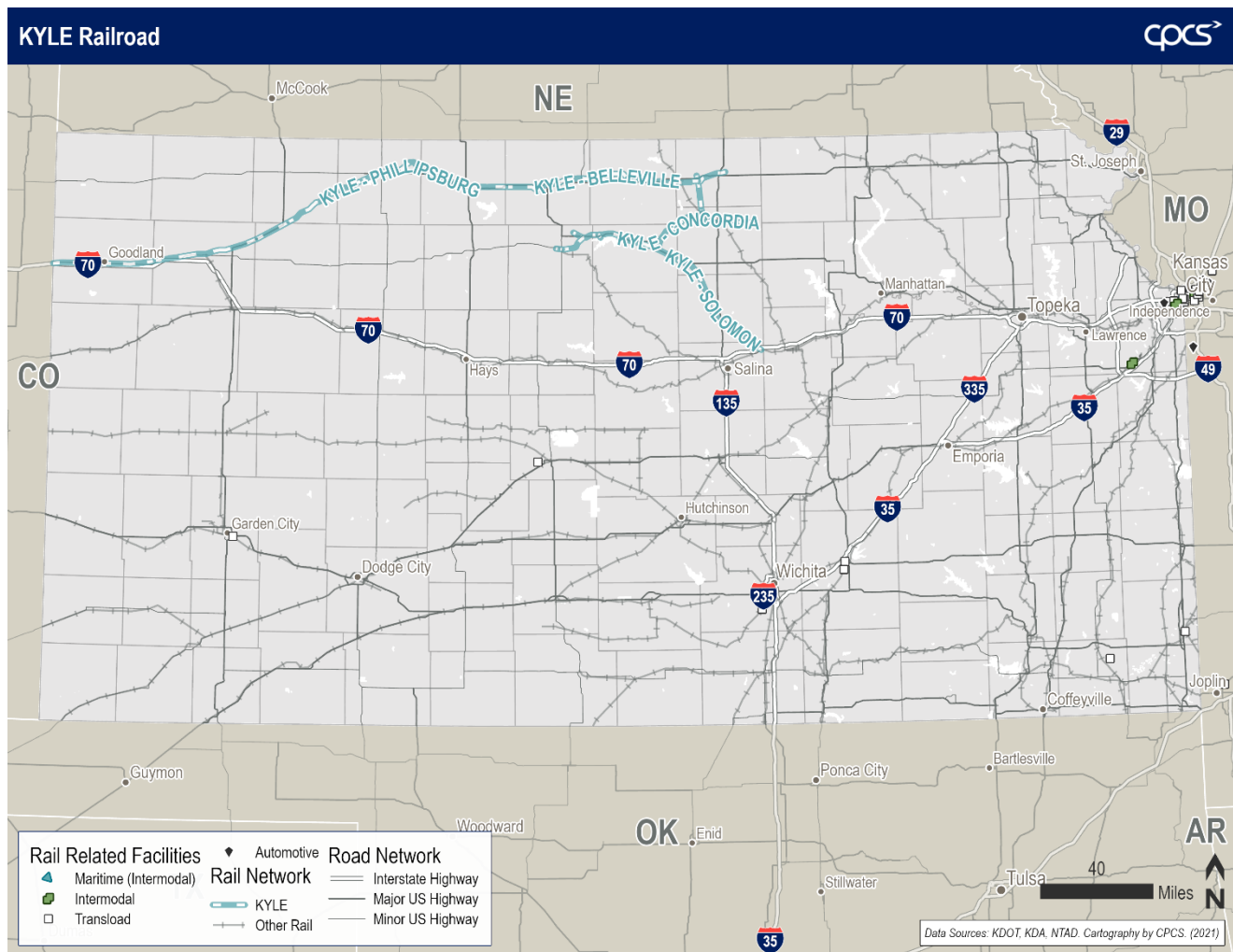
Source: KDOT; Genesee & Wyoming, KYLE.

KYLE serves several grain loading facilities in Western Kansas.⁷⁰

⁶⁹ Genesee and Wyoming, Kyle Railroad, https://www.gwrr.com/railroads/north_america/kyle_railroad#m_tab-one-panel; County of Phillips, KS, Rail, <https://www.phillipscountyks.org/rail>

⁷⁰ CPCS Analysis of Satellite Imagery on Google Map.

Figure 5-34: KYLE Railroad in Kansas (Map)



Missouri & Northern Arkansas Railroad

The Missouri & Northern Arkansas Railroad (M&NA) is a Class III railroad based in Carthage, MO, and is owned by Genesee and Wyoming Inc. In Kansas, M&NA owns and operates 2.8 miles of rail line in southeastern Kansas near Fort Scott, running east-west to the Kansas-Missouri border. All active M&NA track in Kansas is 286K compliant. While M&NA does not have any active interchanges with Class I railroads within Kansas, M&NA does connect to UP in Kansas City, MO, and to KCS and BNSF in Joplin, MO.⁷¹ M&NA also offers railcar storage in Kansas.⁷² M&NA has not handled a revenue carload over its line in Kansas between 2016 and 2021.⁷³

Figure 5-35 summarizes M&NA operations in Kansas. Figure 5-36 provides a map of the M&NA railroad in Kansas.

⁷¹ Genesee & Wyoming, Missouri & Northern Arkansas Railroad (MNA), Overview, https://www.gwrr.com/railroads/north_america/missouri_northern_arkansas_railroad#m_tab-one-panel

⁷² Genesee & Wyoming, Missouri & Northern Arkansas Railroad (MNA), Railcar Storage, https://www.gwrr.com/railroads/north_america/missouri_northern_arkansas_railroad#m_storage

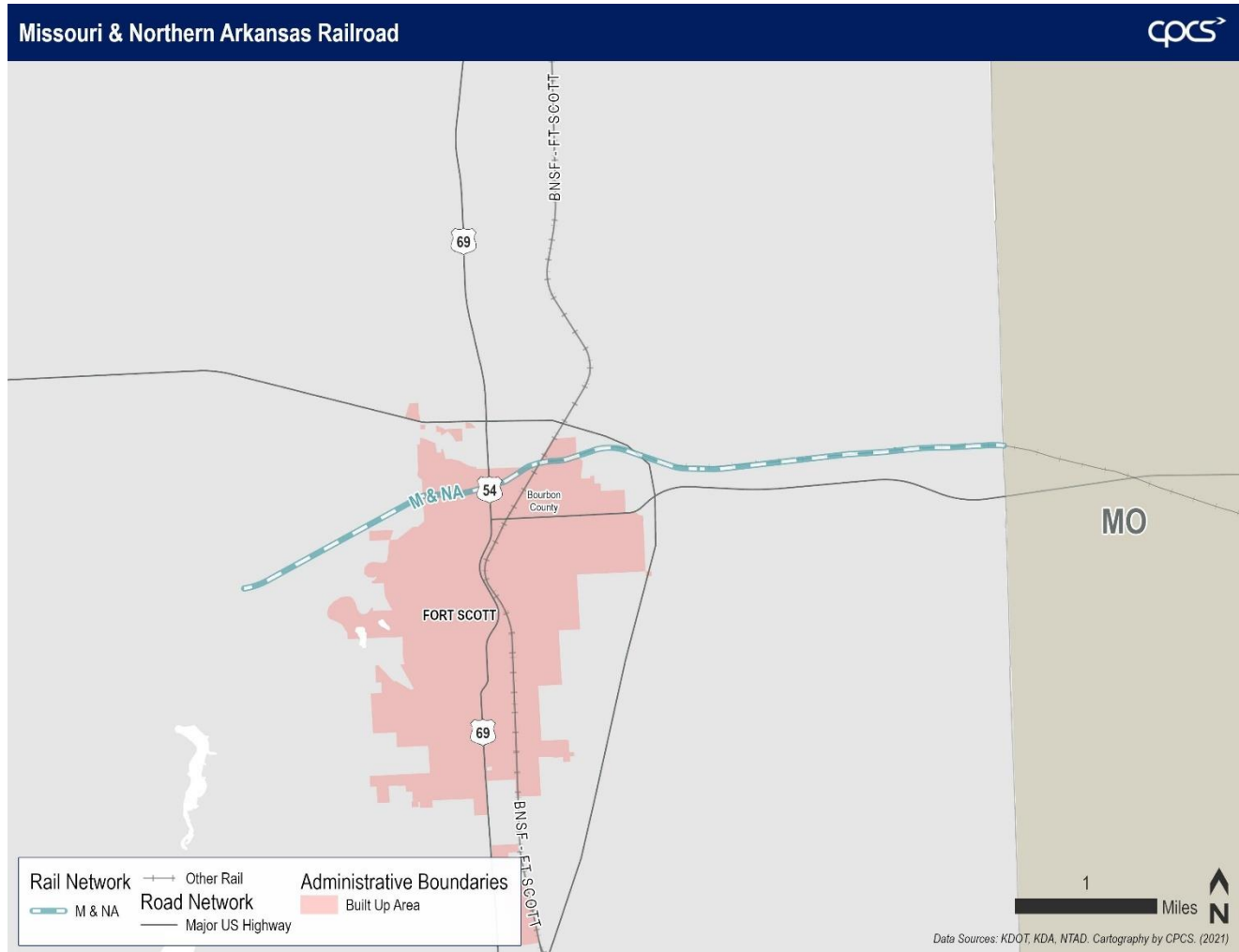
⁷³ Genesee & Wyoming, Missouri & Northern Arkansas Railroad (MNA).

Figure 5-35: M&NA Railroad in Kansas (Summary Table)

Operating Miles	Miles Owned (Active)	Trackage Right Miles	No. of Subdivisions	No. of Open Grade Crossings
2.8	2.8	--	1	2

Source: KDOT; FRA Crossing Inventory Database, 2021

Figure 5-36: M&NA Railroad in Kansas (Map)



New Century AirCenter Railroad

The New Century AirCenter Railroad (JCAX) is a short line railroad that provides operations to resident businesses at New Century AirCenter business park, which is owned by Johnson County and is located just southwest of Kansas City.⁷⁴ In Kansas, JCAX owns and operates 6.06 miles of track and connects to the BNSF Emporia subdivision.

Figure 5-37 summarizes JCAX operations in Kansas. Figure 5-38 provides a map of the JCAX in Kansas.

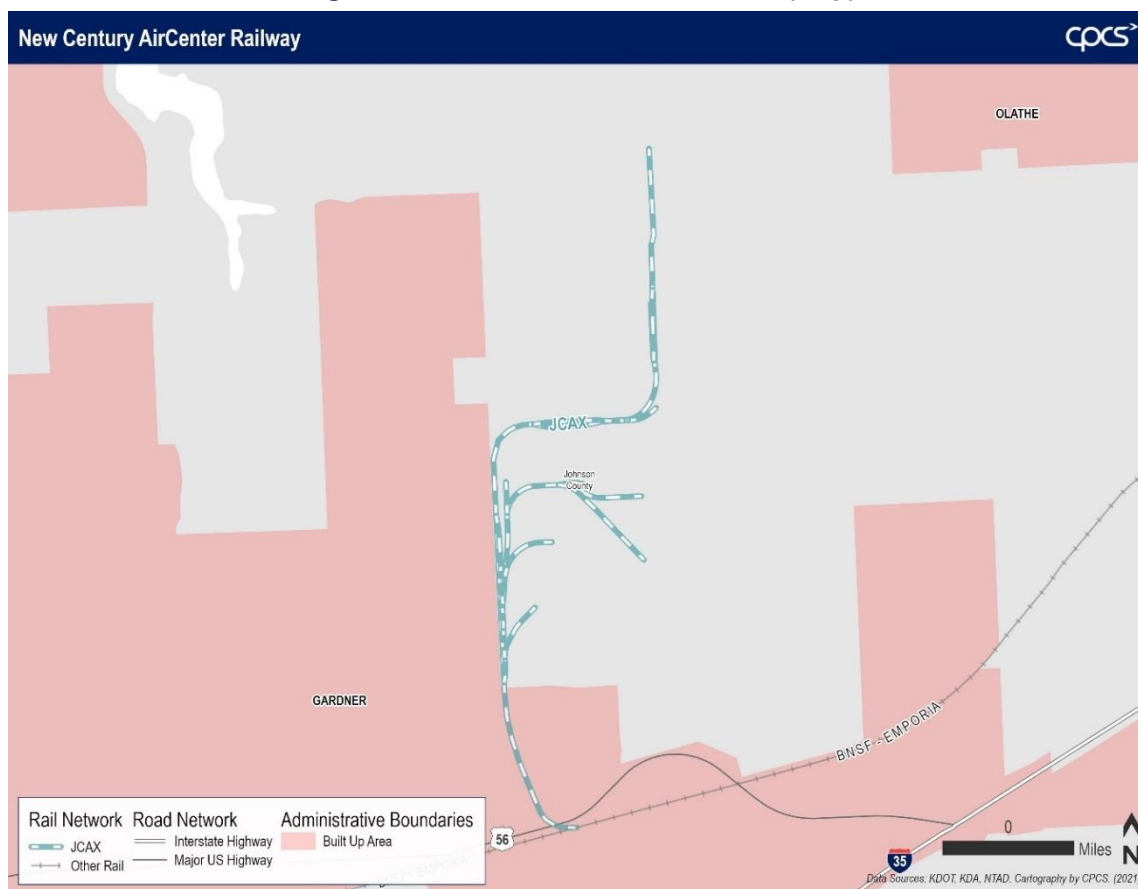
Figure 5-37: JCAX in Kansas (Summary Table)

Operating Miles	Miles Owned (Active)	Trackage Right Miles	No. of Subdivisions	No. of Open Grade Crossings
6.06	6.06	--	1	13

Source: KDOT; Johnson County Airport Commission.

As a business park railroad, JCAX serves eight of its 63 resident companies, including chemical manufacturing, food production and distribution, building materials supply and distribution, steel production and distribution, and plastics manufacturing.⁷⁵ JCAX also provides rail car storage.⁷⁶

Figure 5-38: JCAX Railroad in Kansas (Map)



⁷⁴ Johnson County, Kansas, Airport Commission, Business Park, <https://www.jocogov.org/dept/airport-commission/business-park>

⁷⁵ Consultation, New Century AirCenter Railroad, June 2, 2021; Johnson County, Kansas, Airport Commission, Business Park, <https://www.jocogov.org/dept/airport-commission/business-park>

⁷⁶ Consultation, New Century AirCenter Railroad, June 2, 2021.

Nebraska, Kansas & Colorado Railway

The Nebraska, Kansas, & Colorado Railway (NKCR), based in Grant, Nebraska is owned by OmniTRAX headquartered in Denver, CO.⁷⁷ In Kansas, NKCR is a Class III railroad that owns 74 miles of rail on its St. Francis subdivision. However, this line is currently inactive in Kansas. Figure 5-39 summarizes NKCR in Kansas, and Figure 5-40 provides a map of the NKCR railroad in Kansas.

Figure 5-39: NKCR in Kansas (Summary Table)

Operating Miles	Miles Owned (Inactive)	Trackage Right Miles	No. of Subdivisions	No. of Open Grade Crossings
--	74	--	1	110

Source: KDOT; FRA Crossing Inventory Database, 2021

Figure 5-40: NKCR Railroad in Kansas (Map)



⁷⁷ OmniTRAX, Nebraska, Kansas, & Colorado Railway LLC, <https://omnitrax.com/our-company/our-railroads/nebraska-kansas-colorado-railway-llc/>

South Kansas & Oklahoma Railroad

The South Kansas & Oklahoma Railroad (SKOL) is owned by Watco Companies, a short line operator, and is based in Cherryvale, KS with operations primarily in Kansas, Oklahoma, and a small part of Missouri.⁷⁸ In Kansas, SKOL is a Class III railroad operating on 350 miles of active track in total throughout southeastern Kansas.

SKOL is centered in Cherryvale, KS and runs outward in five directions: north to Humboldt, KS; west to Oxford, KS; southwest across the Oklahoma border to Tulsa, OK; south to Coffeyville, KS; and east through Pittsburg and across the Missouri border to Liberal, KS. In Kansas, SKOL interchanges with UP and BNSF in Winfield, with UP in Coffeyville and Neodesha, with BNSF in Columbus, with KCS in Pittsburg, with K&O in Wichita.⁷⁹

Figure 5-41 summarizes SKOL operations in Kansas. SKOL owns 287 miles of active track in Kansas, in addition to 5.3 miles of inactive track. SKOL active track makes up over 6 percent of active railroad mileage in Kansas. SKOL also has trackage rights on 63 miles of BNSF-owned track.

Figure 5-41: SKOL Railroad in Kansas (Summary Table)

Operating Miles	Miles Owned (Active)	Trackage Right Miles	No. of Subdivisions	No. of Open Grade Crossings
349.8	287.2	62.6	17	770

Source: KDOT; WATCO.

In Kansas, SKOL operates 17 unique subdivisions, one of which is a spur (Figure 5-42). The following page provides a map of the SKOL railroad in Kansas (Figure 5-43).

Figure 5-42: SKOL Subdivisions

Subdivision Name	Track Length (Miles)	Subdivision Name	Track Length (Miles)
292	1.1	312	0.1
293	0.4	506 (spur)	2.3
294	0.1	Chanute	5.4
295	5.4	Coffeyville	47.6
306	0.6	Coffeyville Spur	0.7
307	0.2	Moline	86.3
308	0.2	Neodesha	70.5
310	0.2	Tulsa	66.0
311	0.1		

Source: KDOT

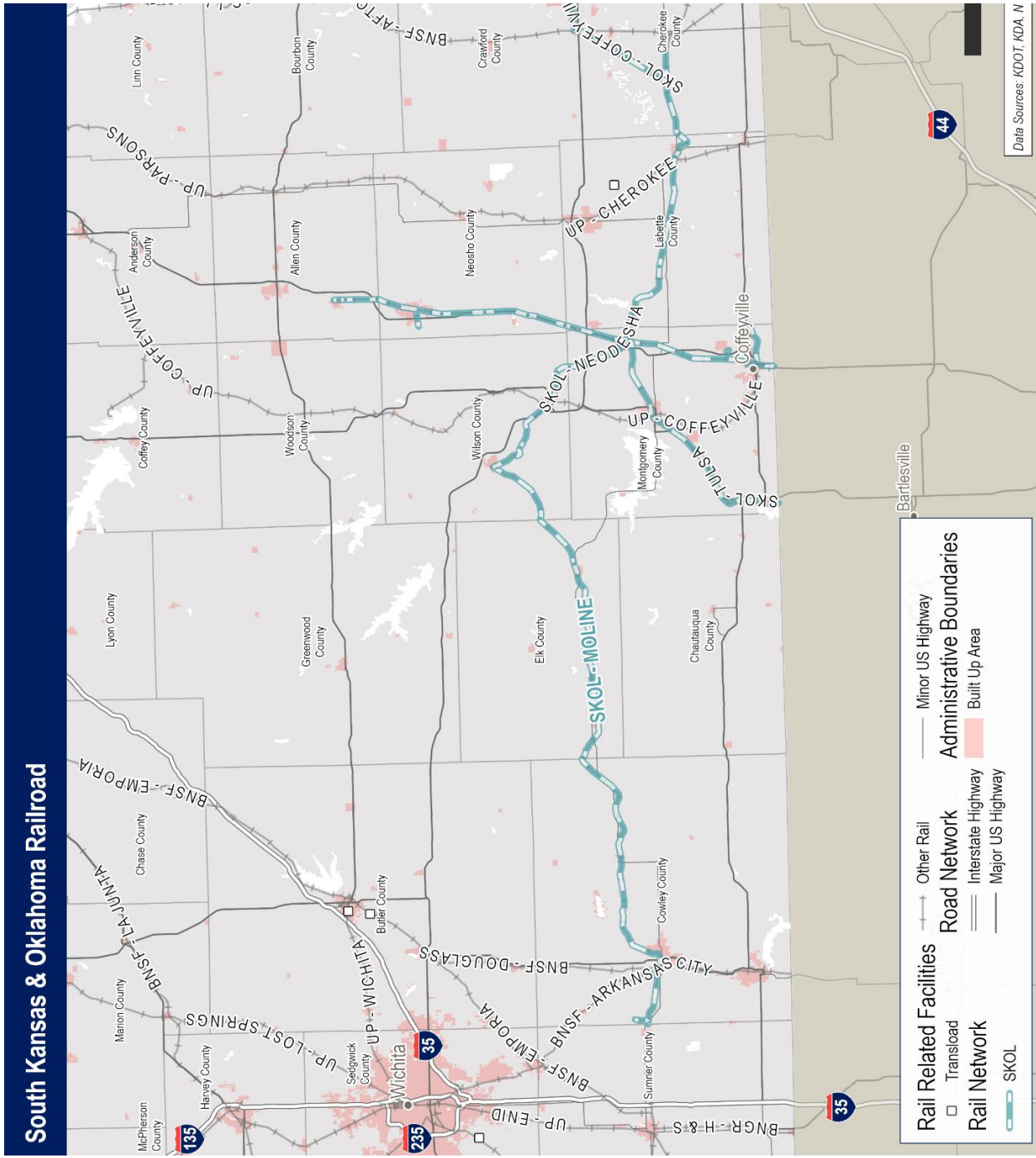
SKOL serves several facilities in Kansas.⁸⁰

⁷⁸ Watco, South Kansas & Oklahoma Railroad (SKOL), <https://www.watco.com/service/rail/skol/>

⁷⁹ Watco, South Kansas & Oklahoma Railroad (SKOL), <https://www.watco.com/service/rail/skol/>

⁸⁰ CPCS Analysis of Satellite Imagery on Google Maps/

Figure 5-43: SKOL Railroad in Kansas (Map)



V&S Railway

The V&S Railway (V&S) is a Class III railroad based in Medicine Lodge, KS. V&S is owned by Affiliated Railroads. In Kansas, V&S owns and operates 21 miles of rail line between Medicine Lodge and Attica, KS on its Medicine Lodge subdivision that connects with the BNSF Panhandle subdivision in Attica. V&S also owns and operates 3.5 miles of rail line in Hutchinson, KS that connects with UP and BNSF.

Figure 5-44 summarizes V&S operations in Kansas, and Figure 5-45 details its subdivisions in the state. Figure 5-46 provides a map of the V&S railway in Kansas.

Figure 5-44: V&S Railway in Kansas (Summary Table)

Operating Miles	Miles Owned (Active)	Trackage Right Miles	No. of Subdivisions	No. of Open Grade Crossings
24.5	24.5	--	2	36

Source: Affiliated Railroads; FRA Crossing Inventory Database, 2021. Analysis by CPCS, 2021.

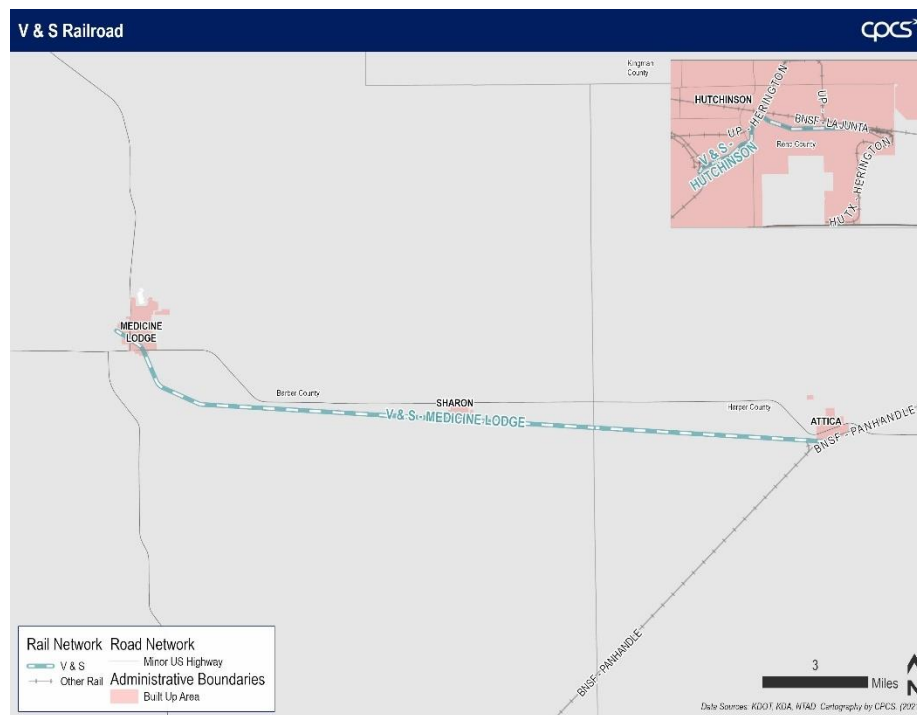
Figure 5-45: V&S Railway Subdivisions

Subdivision Name	Track Length (Miles)
Medicine Lodge	21
Hutchinson	3.5

Source: Affiliated Railroads.

V&S serves the National Gypsum Company, Wildcat Minerals, and the Farmers Co-op, among other customers. V&S carries commodities such as gypsum wallboard, plaster, grain, frac sand, and petroleum along its line. The railway also stores and repairs rail cars.⁸¹

Figure 5-46: V&S Railway in Kansas (Map)



⁸¹ V&S Railway, LLC - Medicine Lodge Division, <http://www.vsrailway.com/affiliated-railroads/v-s-railway-llc-medicine-lodge-division>

Wichita Terminal Association Railroad

The Wichita Terminal Association Railroad is a terminal company jointly owned by UP and BNSF, handling switching operations north of Wichita and serving as the interchange carrier between the two Class I railroads.⁸² In Kansas, the Wichita Terminal Association Railroad owns and operates 6.7 miles of rail line in Wichita. This includes two subdivisions – Arkansas City and United.

Figure 5-47 summarizes Wichita Terminal Association Railroad operations in Kansas, and Figure 5-48 details its subdivisions in the state. Figure 5-49 provides a map of the Wichita Terminal Association Railroad in Kansas.

Figure 5-47: Wichita Terminal Association Railroad in Kansas (Summary Table)

Operating Miles	Miles Owned (Active)	Trackage Right Miles	No. of Subdivisions	No. of Open Grade Crossings
6.7	6.7	--	2	14

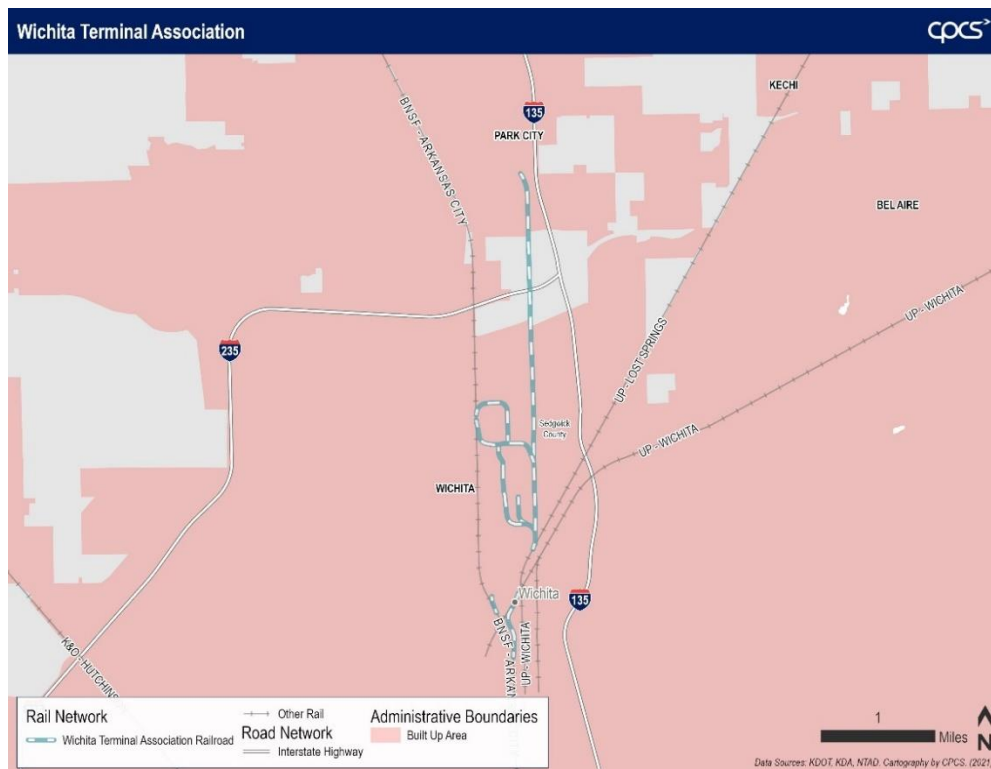
Source: KDOT; FRA Crossing Inventory Database, 2021

Figure 5-48: Wichita Terminal Association Railroad Subdivisions

Subdivision Name	Track Length (Miles)
Arkansas City	3.4
United	3.3

Source: KDOT

Figure 5-49: Wichita Terminal Association Railroad in Kansas (Map)



⁸² Wichita Terminal Association, <https://wtarr.com/faq/>

5.2 Rail-Served Multimodal Facilities

Rail-served multimodal facilities connect rail to other modes. In Kansas, these facilities primarily connect the rail system to the road network. Figure 5-51 illustrates the rail-served multimodal facilities in Kansas serving Class I railroads.

Intermodal Terminals

Intermodal terminals transfer containers between rail and other modes, with goods staying in the same container. There is one Class I intermodal terminal in Kansas – Logistics Park Kansas City, which is located in Edgerton and is owned and operated by BNSF. Three additional Class I intermodal terminals are located across the state border in Kansas City, MO – the KCS International Freight Gateway, the UP Kansas City Intermodal Terminal, and the NS Kansas City Intermodal Terminal. These intermodal terminals are detailed in Figure 5-50.

Figure 5-50: Intermodal Terminals in Kansas and Kansas City

Railroad	Facility Name	Location	Type	Commodities
BNSF	Logistics Park Kansas City (LPKC)	Edgerton, KS	Intermodal	Shipping Containers and Various Commodities
KCS	International Freight Gateway (IFG)	Kansas City, MO	Intermodal, Automotive	Motor Vehicles, Shipping Containers, All Commodities.
UP	Kansas City Intermodal Terminal	Kansas City, MO	Intermodal	Shipping Containers and All Commodities

Source: BNSF Railway, Facilities, <http://www.bnsf.com/ship-with-bnsf/support-services/facility-listings.page>; KCS, Network Map, <https://www.kcsouthern.com/en-us/why-choose-kcs/our-network/network-map>; KCS, U.S. Intermodal Ramps, June 2021, <https://kcsouthern.com/pdf/kcsr-intermodal-ramps/kcsr-us-intermodal-ramps.pdf>; UP, Intermodal Facilities Map & Profiles, <https://www.up.com/customers/premium/intmap/index.htm>.

Logistics Park Kansas City (LPKC), located in Edgerton, KS, is served by the BNSF Emporia subdivision. LPKC provides domestic and international intermodal service, as well as direct-rail/carload service. Customers including Amazon, Hostess, and UPS have operations at LPKC.⁸³ The park was designed with the capacity to handle 500,000 annual container lifts, with BNSF indicating the terminal will be able to handle 1.5 million lifts per year at full buildout.⁸⁴

International Freight Gateway (IFG), located in Kansas City, MO, is served by KCS. IFG has container-on-flatcar (COFC), trailer-on-flatcar (TOFC), and automotive intermodal capabilities. IFG has a lift capacity of 96,000. In 2020, the terminal handled a total of 23,635 intermodal lifts and 40,491 finished vehicles.⁸⁵

UP Kansas City Intermodal Terminal, located in Kansas City, MO, is served by UP. The intermodal terminal has COFC and TOFC capabilities.⁸⁶

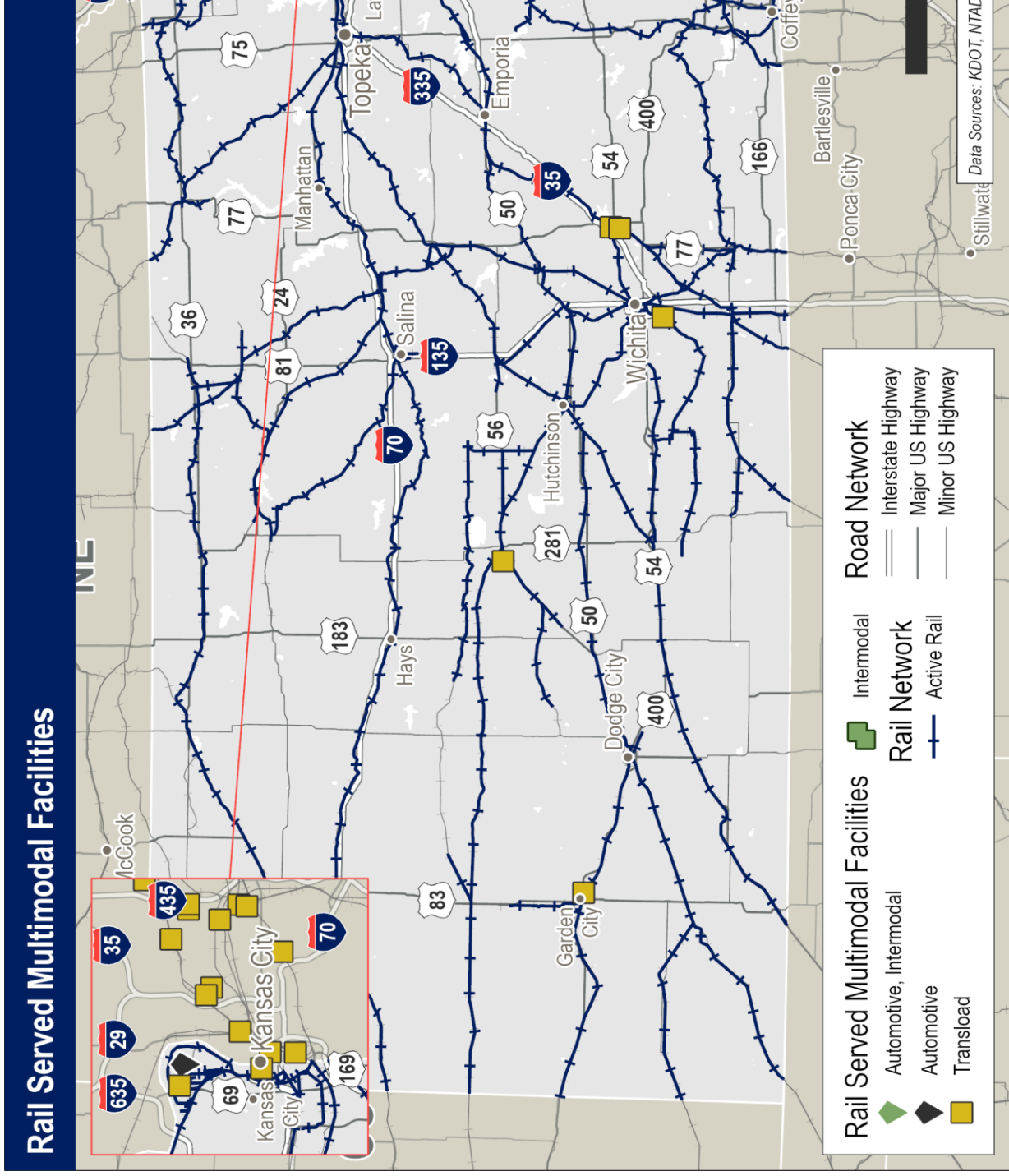
⁸³ Logistics Park Kansas City, <https://www.logisticsparkkc.com/>.

⁸⁴ Progressive Railroad, Kansas logistics park offers big intermodal-growth potential for BNSF, January 2017.

⁸⁵ KCS, U.S. Intermodal Ramps, June 2021, <https://kcsouthern.com/pdf/kcsr-intermodal-ramps/kcsr-us-intermodal-ramps.pdf>

⁸⁶ UP, Kansas City Intermodal Terminal, <https://www.up.com/customers/premium/intmap/kc/index.htm>

Figure 5-51: Rail-Served Multimodal Facilities in Kansas



Transload Facilities

Transload facilities transfer products between rail and other modes by loading and unloading goods, with the transfer depending on the type of good. Transload facilities encompass a range of facilities, including but not limited to bulk transload terminals, warehousing and storage facilities, and rail sidings that allow for direct transfer of cargo. Class I railroads operate eight transload facilities within Kansas, with four BNSF transload facilities and four UP transload facilities. Kansas' Class I railroads also operate 14 transload facilities across the state border in Kansas City, Missouri. These transload facilities are detailed in Figure 5-52.

Figure 5-52: Transload Facilities in Kansas and Kansas City

Railroad	Facility Name	Location	Type	Commodities
BNSF	Transportation Partners & Logistics	Garden City, KS	Transload	Lumber, Generators/trans, Machinery, Pipe, Rail Equipment, Bricks, Railroad Ties, Insulation/siding, Poles & Posts, Roofing Materials, Irons Structural, Plate, Wind Energy Components
BNSF	Garvey Public Warehouse	Wichita, KS	Transload	Plywood, Oriented Strand Board, Lumber, Gypsum Wallboard, Particle Board, Bricks, Railroad Ties, Roofing Materials, Ingots
BNSF	Savage Services Corp	El Dorado, KS	Transload	Bricks, Railroad Ties, Roofing Materials, Poles & Posts, Plate, Alumina, Lead, Aluminum, Zinc, Copper, Machinery, Generators/trans, Tires, Ammonia, Urea Ammonium Nitrates, Dry Phosphates, Sulphur, Urea, Liquid Phosphates, Potash, Acids, Chlorates/peroxide, Caustic Soda, Industrial Gases, Plastics Feedstocks, Intermediates, Sulfuric Acid, Alcohols/solvents, Coke-Green, Asphalt, Carbon Black, Lubes/oils/waxes, Ethanol, Dynamic, Other Lpg, Other Lpg, Polyethylene, Polyvinyl Chlor
BNSF	Harcros Chemicals	Kansas City, KS	Transload	Potash, Sulfuric Acid, Urea, Acids, Caustic Soda, Chlorates/peroxide, Intermediates, Paints/pigments, Alcohols/solvents, Canola Oil, Oil Foots, Cottonseed Oil, Soybean Oil, Vegetable Oil, Linseed/sunflower Oil
BNSF	Norag LLC	Kansas City, MO	Transload	Plywood, Gypsum Wallboard, Oriented Strand Board, Particle Board, Railroad Ties, Bars, Irons Structural, Scrap, Ingots, Pipe, Tin Plate, Irons Sheet, Plate, Dry Phosphates, Sulphur, Urea, Potash, Ethanol, Salt, Crushed Stone, Limestone, Fly Ash, Gypsum, Roofing Granules, Corn Products, Distillers, Prepared Feeds, Barley, Oats, Rye, Corn, Corn, Popcorn, Soybeans, Milo, Rice, Canola Meal, Sunflower
BNSF	Murphy Logistics Co.	Kansas City, MO	Transload	Paper Waste/scrap, Plywood, Oriented Strand Board, Gypsum Wallboard, Particle Board, Bricks, Insulation/siding, Railroad Ties, Roofing Materials, Bars, Ingots, Irons Sheet, Beer, Wine/other Beverages, Household Appliances, Printing Paper, Pulpboard, Woodpulp, Grocery Products, Canned Foods, Poles & Posts, Irons Structural, Scrap, Pipe, Tin Plate, Plate, Alumina, Lead, Aluminum, Zinc,

Railroad	Facility Name	Location	Type	Commodities
				Copper, Machinery, Government, Generators/trans, Cotton, Tires, Grass Seeds
BNSF	Metro Park Warehouse Quebec	North Kansas City, MO	Transload	Canned Foods, Grocery Products, Wine/other Beverages, Copper, Printing Paper, Beer, Pulpboard, Woodpulp, Household Appliances
BNSF	Consolidated Transfer & Warehouse	Kansas City, MO	Transload	Household Appliances, Tires, Lumber, Roofing Materials, Particle Board, Printing Paper, Pulpboard, Canned Foods, Gypsum Wallboard, Paper Waste/scrap, Plywood, Oriented Strand Board, Bricks, Railroad Ties, Insulation/siding, Poles & Posts, Bars, Irons Structural, Scrap, Ingots, Pipe, Tin Plate, Irons Sheet, Plate, Alumina, Aluminum, Copper, Lead, Zinc, Machinery, Generators/trans, Woodpulp, Cotton, Grass Seeds, Scoria/pumice, Salt, Sand, Crushed Stone, Con Sand & Gravel, Granite, Roofing Granules,
BNSF	Midwest Reload	Kansas City, MO	Transload	Irons Sheet, Irons Structural, Ingots, Bars, Pipe, Plate, Tin Plate, Alumina, Aluminum, Rail Equipment, Generators/trans, Spec Rail Proj, Government, Plywood, Oriented Strand Board, Lumber, Bricks, Poles & Posts, Printing Paper
KCS	Quality Carriers	Kansas City, MO	Transload	Bulk Materials, Liquids/Oil
KCS	Central Missouri Reload (E 14 Terrace)	Kansas City, MO	Transload	Paper & Forest Products, Metals/Steel, Aluminum
KCS	Central Missouri Reload (St John Ave)	Kansas City, MO	Transload	Paper & Forest Products, Metals/Steel, Aluminum
KCS	Wagner Industries	Kansas City, MO	Transload	Paper & Forest Products, General Merchandise
KCS	Metro Park Warehouse	Kansas City, MO	Transload	Paper & Forest Products, Grocery Products, Candy, Appliances, Alcoholic Beverages
KCS	Standard Transportation	Webb City, MO	Transload	Paper & Forest Products, Metal/Steel
UP	Loup Network Partner (2223)	Kansas City, KS	Transload	Food, Hazmat-Liquid, Liquid Bulk
UP	Loup Network Partner (52341)	Kansas City, KS	Transload	Aggregate, Dry Bulk, Equipment/ Machinery, Ferrous Metals, Food, Food-Refrig/Frozen, Liquid Bulk, Lumber, Merchandise, Non-Ferrous Metals, Over Dimensional, Paper, Plastics
UP	Loup Network Partner (29)	El Dorado, KS	Transload	Dry Bulk, Ferrous Metals, Hazmat-Dry, Hazmat-Liquid, Liquid Bulk, Lumber, Non-Ferrous Metals, Paper, Plastics

Railroad	Facility Name	Location	Type	Commodities
UP	Loup Network Partner (23921)	Pittsburg, KS	Transload	Equipment/Machinery, Ferrous Metals, Food, Hazmat-Liquid, Liquid Bulk, Lumber, Merchandise, Non-Ferrous Metals, Over Dimensional, Paper, Plastics
UP	Loup Network Partner (51982)	Kansas City, MO	Transload	Food, Food-Refrig/Frozen
UP	Loup Network Partner (73505)	Kansas City, MO	Transload	Aggregate, Dry Bulk, Equipment/ Machinery, Ferrous Metals, Food, Hazmat-Dry, Hazmat-Liquid, Liquid Bulk, Lumber, Non-Ferrous Metals, Over Dimensional, Plastics
UP	Loup Network Partner (157)	Kansas City, MO	Transload	Aggregate, Equipment/Machinery, Food, Merchandise, Non-Ferrous Metals, Paper, Plastics
K&O	Great Bend Transload Facility	Great Bend, KS	Transload	Wind Energy Components, Cement, Aggregate

Source: BNSF Railway, Maps and Shipping Locations, Premier Transload Map, <https://www.bnsf.com/ship-with-bnsf/maps-and-shipping-locations/transload/transload-network-map.html>; KCS, Network Map, <https://www.kcsouthern.com/en-us/why-choose-kcs/our-network/network-map>; Loup Logistics; UP, LOUP, Transload Facility Search Map, <https://www.louplogistics.com/sps/jas/index.html>; Great Bend Transload Facility, <https://www.gbedinc.com/great-bend-transload-facility>

Automotive Facilities

Automotive facilities connect vehicle assembly or distribution facilities to the rail system. Kansas' Class I railroads operate three automotive facilities in Kansas City, KS, and one automotive facility in Kansas City, MO. These facilities serve various automotive customers, including Ford, General Motors, and Toyota, among others. These automotive facilities are detailed in Figure 5-53

Figure 5-53: Automotive Facilities in Kansas and Kansas City

Railroad	Facility Name	Location	Type	Commodities
BNSF	Kansas City Vehicle Facility (Argentine)	Kansas City, KS	Automotive	Motor Vehicles. Provides loading for Ford, and unloading for Kia, Honda, Hyundai, Mazda, Subaru, and Toyota.
KCS	International Freight Gateway – IFG	Kansas City, MO	Intermodal, Automotive	Motor Vehicles, Shipping Containers, All Commodities. Provides loading for Ford.
UP	Kansas City Vehicle Facility (Fairfax)	Kansas City, KS	Automotive	Motor Vehicles. Provides loading for General Motors.
UP	Kansas City Vehicle Facility (Muncie)	Kansas City, KS	Automotive	Motor Vehicles. Provides loading for Ford, and unloading for Chrysler, Nissan, and Toyota.

Source: Association of American Railroads, Automotive Facility Guide, January 2019, <https://aar.com/standards/pdfs/2019%20AAR%20Terminal%20Guide%20Master%201.1.19.pdf>; BNSF Railway, Automotive Map, April 2015, <https://bnsf.com/bnsf-resources/images/ship-with-bnsf/maps-and-shipping-locations/automotive-map-0.png>; BNSF Railway, Facilities, <http://www.bnsf.com/ship-with-bnsf/support-services/facility-listings.page>; KCS, Network Map, <https://www.kcsouthern.com/en-us/why-choose-kcs/our-network/network-map>; KCS, U.S. Intermodal Ramps, June 2021, <https://kcsouthern.com/pdf/kcsr-intermodal-ramps/kcsr-us-intermodal-ramps.pdf>; UP, Automotive Facilities, https://www.up.com/customers/premium/facility_profiles/index.htm.

Maritime Facilities

Port KC is an inland port located in Kansas City, MO that provides connections to the road, rail, and waterway systems across the Kansas state border. In 2017, a rail spur was constructed to connect the port to Union Pacific, providing direct rail service to the port. The port also connects goods to the Missouri River system.⁸⁷

Grain Elevators

Agriculture is a key freight industry for Kansas, with top commodities such as wheat, corn, and sorghum moving along Kansas' rail network. Grain elevators are critical to the storage, handling, and movement of these key agricultural commodities throughout Kansas.

There are 590 grain elevators in Kansas, 258 of which (44 percent) are operating with U.S. Department of Agriculture (USDA) licenses, while the rest are licensed by KDA. KDA requires that any grain storage facility for public use be licensed by either the state or federal government. Grain elevators with USDA licenses are subject to federal regulations and are not required to obtain a state license.⁸⁸ Moundridge in McPherson has the highest number of grain elevators (41), followed by Oakley in Logan County with 29 elevators, Parsons in Labette County with 25 elevators, and Beloit in Mitchell County with 19 elevators.

An estimated 55 percent of grain elevators in Kansas have rail access. Figure 5-54 lists the grain elevators in the state that are served by BNSF and UP railroads. BNSF trains provide rail access for 47 grain elevators in Kansas, while UP trains serve 65 shuttle train elevators.⁸⁹ Other railroads that serve grain elevators in Kansas include CVR, K&O, KYLE, SKOL, and Wichita Terminal Association Railroad. Figure 5-55 presents a map of the density of grain elevators in Kansas and the rail system that serves them.

Figure 5-54: Kansas Grain Elevators Served by Class I Railroads

Company	City	Railroad
Agmark	Beloit	BNSF
Alida Pearl Coop Assn	Chapman	UP
Alma Cooperative Oil Assn	Alma	UP
Agri Trails Coop	Hope	BNSF, UP
Alliance Ag & Grain Llc	Spearville	BNSF, UP
Bartlett Coop Assn	Bartlet	UP
Beachner Grain Inc	Parson	BNSF, UP
Beachner Grain Inc	Wichita	BNSF
Blair Milling & Elev Co Inc	Atchison	UP
Blair Milling & Elev Co Inc	Seneca	UP
Cairo Coop Equity Exchange	Cunningham	UP
Cornerstone Ag Llc	Colby	UP
Dodge City Coop Exchange	Dodge City	BNSF, UP
Elbing Grain Llc	Elbing	UP

⁸⁷ Port KC, Transportation, <https://portkc.com/transportation/port-of-kansas-city/>

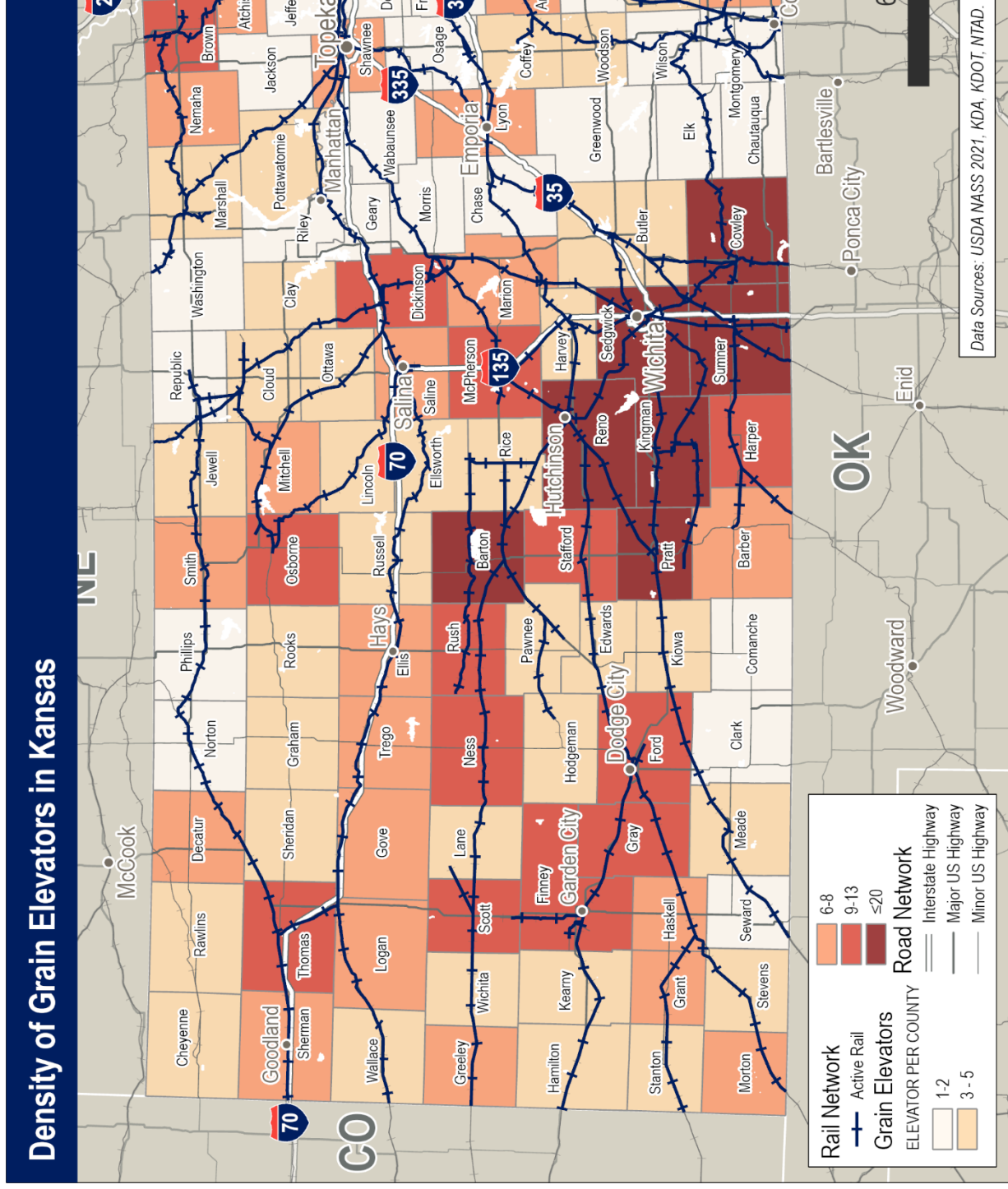
⁸⁸ Kansas Department of Agriculture, Grain Warehouse Program, 2021. <https://agriculture.ks.gov/divisions-programs/grain-warehouse>

⁸⁹ Kansas Department of Revenue, Grain Elevator Appraisal Guide for the State of Kansas, 2021, <https://www.ksrevenue.org/pdf/2021KSGrainElevatorGuide.pdf>

Company	City	Railroad
Ellsworth Coop (The)	Ellsworth	UP
F & F Feeds Inc	Emporia	BNSF
Farmers Coop Assn	Columbus	BNSF
Farmers Coop Assn	Manhattan	UP
Farmers Coop Grain Co	Caldwell	UP
Farmers Union Coop Co	Spring Hill	BNSF
Fleming Feed & Grain Co Inc	Leon	BNSF
Fowler Equity Exchange	Fowler	UP
Frontier Ag Inc	Oakley	UP
Grain Craft	Kansas City	BNSF
Grain Products Co	Dodge City	BNSF
Grangers Coop Assn	Lebo	BNSF
Guetterman Brothers Elevator Inc	Bucyrus	UP
Hi Plains Coop Assn	Colby	UP
Jackson Farmers Inc	Holton	UP
Jean Istas DbA Aurora Grain Co	Aurora	BNSF
Kanza Cooperative Association	Iuka	BNSF, UP
Leroy Coop Assn	Leroy	UP
Lewis Seed & Fertilizer Inc DbA Home City Grain	Home	UP
Minneola Coop Inc	Minneola	UP
Morrill Elevator Inc	Morrill	UP
Murphy's Llc	Lebo	BNSF
Offerle Co-Op Grain & Supply Co	Offerle	BNSF, UP
Producers Coop Assn	Girard	BNSF
Reading Grain & Lumber Inc	Reading	BNSF
Scoular Company	Salina	BNSF, UP
Stafford Co Flour Mills Co	Hudson	BNSF
Team Marketing Alliance Llc	Moundridge	BNSF, UP
Turon Mill & Elevator Inc	Turon	UP
Topeka Terminal Llc	Topeka	BNSF
Two Rivers Consumers Coop Assn	Arkansas City	BNSF
United Ag Service Inc	Gorham	UP
Valley Co-Op Inc	Winfield	BNSF
Winona Feed & Grain Inc	Winona	UP

Source: Kansas Department of Revenue, Grain Elevator Appraisal Guide for the State of Kansas, 2021.

Figure 5-55: Density of Grain Elevators in Kansas



5.3 Rail Crossings

Nearly 7,160 active at-grade crossings exist across Kansas, over 70 percent of which are public crossings, and about 30 percent are private crossings. Public crossings are where rail lines intersect roadways that are under the jurisdiction of public transportation authorities and are open to the public, while private crossings are located on privately-owned roads, such as on a farm or industrial land, and can only be used by the property owner or those permitted by the owner.⁹⁰ Approximately one quarter of both the public and private at-grade crossings in Kansas are located along the rail lines in Sedgwick, Reno, Montgomery, Cowley, Cloud, Barton, Dickinson, Sumner, and Saline Counties, with the highest number of crossings located in Sedgwick County (4.4 percent).

Additionally, 510 railroad crossings in Kansas cross over or under roadway lanes. The majority (96 percent) of these crossings are public. Figure 5-56 summarizes the number of rail crossings in Kansas by position and type. Four of the public at-grade crossings and one of the grade-separated crossings in Kansas are located along tourist train lines in Franklin, Douglas, and Dickinson Counties.

Figure 5-56: Kansas Railroad Crossings by Position and Type

Crossing Position	Private	Public	Unknown	Total
At-grade	2,125	5,032	2	7,159
Railroad under roadway bridge	-	333	-	333
Railroad Over roadway bridge	21	156	-	177
Total	2,146	5,521	2	7,669

Source: CPCS analysis of FRA Crossing Inventory Database, 2021.

In order to eliminate conflict between rail and other modes and mitigate incidents, all at-grade crossings on the public roadway system should, at a minimum, be equipped with passive warning devices. Passive devices are traffic control measures such as stop or yield signs, crossbucks, or pavement markings located at or in advance of grade crossings. These devices are intended to indicate the presence of a rail crossing and to warn the highway users of the possibility of a train approaching so that they can take the appropriate actions.

In contrast, active warning devices change their aspect when a train is approaching or is present at a crossing to warn and stop the road users. Examples of active devices include flashing lights, wigwags, bells, and gates. A combination of passive and active warning devices is used to mitigate incidents at grade crossings. Specification and guidance on the application of various grade crossing warning devices are provided in the Manual of Uniform Traffic Control Devices (MUTCD), issued by the FHWA.⁹¹

Figure 5-57 provides a summary of warning devices that currently exist at grade crossings across Kansas. As the table shows, the majority of the private and public grade crossings in the state are equipped with a passive warning device. Less than 1 percent of the private crossings and about 42 percent of the public crossings in the state are equipped with active warning devices. All of the actively-controlled at-grade crossings in Kansas are also equipped with passive warning devices. Only 55 grade crossings in Kansas are not equipped with any warning devices, all of which are located on private roads.

⁹⁰ 49 CFR § 234.401 – Definitions.

⁹¹ FHWA, Manual on Uniform Traffic Control Devices, Online Guide, Accessed July 2021.

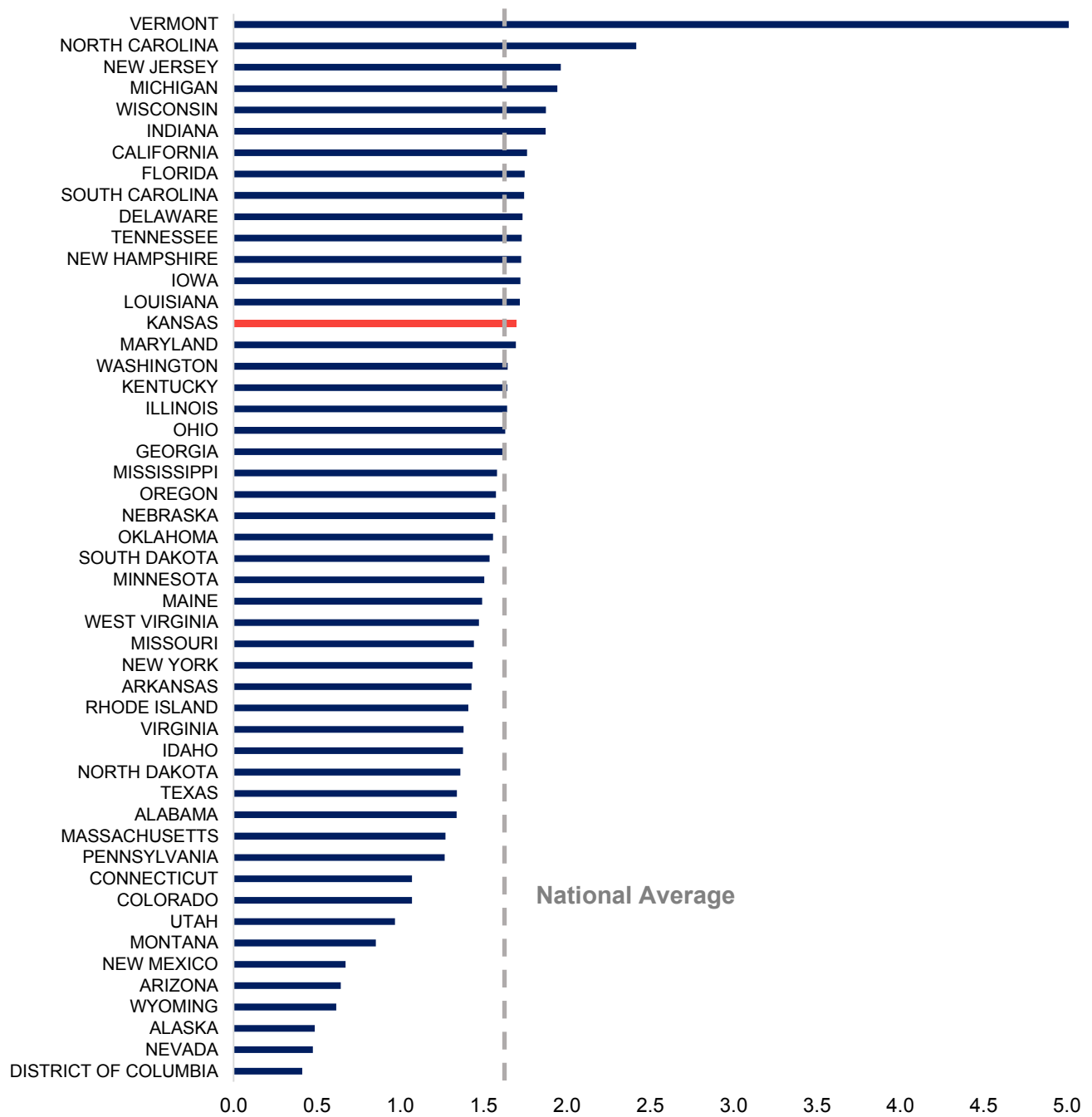
Figure 5-57: At-Grade Crossing Safety Devices in Kansas

Crossing Safety Device Present	Private	% of Total	Public	% of Total
Active and Passive Devices	20	<1%	2,109	42%
Active Devices Only	0	0	0	0
Passive Devices Only	2,050	96%	2,923	58%
No Safety Device	55	2.6%	0	0
Total	2,125	100%	5,032	100%

Source: CPCS analysis of FRA Crossing Inventory Database, 2021. Note: Includes both public and private at-grade crossings.

Figure 5-58 shows the state's position in terms of the number of at-grade crossings per mile of freight rail operation. There are 1.7 at-grade crossings per every mile of operating freight line in Kansas, which is higher than the national average (1.5). The total freight rail system mileage in Kansas is close to Georgia, Minnesota, California, and Indiana. Compared to these states, Kansas has a relatively average crossing per mile ratio.

Figure 5-58: Number of Highway-Rail Grade Crossings Per Mile of Freight Rail Operations



Source: CPCS analysis of FRA Crossing Inventory Database and Association of American of Railroad's Mileage Data, 2021.

Note: Includes both public and private at-grade crossings.

6 Passenger Rail System in Kansas

Kansas is served by one intercity, long-distance passenger rail route – Amtrak’s Southwest Chief– that operates on 473 miles of BNSF-owned track in the state. This route connects Chicago in the east and Los Angeles in the west, serving many markets as it travels across the country. In Kansas, the Southwest Chief operates at six stations in Lawrence, Topeka, Newton, Hutchinson, Dodge City, and Garden City, with most stops scheduled in the middle of the night. Though not located in Kansas, the nearby California Zephyr in southern Nebraska provides Kansans with another option for travel by long distance passenger rail. Three intercity bus providers also offer service along multiple routes in Kansas.

6.1 Intercity Passenger Rail System

Intercity passenger trains in the U.S. operate under a framework established under PRIIA. It divided Amtrak’s routes into three categories:

- The Northeast Corridor (Boston-New York-Washington) is expected to be self-supporting on an operating cost basis (thus, not including capital renewals and improvements), which Amtrak is able to achieve in this congested area with relatively high fares.
- State-supported services are routes shorter than 750 miles. These are all “day trains” (i.e., with no sleeping cars) where states (or combinations of states) contract with Amtrak to provide service (paying the vast majority of the costs beyond fare revenue; states set the fares). The portion of costs covered by fare revenue varies considerably.
- Long-distance routes are defined as greater than 750 miles in length and generally operate through many states, making it infeasible for them to coordinate on unified financing; Amtrak sets fares and is required to pay any operating deficit from its annual appropriation. All but one are overnight trains, with sleeping cars.

Compared to other modes for passenger movements, train service is especially competitive on trips where travel time is less than about four hours. With high-speed rail service (i.e., electric trains operating on dedicated tracks at up to 220 mph) this can translate into trips of over 500 miles. More conventional service – using track shared with freight trains – reduces this range to 200-300 miles. Service frequency and reliability are also critical components of the train service’s ability to attract significant ridership.

Southwest Chief

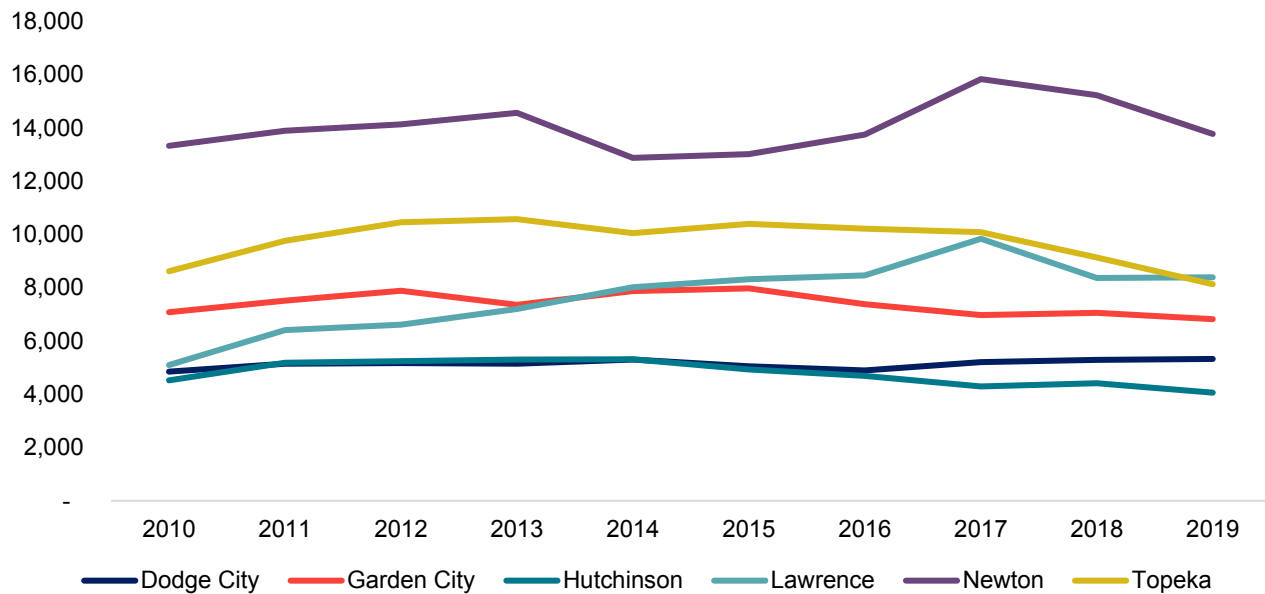
Kansas is served by one intercity, long-distance passenger rail route at six stations, operated exclusively over BNSF owned track.

Amtrak’s Southwest Chief operates one daily trip in each direction on its 2,265-mile route from Chicago to Los Angeles. The long-distance multistate service is operated almost entirely on track owned by BNSF (Figure 6-2). In Kansas, the service operates on 473 miles track exclusively owned by BNSF.

The Southwest Chief serves many markets as it travels across the country. Tourism and business travel dominate the rider profile. However, for many communities in Kansas, long-distance passenger rail provides access to destinations for passengers who are unable to drive or reach their destination conveniently through other modes.

The six Amtrak stations in Kansas all handle substantial numbers of riders, even though most Southwest Chief stops are scheduled in the middle of the night. In fiscal year 2019, there were over 46 thousand boardings and alightings in Kansas, with an additional 91 thousand riders passing through the state. Ridership at the six stations in Kansas is shown in Figure 6-1.

Figure 6-1: Southwest Chief Ridership by Kansas Station, 2010-2019



Source: Amtrak and Rail Passengers Association. Note: Data shows combined boarding and alighting passengers.

Tickets are available at a variety of price points, ranging from coach (including rail passes) and sleeping cars, with several different types of rooms. This combination of riders maximizes the train's revenue. Ticket revenue for the entire Southwest Chief route was \$43,184,176 in 2019, the last data published by Amtrak before the coronavirus pandemic (COVID-19). Ticket revenue in Kansas based on average fares by ticket class was \$4,512,450 in 2019.⁹²

Amtrak, like all transportation systems, was greatly affected by COVID-19. In response, Amtrak reduced service on all of its lines. The long-distance routes were the last to be affected, with the reduction from daily to tri-weekly operations on most routes taking effect October 2020. Ridership held up surprisingly well. During this time, Amtrak announced a phased restoration of the long-distance trains and Congress passed the American Rescue Act in March 2021. Daily service on the Southwest Chief returned effective May 31, 2021.

⁹² Rail Passengers Association



Southwest Chief Route Improvements

Around 2010, freight train traffic (primarily coal trains) over the Raton Pass was discontinued, leaving the Southwest Chief as the only user of the approximately 300-mile BNSF line between La Junta, Colorado and Lamy, New Mexico. Lack of modernization of track and signals on the line, due to lack of freight, left obsolete rail with bolted rail joints and semaphore signals in place.

Amtrak's contract with BNSF requires Amtrak to shoulder the responsibility for maintenance of railroad infrastructure when the host no longer uses the tracks for their own trains. However, Amtrak's lack of funding for required maintenance threatened alterations to the line and service options for the route through Kansas, Colorado, and New Mexico. Through coordinated efforts between Amtrak, BNSF, and impacted states and local communities, the Southwest Chief received substantial investments from federal grants and matching funds. These investments have enabled upgrades to track and signals, as well as the installation of Positive Train Control, along the Southwest Chief Route.

Since 2014, the Federal government has awarded several discretionary grants (Figure 6-3) to various state and local government agencies for returning these segments to standards capable of supporting operation at normal passenger train speeds. Amtrak⁹³ and BNSF have both provided matching funds. KDOT has supported grants with matching funds. Other State and local government entities in all three states (Kansas, Colorado, and New Mexico) also supported the grants, with the improvements distributed similarly. Chapter 10 provides further details about funding amounts provided for these projects.

Figure 6-3: Discretionary Grants Awarded for Southwest Chief Upgrades

Project Name	Grantee	Program	Description
Southwest Chief Route Improvement Project	City of Garden City, Kansas	TIGER VI (2014)	Rehabilitated track infrastructure, turnouts, and crossings on the BNSF La Junta Subdivision in Kansas and Colorado
Southwest Chief Route Advancement and Improvement Project	City of La Junta, CO	TIGER VII (2015)	Rehabilitated track infrastructure, turnouts, and crossings the BNSF La Junta Subdivision in Kansas, Colorado, and New Mexico
Southwest Chief Route Stabilization Project	Colfax County, NM	TIGER IX (2017)	Rehabilitated track infrastructure, turnouts, and crossings on the BNSF La Junta Subdivision in Kansas, Colorado, and New Mexico
Positive Train Control (PTC) Installation for the Amtrak Southwest Chief on BNSF Railway between Dodge City, Kansas and Las Animas, Colorado	Colorado Department of Transportation	CRISI PTC (2018)	Design, installation, testing, and operation of PTC in Kansas and Colorado

⁹³ In 2018 Amtrak refused to provide its portion of matching funds for a grant that it had previously committed support. Instead, Amtrak proposed to replace the Southwest Chief with bus service between Dodge City, Kansas and Albuquerque, New Mexico. There was a major outcry by citizens and elected officials. The Rail Passenger Association, a national organization, led a campaign opposing this concept. Congress directed Amtrak to set aside \$50 million from the budget act of 2019 toward continuing the upgrade work on the route.

Project Name	Grantee	Program	Description
SW Chief Raton Route Modernization Program	National Railroad Passenger Corporation (Amtrak)	CRISI (2020)	Track upgrades in New Mexico
Southwest Chief La Junta Route Restoration Program	City of Trinidad, CO	RAISE (2021)	Completion of process to bring track and signals along the route in Kansas to current passenger rail standards

Source: FRA and KDOT

California Zephyr

While the California Zephyr service does not operate in Kansas, its nearby location in southern Nebraska affords Kansans in the northwest part of the state an option for travel by long-distance passenger rail. This service has a station in McCook, Nebraska, and provides connections from Chicago to Oakland, California through Omaha, Denver, and Salt Lake City.

6.2 Amtrak Thruway Service

Amtrak sponsors the operation of a large number of intercity bus routes around the country, branded as “Amtrak Thruway” service. These operate on several different models, including:

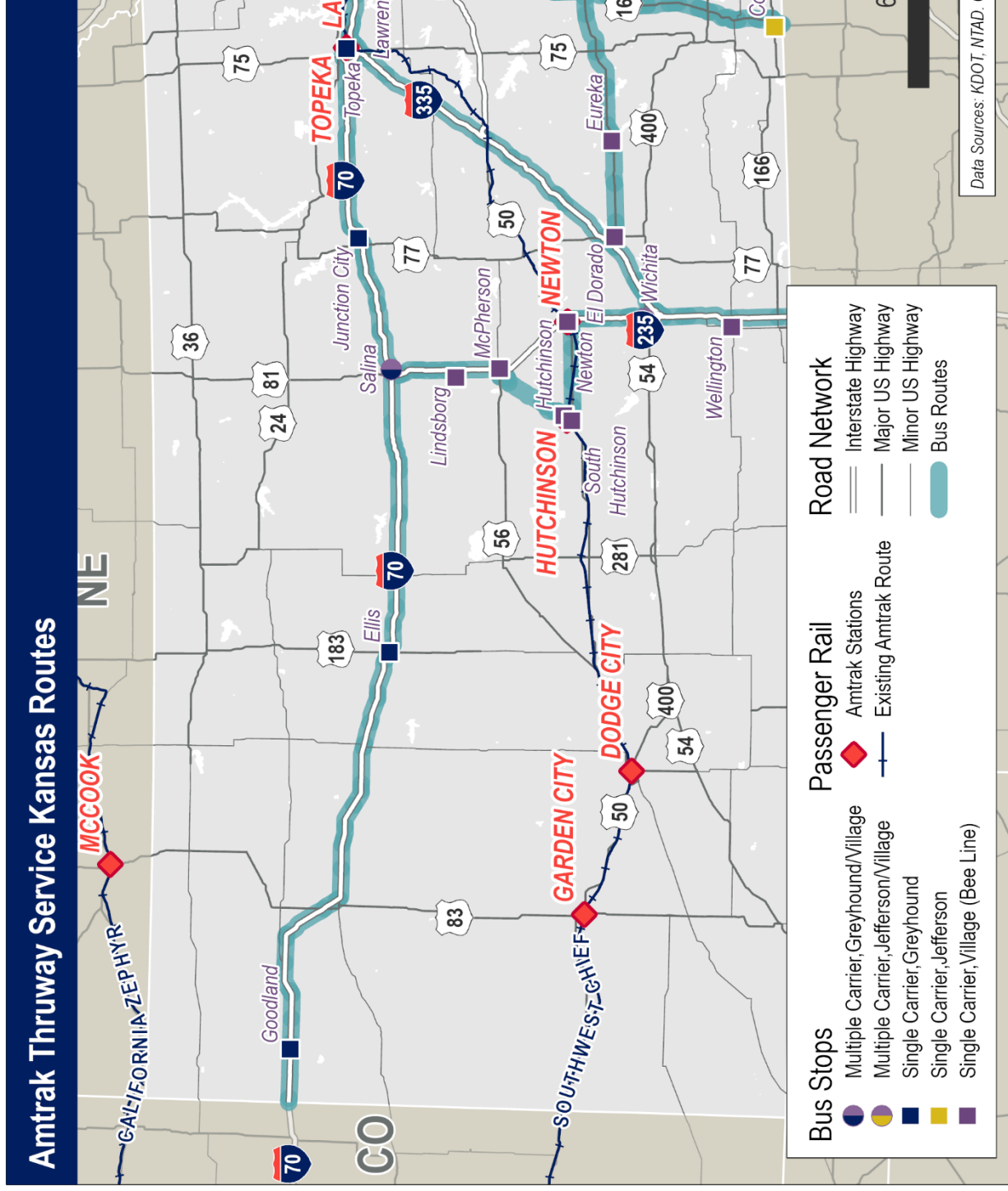
- Routes/trips operated by Greyhound or other carriers, which also appear in schedules used in Amtrak’s web applications and for which Amtrak issues tickets (usually at fares different from those available from the carrier themselves).
- Dedicated buses (provided by contractors but, painted with Amtrak Thruway logos), available only to passengers having tickets on connecting trains.
- Other related services.

There are three intercity bus providers in Kansas: Jefferson Lines, Prestige (branded as Bee Line), and Greyhound. As shown in Figure 6-4, service is concentrated in the eastern part of the state, with only one east-west route crossing the entire state. This east-west route follows I-70, and it would allow a rider to connect to Los Angeles or New York without changing buses. Within Kansas, Wichita has the most service, with 12 daily trips routing to and from the north, south, and east. Regional destinations include Kansas City, Oklahoma City, Tulsa, Joplin, and Denver.

All intercity bus routes run daily, and no routes have more than two trips per day. Four communities served by intercity bus routes are also served by Amtrak. Eight of the 14 intercity bus trips run overnight, serving stops in local communities during the nighttime hours (as does the Southwest Chief). On most of these intercity bus routes, there is another bus on the same route which serves these stations during daylight hours.

Compared to other routes, Greyhound stops are farther apart, limiting access to shorter trips between communities or for riders outside of population centers. Some relatively significant population centers have no public transportation access, including Manhattan and Emporia. Similar to other transportation systems, service levels were higher prior to COVID-19; they may be restored in the future.

Figure 6-4: Amtrak Thruway Service Kansas Routes



Kansas has agreed to use 5311(f) funding to support intercity bus service. All intercity bus routes in the state, except Greyhound's Kansas City-Wichita-Oklahoma City-Dallas route and Greyhound's east-west route west of Salina, are subsidized (Figure 6-5).

Figure 6-5: Amtrak Thruway Service Kansas Routes Receiving State Funding and Ridership, 2020

Operator	Route	Funding	Ridership
Village	Wichita to Salina	\$255,000	2,806
Village	Wichita to Joplin	\$293,000	989
Village/ Amtrak Thruway	Newton to OKC	\$171,000	2,570
Greyhound	Kansas City to Salina	\$924,000	4,479
Jefferson	Kansas City to Tulsa	\$296,000	6,667

Source: KDOT

Connecting the Southwest Chief and the Heartland Flyer

In 2015, Amtrak and KDOT partnered to establish a new Amtrak Thruway bus route to link the Heartland Flyer (a state-sponsored route operating between Fort Worth, Texas and Oklahoma City, Oklahoma) in Oklahoma City to the Southwest Chief in Newton, with intermediate stops at Wichita and Wellington in Kansas. The schedule of the trains was such that the bus could be added without requiring any changes to train schedules, to provide reasonable connecting times. However, the connection at Newton is made in the early morning. Amtrak Thruway ridership and operational costs of this service will inform considerations of an extension of the Heartland Flyer (see Chapter 10 for additional details).

6.3 Passenger Rail Stations

Amtrak, local agencies, the State of Kansas, and BNSF have worked cooperatively to maintain and upgrade the buildings and platforms at these stations. Federal grants have played a role in some cases. A principal focus of Amtrak's station improvement efforts nationwide has been bringing stations into compliance with Americans with Disabilities Act (ADA) regulations. Figure 6-6 updates information on Accessible elements of the stations and staffing.

Figure 6-6: Amtrak Passenger Rail Station Information

Station	Accessible			Staffing
	Platform	Restrooms	Parking	
Dodge City	Yes	Yes	Yes	No
Garden City	Yes	Yes	Yes	Yes, recruiting is in progress
Hutchinson	Yes	Yes	Yes	No
Lawrence	Yes	Yes	Yes	No
Newton	Yes	Yes	Yes	Yes
Topeka	Yes	Yes	Yes	Yes

Source: Amtrak

6.4 Tourist Train Network

Three tourist/excursion railroads currently operate in Kansas. These railroads offer rides on historic and scenic lines in Dickinson, Marshall, Douglas, and Franklin Counties. These rail operations include:

- **Abilene and Smoky Valley Railroad (ASV):** operating on an 11-mile line between Abilene and Enterprise on a former Chicago, Rock Island, and Pacific Railroad (CRI&P) line. ASV offers two types of train rides: regular diesel-electric trains operating May through September on Thursdays, Fridays, and Saturdays and in October during weekends; and steam locomotive trains operating on select days during May, July, September, and October. ASV also operates the 12-mile long Silver Flyer Railbus excursion (a former school bus fitted with rail wheels in addition to highway tires) from Enterprise to Woodbine. An average of 12,000 passengers ride on ASV's train annually.⁹⁴
- **Central Branch/Missouri Pacific Railroad (CBRR):** offering educational and historic train rides on a 12-mile line between Waterville and Blue Rapids through the scenic Flint Hills. The railroad is operated by the Marshall County Railroad Historical Society non-profit organization, and rides are offered by reservation from April to October, all week. CBRR's train carries an average of 850 passengers annually.⁹⁵
- **Midland Railway (MID):** providing excursion rides on a vintage diesel-electric train running a 10-mile line (20 miles roundtrip) between Baldwin City to Ottawa through Norwood. MID train operates May through October, on Thursdays and weekends. The annual ridership of MID is about 20,000.⁹⁶

⁹⁴ Kansas State Rail Plan, 2017.

⁹⁵ *ibid.*

⁹⁶ *Ibid.*

7 Assessment of Kansas' Rail System

Kansas' rail system assessment focuses on benchmarking Kansas' freight and passenger rail system performance through the focus areas identified in the 2045 LRTP. Using the LRTP framework promotes consistency between the Plan's recommendations and investment opportunities, and Kansas' overarching statewide transportation guidance. Within each focus area, measures have been identified to evaluate the conditions, issues, and needs of the state's freight and passenger rail systems and operations. Various data sources have been used to calculate evaluation measures, and where applicable, data analysis is validated through input solicited from stakeholders. The results of the assessment informed the understanding of the state's rail system's Strengths, Weaknesses, Opportunities, and Threats. The results also guided the identification of recommendations and investment opportunities for KDOT presented later in this Plan.

This assessment provides a quantitative evaluation of Kansas rail system performance, based on an evaluation framework shaped by Kansas' transportation vision and goals.

7.1 Freight System

The Freight Rail System Assessment uses various data sources to evaluate the performance of the freight rail system in Kansas. Each section provides further details on the specific measures and data used to evaluate statewide freight rail operations.

Safety and Security

Safety and Security: Enhance the safety and security of the transportation system for all users and workers.

For safety and security evaluation, freight rail safety incident reports submitted by railroads to the FRA are used. Under the Accident Reports Act, signed into law in 1910, railroads are required to file monthly reports of "all accidents and incidents resulting in injury or death to an individual or damage to equipment or a roadbed arising from the carrier's operations" with the Secretary of Transportation. The Accident Reports Act's requirements were fortified in 1970 through the provisions and amendments introduced in the Federal Railroad Safety Act. Both the 1910 and 1970 Acts delegate the authority for prescription and enforcement of rail safety standards and regulations to the FRA.⁹⁷

The rail safety incident categories based on railroads' reports to FRA include highway-rail grade crossing incidents, rail equipment incidents (train collisions, derailments, fires or explosions, and other events that happen during rail operations and meet the FRA's monetary threshold notice for reporting)⁹⁸, and rail-related deaths, injuries, and railroad worker occupational illnesses that result in medical treatment, significant diagnosis by a health professional, or loss of consciousness.⁹⁹

⁹⁷ 49 U.S.C. §§ 20901–20903 and 49 CFR Part 225.

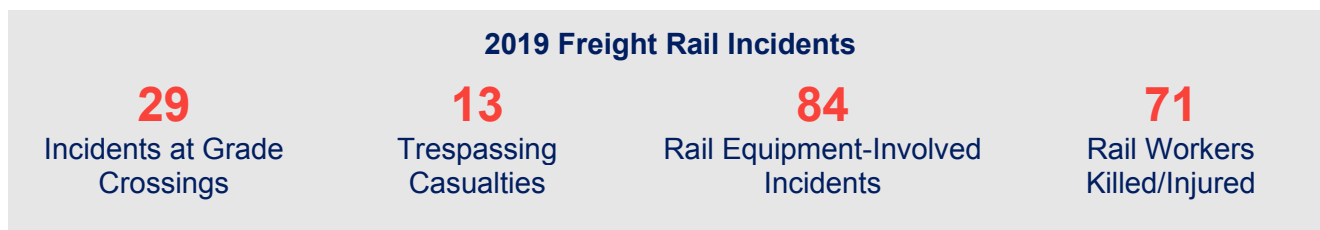
⁹⁸ FRA's current monetary threshold is \$11,200 (effective January 2021). For more information on FRA's monetary threshold see: <https://safetydata.fra.dot.gov/officeofsafety/ProcessFile.aspx?doc=Monetary%20Threshold%20Notice.pdf>

⁹⁹ FRA Guide for Preparing Accident/Incident Reports, 2011.

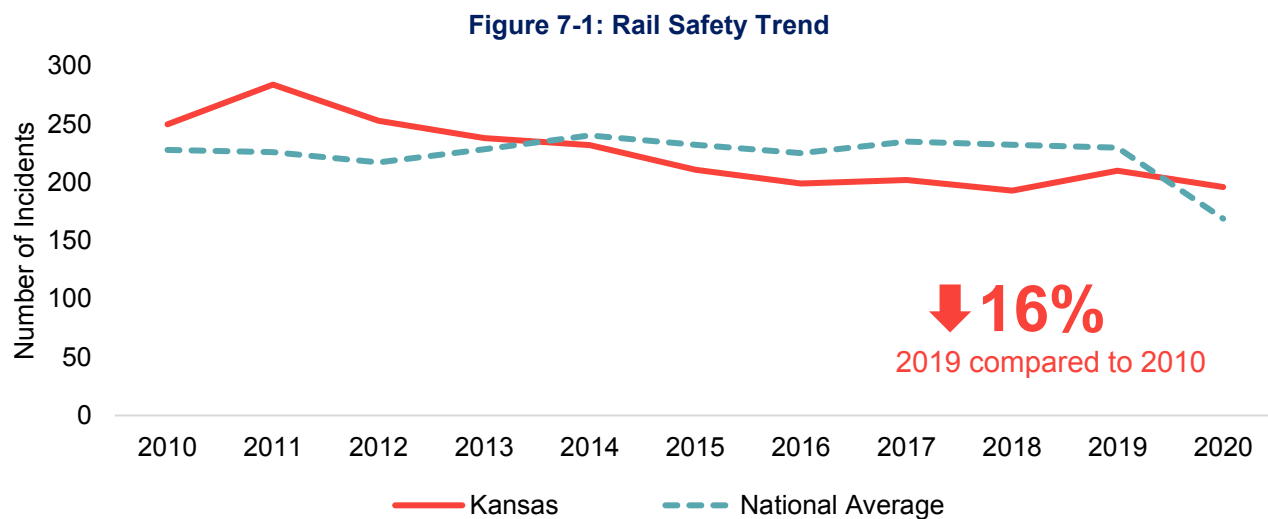
There are overlaps in these incident reporting categories that should be considered in any analysis. For instance, trespassing incidents that lead to casualties are included in the rail-related casualty database, while trespassing incidents that occur at highway-rail crossings should also be filed as crossing accidents. Also, highway-rail crossing incidents that only lead to equipment damages are filed as equipment incidents.

Total Rail Incidents

Nearly 2,470 freight rail incidents happened in Kansas between 2010 and 2020, resulting in 119 deaths and more than 1,100 persons injured. In 2019, Kansas' freight rail system saw 210 incidents in total, which led to 7 deaths and 87 persons injured. Rail equipment incidents accounted for the highest share of the 2019 freight rail incidents in Kansas (40 percent), followed by incidents at highway-rail crossings (14 percent). Over 75 percent of the 2019 casualties were among rail workers, and about 14 percent were trespassers. As Figure 7-1 shows that, between 2010 and 2019, the total number of rail incidents in Kansas declined by 16 percent. Between 2014 and 2019, the total number of rail incidents in Kansas remained below the national average. However, the number of incidents in Kansas exceeded the national average in 2020, despite a continued decline.



Note: The remaining 13 freight rail incidents involved a non-trespasser/non-employee on railroad property.



Source: CPCS analysis of FRA Safety Data, 2021.

Highway-Rail Grade Crossing Incidents

Between 2010 and 2020, 424 incidents occurred at highway-rail grade crossings in Kansas, resulting in 71 deaths and 155 person injuries. In 2019, 29 crossing incidents led to seven injuries and four fatalities. As Figure 7-2 shows, while Kansas' crossing incidents decreased by about 37 percent when comparing 2019 to 2010, the number of incidents increased by 24 percent between 2019 and 2020. According to FRA's safety data, commercial vehicles were involved in over a quarter of the highway-rail grade crossing incidents that happened over the past ten years in Kansas.

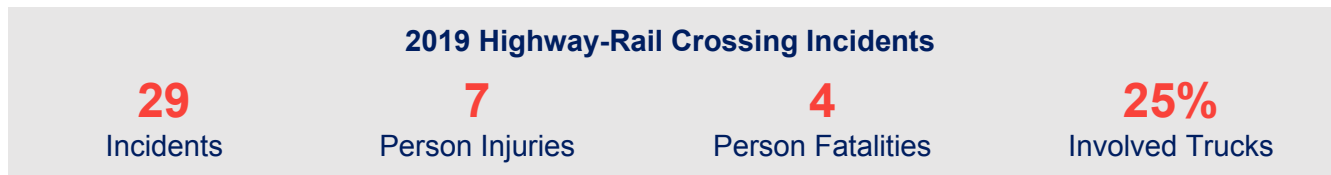
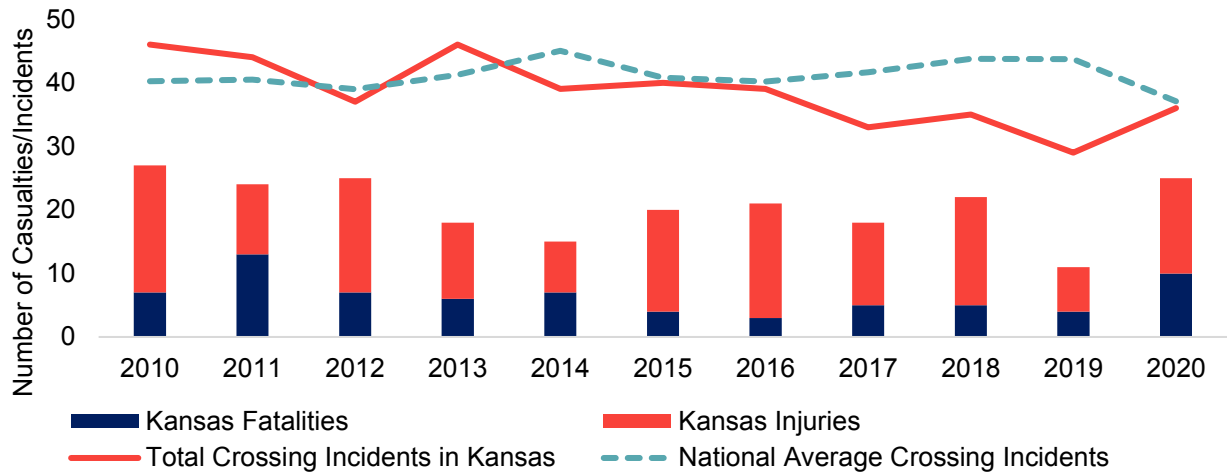


Figure 7-2: Rail Crossing Risk Trend



Source: CPCS analysis of FRA Safety Data, 2021.

Fundamental to improving safety at highway-rail grade crossings is the investigation of highway users' behavior at or on approach to a grade crossing. Figure 7-3 summarizes the actions of highway users that have been involved in crossing incidents in Kansas between 2010 and 2020.

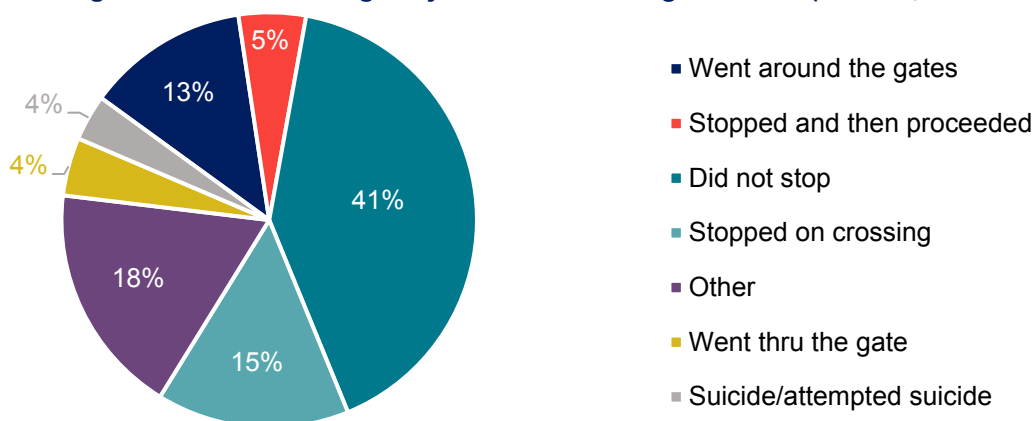
- Over 41 percent of drivers did not stop for trains at crossings.
- 15 percent of vehicles were stopped over the rail tracks at crossings.
- 13 percent of vehicles tried to cross over the rail tracks while the gates were down to warn the highway users and prevent crossing.

Studies show that the drivers, especially those familiar with driving in and around an area, generally do not scan for trains (about 40 percent) when approaching a crossing, and a majority of drivers (about 90 percent) do not prepare to stop at a grade crossing.¹⁰⁰

Noncompliance may also be due to other factors such as drivers' level of risk acceptance, distracted driving, failure to notice the warnings/signs at the passively-controlled grade crossings, and weather and visibility conditions.

¹⁰⁰ FRA, Human Factors in Railroad Operations: Driver Behavior at Highway Railroad Grade Crossings, 2008; FRA, Driver Behavior at Highway-Rail Grade Crossings Using NDS and Driving Simulators, 2020.

Figure 7-3: Action of Highway Users In Crossing Incidents (Kansas, 2010-2020)



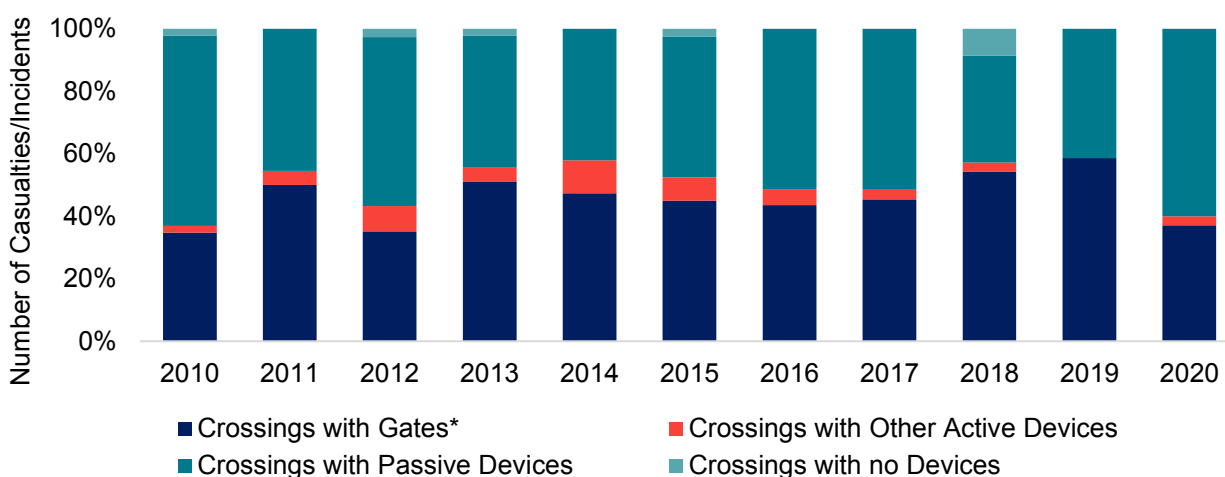
Source: CPCS analysis of FRA Safety Data, 2021.

Highway-Rail Grade Crossing Incidents by Safety Device

The majority of highway-rail grade crossings in Kansas are equipped with passive warning devices such as stop or yield signs, crossbucks, or pavement markings located at or in advance of grade crossings. Less than half the crossings have active warning devices. Warning devices are installed at grade crossings to mitigate the risk of conflict between rail and other modes. Specification and guidance on the application of various grade crossing warning devices are provided in the MUTCD, issued by FHWA.¹⁰¹ In addition to guidance on crossing warning devices, federal law requires train engineers to sound train horns for 15 to 20 seconds in advance of all public grade crossings.¹⁰²

Despite these measures, an assessment of crossing incidents data shows that many crashes happen at crossings that are equipped with warning devices. In Kansas, over 58 percent of highway-rail crossing incidents in 2019 occurred at crossings that were equipped with gates and other passive and active safety devices. However, when comparing data between 2010 and 2019, the share of incidents at crossings with active warning devices has increased by 58 percent, while the share of accidents at crossings with passive warning devices has declined by 32 percent.

Figure 7-4: Rail Crossing Incidents in Kansas by Safety Device



Source: CPCS analysis of FRA Safety Data, 2021. *Includes crossings that have gates and other active devices.

¹⁰¹ FHWA, Manual on Uniform Traffic Control Devices, Online Guide, Accessed July 2021.

¹⁰² Train Horn Rule, 49 CFR Part 222.

Rail-related Casualty Risk

In 2019, rail-related incidents led to 90 person injuries and seven fatalities in Kansas. About 61 percent of the freight rail-related casualties were railroad employees while on duty (Figure 7-5). As Figure 7-6 shows, the total number of freight rail-related casualties in Kansas has stayed somewhat constant since 2015 and, in general, below the national average over the past ten years. However, the number of fatalities more than doubled in 2020 compared to 2019, while the number of injuries declined by about 2 percent. Of note is the relatively high number of incidents that happened to trespassers in 2011 (24 compared to 15 in 2010 and 13 in 2019) and incidents that happened to non-trespassers on railroad property during 2012 (26 incidents compared to 12 in 2011 and 13 in 2019).

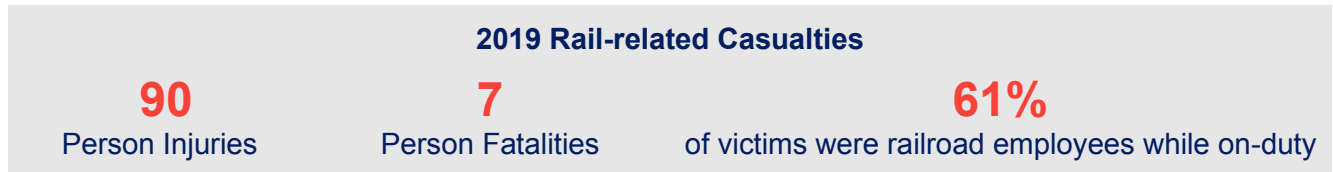
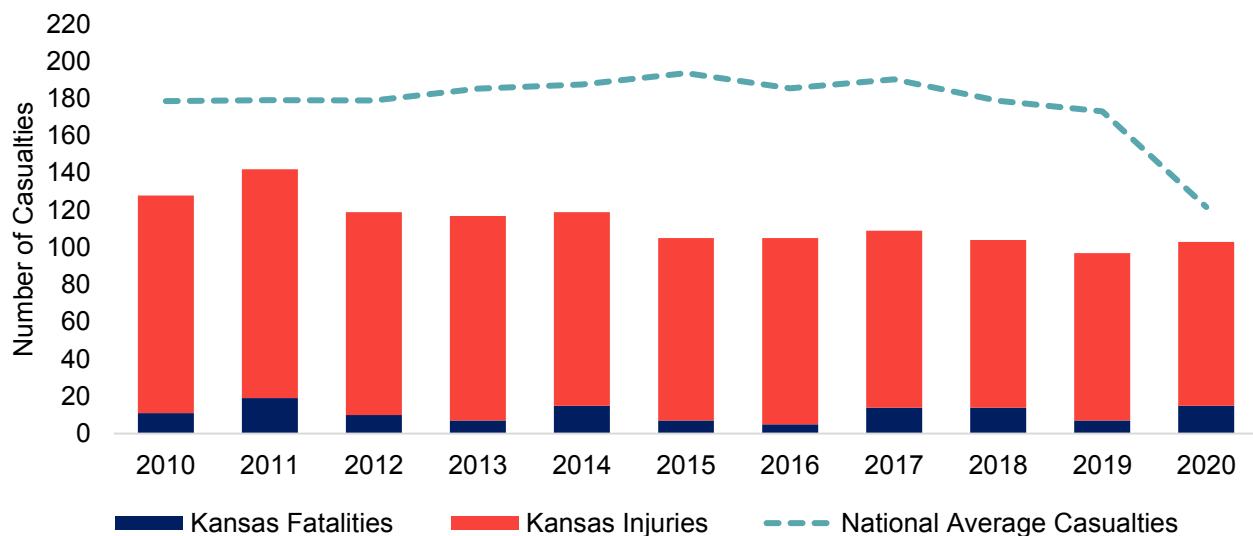
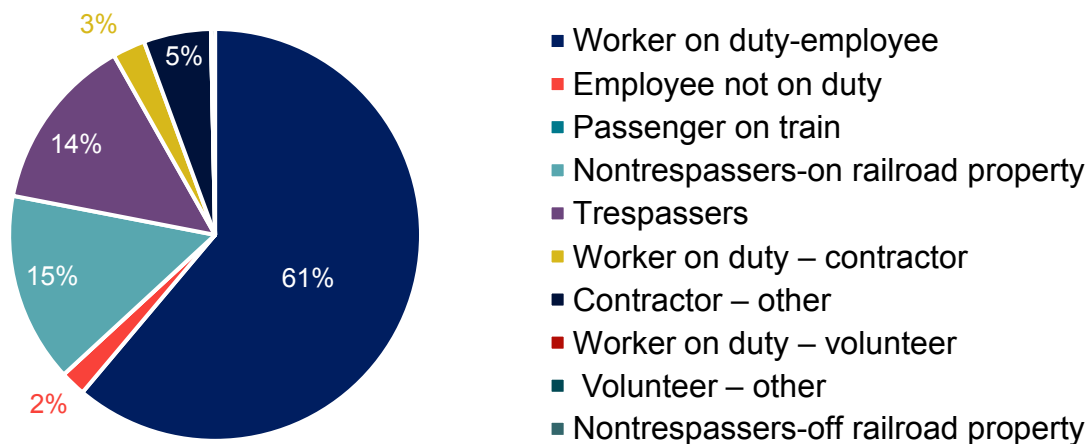


Figure 7-5: Rail Casualty Risk Trend



Source: CPCS analysis of FRA Safety Data, 2021.

Figure 7-6: Casualty by Person Type (Kansas, 2010-2020)



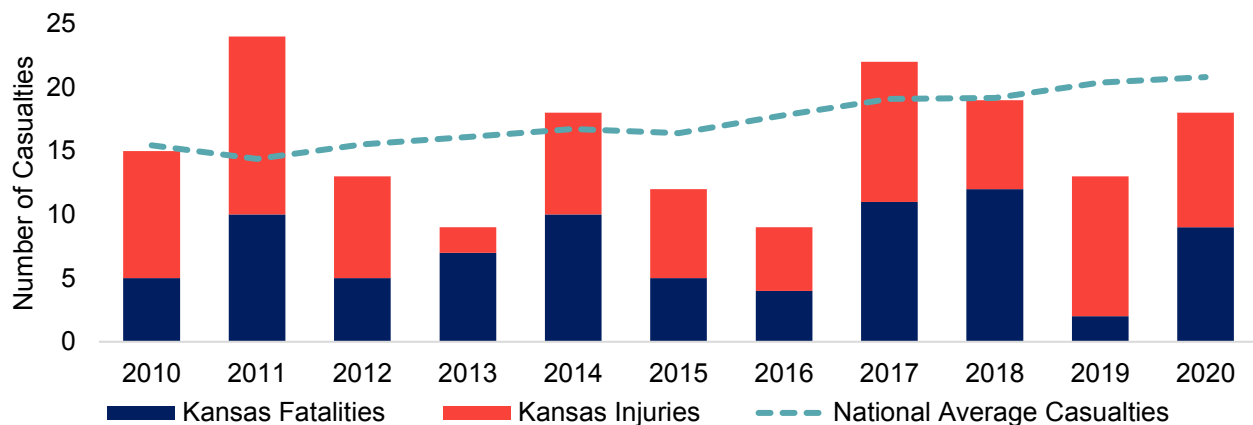
Source: CPCS analysis of FRA Safety Data, 2021.

Rail Trespassing Risk

Nationally, nearly 1,000 trespass fatalities and injuries occur each year. Compared to other states in the US, Kansas ranks 32nd in terms of the annual number of trespassing casualties.¹⁰³ Trespassing incidents are the deadliest compared to other rail incident types – 46 percent of Kansas’ rail trespassing casualties between 2010 and 2020 have been fatalities. The next highest fatality risk belongs to worker on-duty casualties (around 18 percent). In 2019, rail trespassing incidents led to 11 person injuries and 2 fatalities in Kansas. As Figure 7-7 shows, although the state’s trespassing casualties were well below the national average in 2019, the number of fatalities more than quadrupled in 2020 over the prior year, with the total number of casualties also increasing by 38 percent.



Figure 7-7: Rail Trespassing Risk Trend



Source: CPCS analysis of FRA Safety Data, 2021.

Blocked Crossing Trends in Kansas

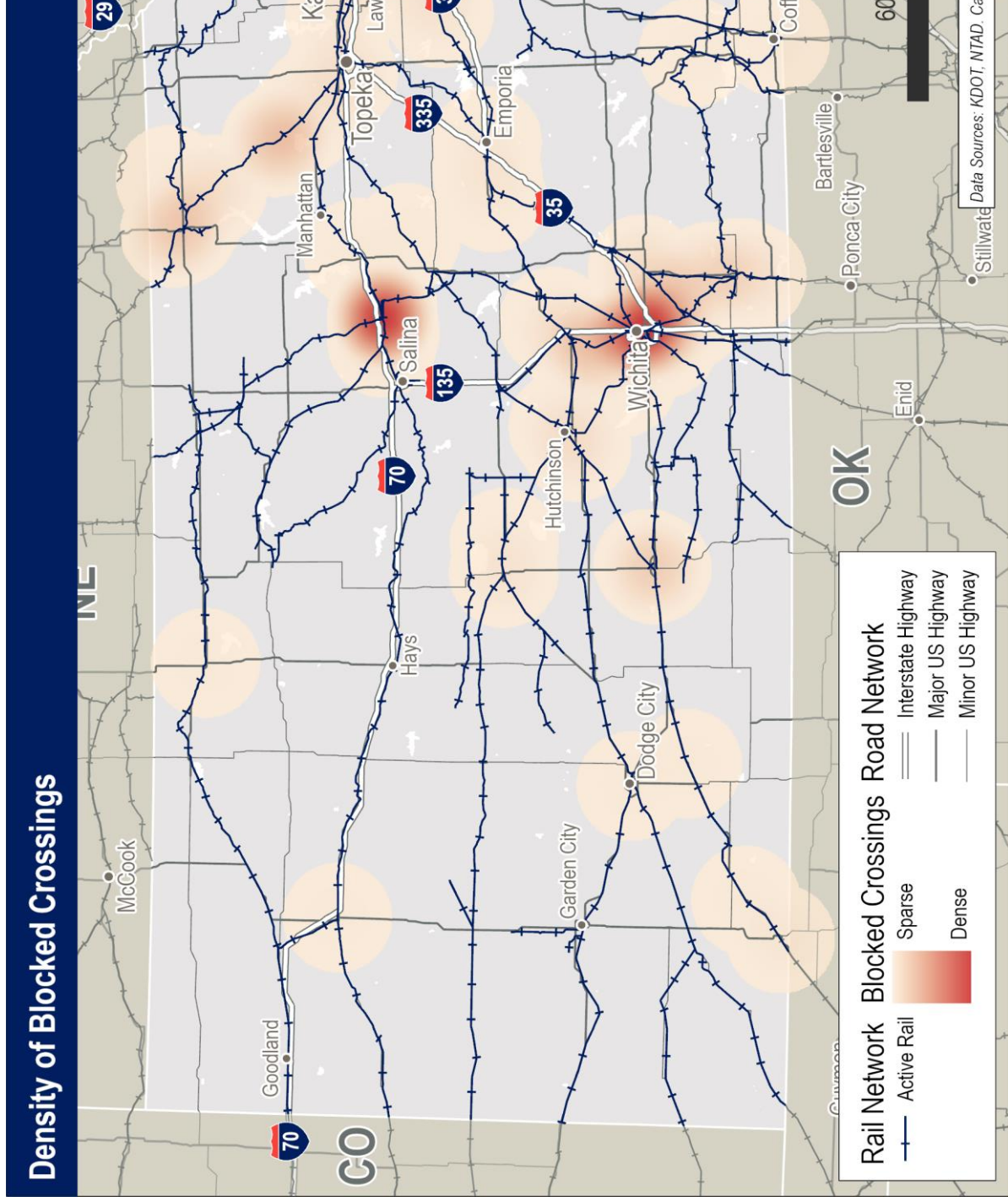
Freight trains that sit for long periods at or near busy yards and terminals block road users’ access at grade crossings. Studies have shown that drivers will attempt to clear the crossings in front of arriving trains at locations where crossings are known to be routinely blocked for extended periods. Pedestrians may also attempt to cross the blocked crossings by crawling between stopped railcars. To address such safety issues, the FRA is currently collecting inputs from road users and communities living near grade crossings to identify the priority locations and offer effective solutions.¹⁰⁴

Figure 7-8 shows the density of blocked crossings in Kansas. In total, 328 cases of blocked crossings were reported in Kansas in 2020. The majority (about 79 percent) of these reported crossings were blocked for more than 15 minutes. As the map shows, cases of blocked crossings are mostly reported along the UP line in Kansas City and the UP and BNSF lines in Wichita and Abilene. Note that since the map illustrates reported blocked crossings, it is not representative of all blocked crossing incidents in Kansas.

¹⁰³ FRA, Trespasser Dashboard, 2021. <https://railroads.dot.gov/accident-and-incident-reporting/casualty-reporting/trespasser-incidents>

¹⁰⁴ FRA Newsroom, Federal Railroad Administration Launches Web Portal For Public to Report Blocked Railroad Crossings, 2021.

Figure 7-8: Density of Blocked Crossings in Kansas



Source: CPCS analysis of FRA's Blocked Crossing Database, 2021.

Transportation System Management

Transportation System Management: Maximize the performance of the existing system by investing in transportation choices and intelligent transportation systems.

For transportation system management evaluation, data from BTS in the National Transportation Atlas Database (NTAD) was analyzed. NTAD provides geocoded attributes of Kansas' rail system, specifically the number of tracks and presence of sidings (as a precondition for improved rail access). This information provided by NTAD has been further supplemented and validated by stakeholder outreach with rail owners and operators. *Please note that the NTAD rail network is slightly different¹⁰⁵ from the KDOT rail network developed for the Kansas State Rail Plan, which has been vetted by KDOT and rail stakeholders, and used for all other elements of the Plan.*

Percent of Miles with Double Track

Portions of the freight rail system with two or more tracks allow for simultaneous train movements in each direction. Studies have shown that transitioning from single-track operations to two or more tracks can significantly increase capacity and reduce operational train delays.¹⁰⁶ Approximately 8.2 percent of the length of the freight rail system in Kansas has two or more tracks, while the rest of the system runs on a single track.

Figure 7-9 presents a summary of the double-track freight rail system in Kansas, and Figure 7-10 shows where these segments are located across the state. As shown, almost the entire (99 percent) length of Kansas' double or more rail tracks system serves the three Class I railroads operating in the state. Among the Class I railroads, BNSF has the highest ratio of segments with two or more tracks relative to its total operating length.

Figure 7-9: Double Track System Length in Kansas

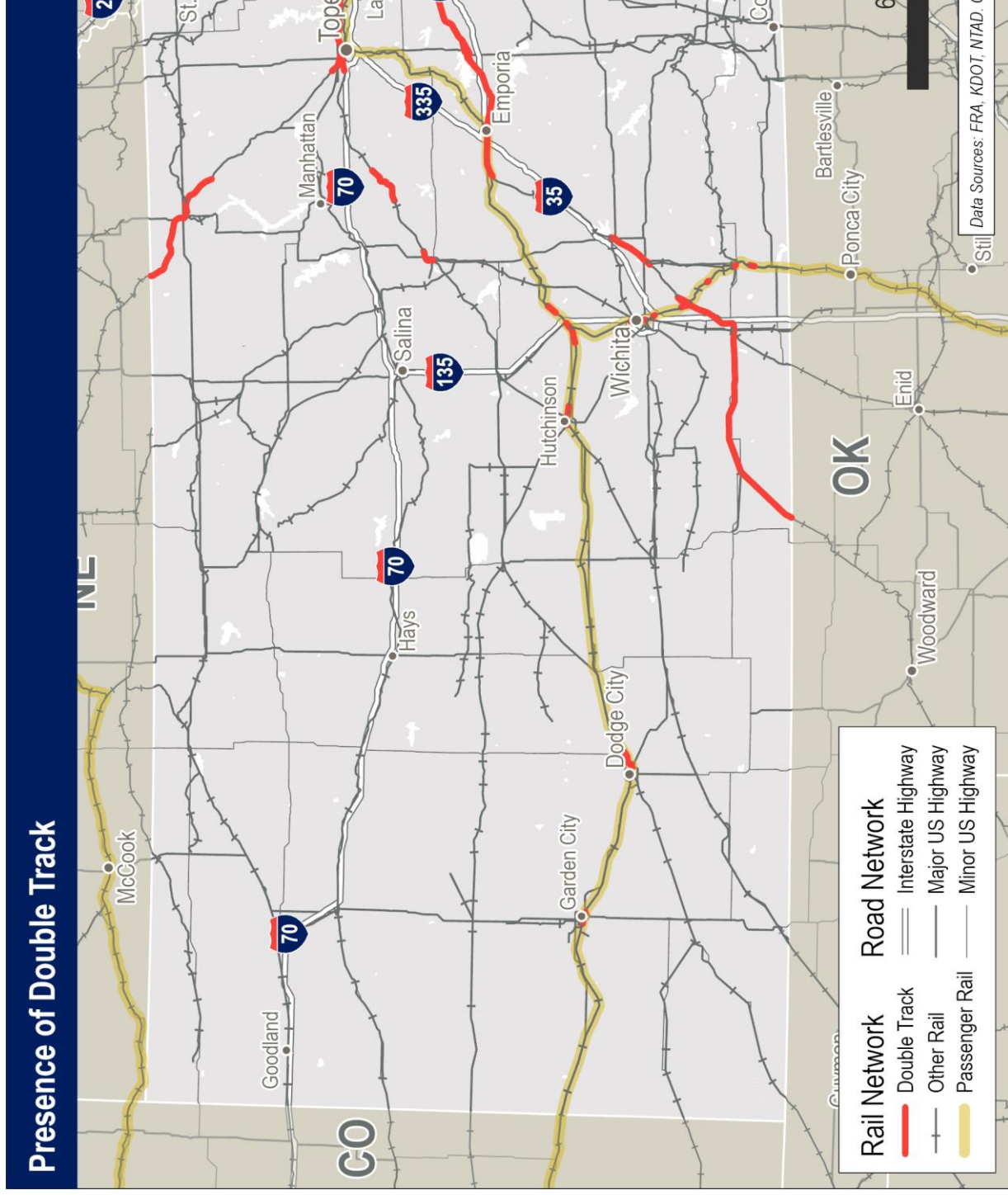
Railroad Class	Miles of Double Track or Higher	% of Total Length
Class I*	484	13%
BNSF	327	20%
KCS	0	0%
UP	157	8%
Short Line & Terminal / Switching	4.6	<1%
Short Line	0	0%
Terminal / Switching	4.6	16.5%
Total	488	8.2%

Source: CPCS analysis of NTAD North American Rail Lines Database, 2021; TranSystems analysis of BNSF network, 2021. * Note: Information pending validation by railroads.

¹⁰⁵ The NTAD rail network includes select segments of rail line in Kansas that have been identified as abandoned or inactive.

¹⁰⁶ Samuel L Sogin, Yung-Cheng (Rex) Lai, C Tyler Dick, Analyzing the transition from single- to double-track railway lines with nonlinear, 2015. <https://doi.org/10.1177/0954409715616998>

Figure 7-10: Presence of Double Track



Source: CPCS analysis of NTAD North American Rail Lines Database, 2021; TranSystems analysis of BNSF network, 2021.

Percent of Miles with Sidings

Rail sidings are low-speed tracks running parallel or close to a mainline segment to allow trains traveling in opposite directions to pass or to provide space for railcar classification, handling, and storage. The presence of sidings can benefit freight efficiency by reducing the time it takes for multiple trains to move through a single-track portion of the rail network. Rail sidings are present along approximately 4.5 percent of the total length of the freight rail system in Kansas.¹⁰⁷ Figure 7-11 lists the siding mileages in Kansas by railroad class, and Figure 7-12 shows where the sidings are located along the rail network. As shown, sidings are more present along the Class I railroad lines in Kansas, with less than one percent of the short line and terminal/switching operations equipped with siding tracks.

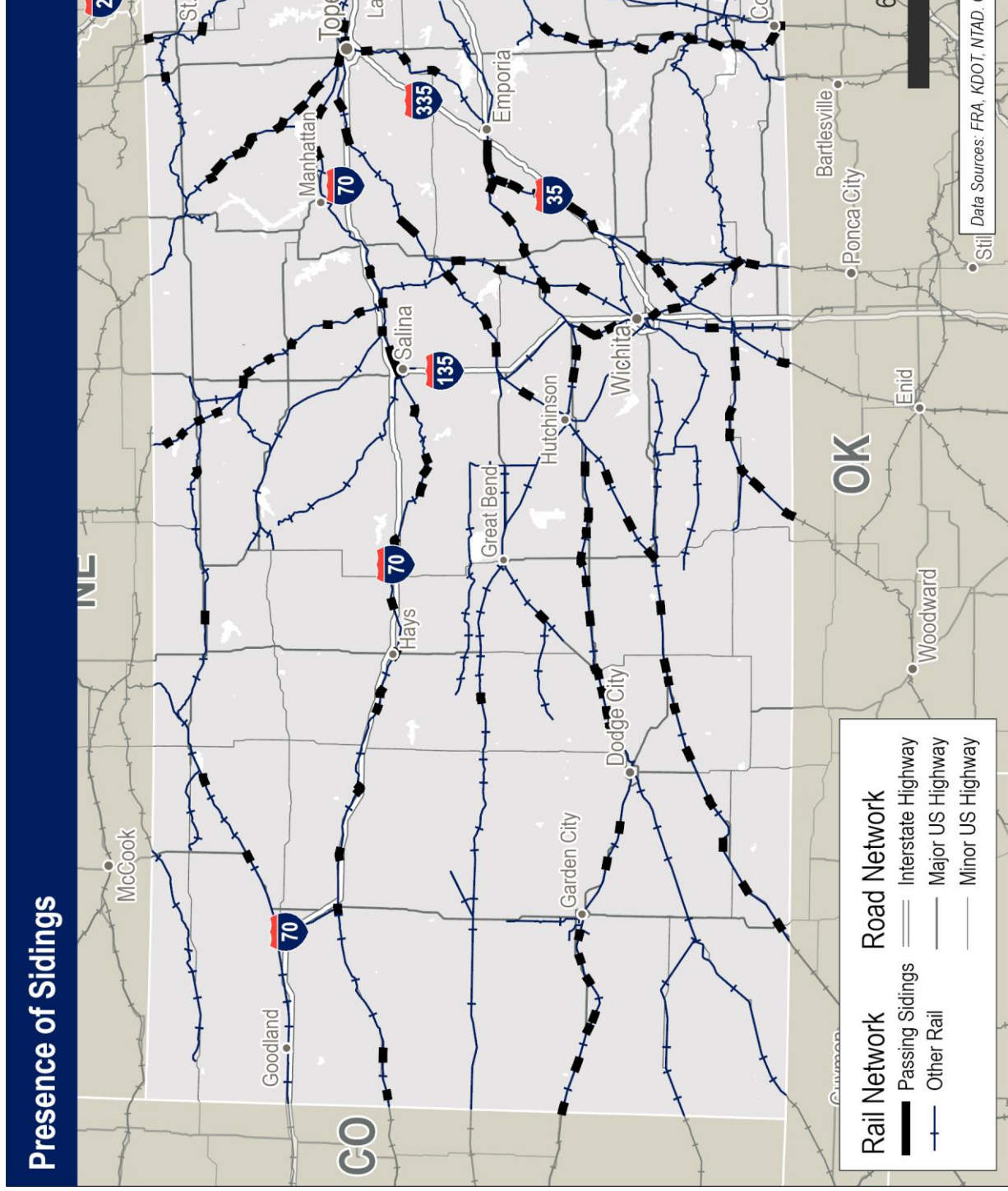
Figure 7-11: Length of Rail Sidings in Kansas

Railroad Class	Miles of Siding	% of Total Length
Class I	264	7.1%
BNSF	123.4	7.6%
KCS	0	0%
UP	140.2	6.8%
Short Line & Terminal / Switching	7.3	0.3%
K&O	2.1	0.2%
KYLE	5.2	1.0%
All Other Short Line & Terminal / Switching	0	0%
Total	271	4.5%

Source: CPCS analysis of NTAD North American Rail Lines Database, 2021; TranSystems analysis of BNSF network, 2021.

¹⁰⁷ Siding length data is currently under review and validation by KDOT.

Figure 7-12: Presence of Sidings



Source: CPCS analysis of NTAD North American Rail Lines Database, 2021; TranSystems analysis of BNSF network, 2021.

Asset Preservation

Asset Preservation: Address risks and maintain assets through investments that both provide high-value returns and make the best use of limited funds.

For asset preservation evaluation, data provided by KDOT is analyzed in conjunction with the geographic databases published by the BTS in NTAD. These data sources provide geocoded attributes of Kansas' rail system, specifically the classification of tracks, the ability for tracks to accommodate heavy railcars, and the operational status of rail lines. This information has been further supplemented and validated by stakeholder outreach with rail owners and operators.

Percent of Mileage that is FRA Track Class 4

The track classification system established by the FRA categorizes rail track segments according to their specific construction details as well as their structural tolerances for carrying passenger and freight trains with various speed limits. The lowest class is known as excepted tracks, which can only accommodate freight trains with a maximum speed of 10 mph and have specific restrictions regarding carrying hazardous material. Track classes 1 to 9 allow for both freight and passenger operations with various restricted speeds. Figure 7-13 details track class speeds for freight operations.

Figure 7-13: FRA Railroad Track Classification System

Track Class	Maximum Speed (MPH) for Freight Trains	Track Class	Maximum Speed (MPH) for Freight Trains
1	10	6	110
2	25	7	125
3	40	8	160
4	60	9	200
5	80		

Source: 49 CFR § 213.4, 9 & 49 CFR § 213.307, 2021

The FRA track classes indicate the rail equipment safety standards and frequency and category of inspections required. FRA track class 4 is the most common track class in the US, which allows for regular commuter and passenger rail operations with a typical range of speed limit. While FRA track class 4 is the standard for Class I railroads, FRA track class 2 – allowing for freight train speeds of up to 25 mph – is the standard for short line railroads. As Figure 7-14 shows, over half of the freight rail system in Kansas is operating on FRA track class 4 or higher. About 73 percent of the short line and switching/terminal rail system is FRA track class 2 or higher, and seven percent is track class 4 or higher. Figure 7-16 shows the extent of class 4 or higher rail tracks in Kansas.

Figure 7-14: Rail Track Classes in Kansas

Railroad	Active Track Mileage			
	Class 1	Class 2 & 3	Class 4 or Higher	% Miles Class 4 or Higher
Class I*	177	240	2,331	83%
BNSF	37	152	998	83%
KCS	3	-	18	87%
UP	137	88	1,315	82%
Short Line & Terminal / Switching	401	1,188	120	6.7%
Short Line	394	1,185	120	6.7%
Terminal / Switching	7	3	0	0%
Total	579	1,428	2,452	53%

Source: CPCS analysis of NTAD North American Rail Lines Database, 2021. Note: FRA track class of 121 miles of the state's freight rail system is unknown. * Note: Information pending validation by railroads.

Percent of Mileage that 286,000 Pound Capable

Since the Association of American Railroads (AAR) initiated the Heavy Axle Load (HAL) Research Program in 1988, upgrading tracks to accommodate larger and heavier railcars has been a major factor in helping freight railroads improve their total payload, and therefore productivity. Before that, the heaviest railcars carried in the US were up to 263,000 lbs. Since the late 1980s, many Class I railroads have strengthened their systems to support heavy railcars (up to 286,000 lbs. or 286K).

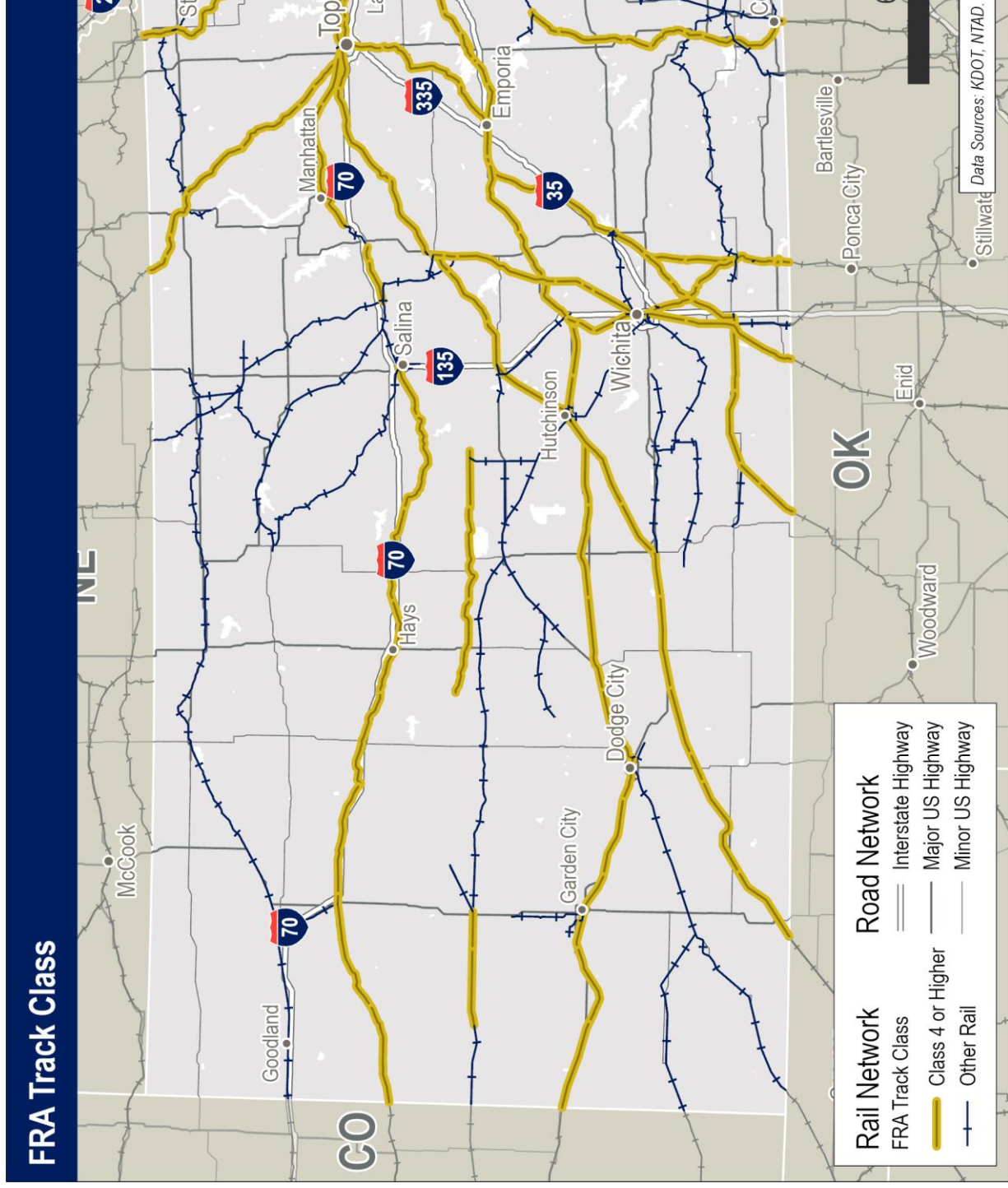
As Figure 7-15 shows, almost the entire active Class I system in Kansas is currently 286K capable. However, just 31 percent of the active short line system is known to be 286K capable. Meanwhile, information on the weight capacity of 1 percent of active tracks used by the short lines in Kansas is unavailable. The rail lines that cannot accommodate 286K cars would have to upgrade their infrastructure to allow for additional weight and operating speeds requirements to address the growing demands. This can lead to the eventual abandonment of rail segments that cannot handle 286K cars. The extent of the 286K compliant active rail network in Kansas is presented in Figure 7-17.

Figure 7-15: Capability to Accommodate 286K Railcars (Active Track)

Railroad	% 286K Capable	% not 286K Capable	% Unknown
Class I	98%	2%	0%
BNSF	99%	1%	0%
KCS	100%	0%	0%
UP	97%	3%	0%
Short Line & Terminal / Switching	31%	68%	1%
Short Line	30%	68%	1%
Terminal / Switching	100%	0%	0%
Total	71.7%	27.7%	0.4%

Source: CPCS analysis of KDOT Rail System Data, 2021; Shofstall, [Class III / short line system inventory to determine 286,000 lb \(129,844 kg\) railcar operational status in Kansas and determination of ballast fouling using ground-penetrating radar](#), 2017; Railroad websites; Railroad consultations.

Figure 7-16: FRA Track Class



Source: CPCS analysis of NTAD North American Rail Lines Database, 2021.

Percent of Mileage that is Inactive or Abandoned

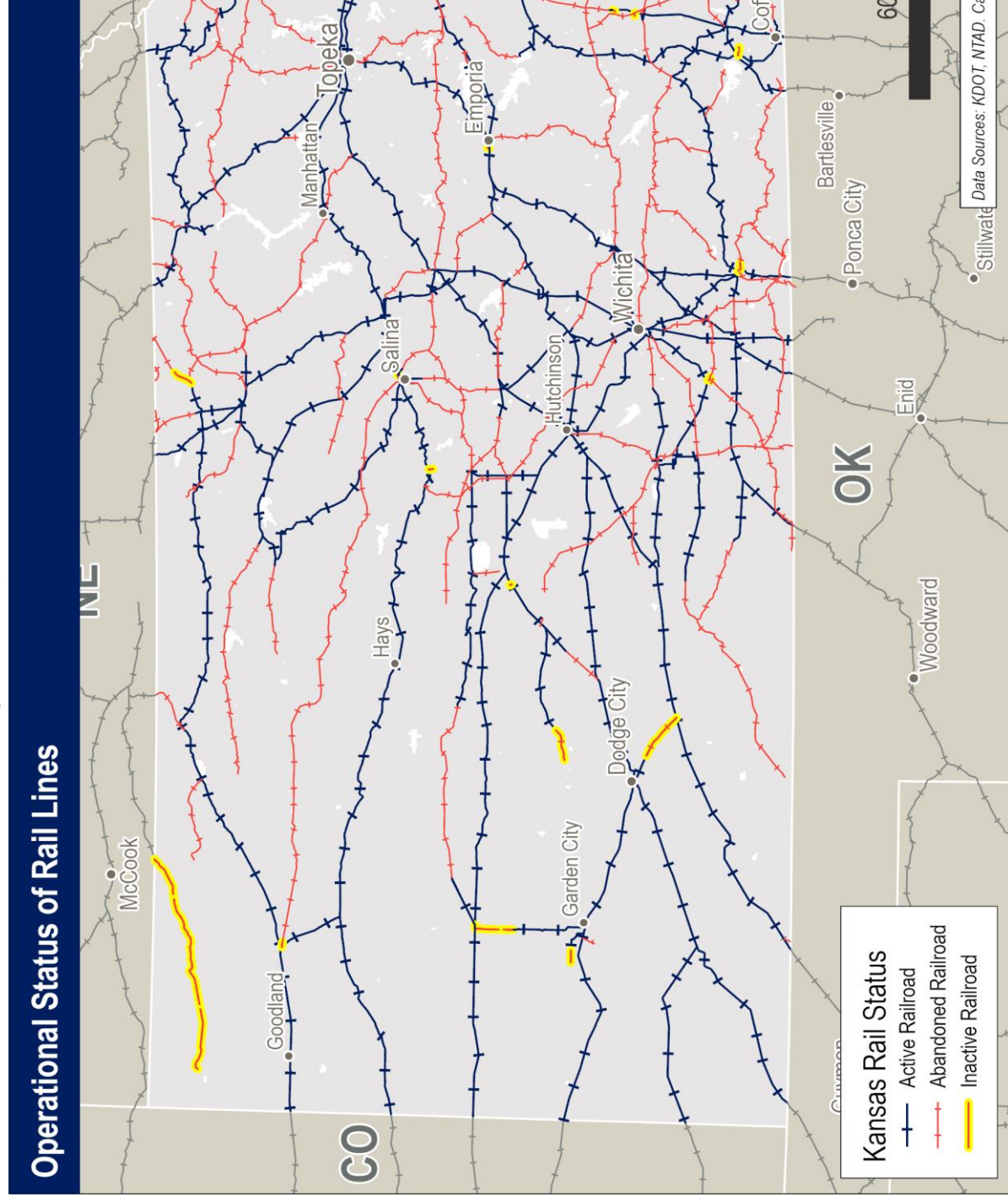
In Kansas, 3,192 miles (40 percent) of the rail track network is abandoned. Abandoned tracks are closed segments of the rail system that are no longer used for rail transportation purposes. Since an abandoned rail segment can affect all the rail users located along a line, the order for authorization of abandonment can only be issued by STB after a comprehensive review of the causes and potential impacts. About two percent of Kansas' freight rail system is inactive. This means that while trains are not operating over these segments, they are still owned by the railroads and can restart operations to serve the shippers. Figure 7-19 maps the operational status of rail lines across the state.

Figure 7-18: Freight Rail Operational Status

Status	Active	Inactive	Abandoned	Total
System Miles	4,618	142	3,192	7,953
% of Total	58%	2%	40%	100%

Source: CPCS analysis of KDOT Rail System Data, 2021.

Figure 7-19: Operational Status of Rail Lines



Source: CPCS analysis of KDOT Rail System Data, 2021.

Freight and Economic Vitality

Freight and Economic Vitality: Improve reliability and increase flexibility for cost-efficient movement of people, goods, and information to strengthen the Kansas economy.

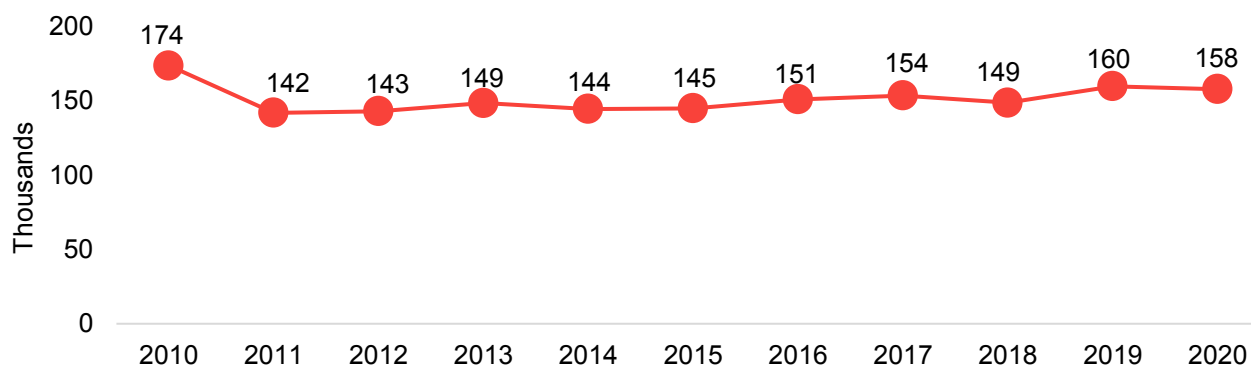
For freight and economic vitality, the assessment focuses on the economic importance of freight rail activities, with an emphasis on cargo types and volumes moved by short lines. Annual short line carloads and share of freight tonnage and value serve as qualitative evaluation measures. KDOT provides carload data, validated by railroads. Meanwhile, the share of freight moved by rail, measured by both tonnage and value, is provided by the FHWA's FAF5.¹⁰⁸

Short Line Carloads

Short lines play a key role in the local community and statewide economic vitality. Short lines enable short-haul rail operations, connecting the shippers and customers with the Class I rail network and major freight terminals and providing the shippers with cost-saving benefits (compared to other modes). A 2015 study of short line economic impact showed that, on average, the total cost of shipping with short lines is approximately 7.5 percent less than shipping by truck. Meanwhile, the maintenance cost of short line operations is estimated to be 70 percent less, safety cost about 40 percent less, and emission cost about 7 percent less than those of trucks.¹⁰⁹

Figure 7-20 shows the annual number of short line carloads carried in Kansas between 2010 and 2020. An average of about 151,600 short line carloads is transported in the state annually. Short lines in Kansas carried almost 160,000 carloads in 2019 and decreased by just over 1 percent to nearly 158,000 carloads in 2020, making up 2.7 percent of total carloads in Kansas.

Figure 7-20: Short Line Carloads (Annual)



Source: KDOT (2010-2015; 2020); Kansas Railroads (2016-2020). Analysis by CPCS, 2021. Note: Short line carload information for all years does not include KAW/KCTR or Wichita Terminal Association Railroad.

Share of Freight Tonnage Handled by Rail

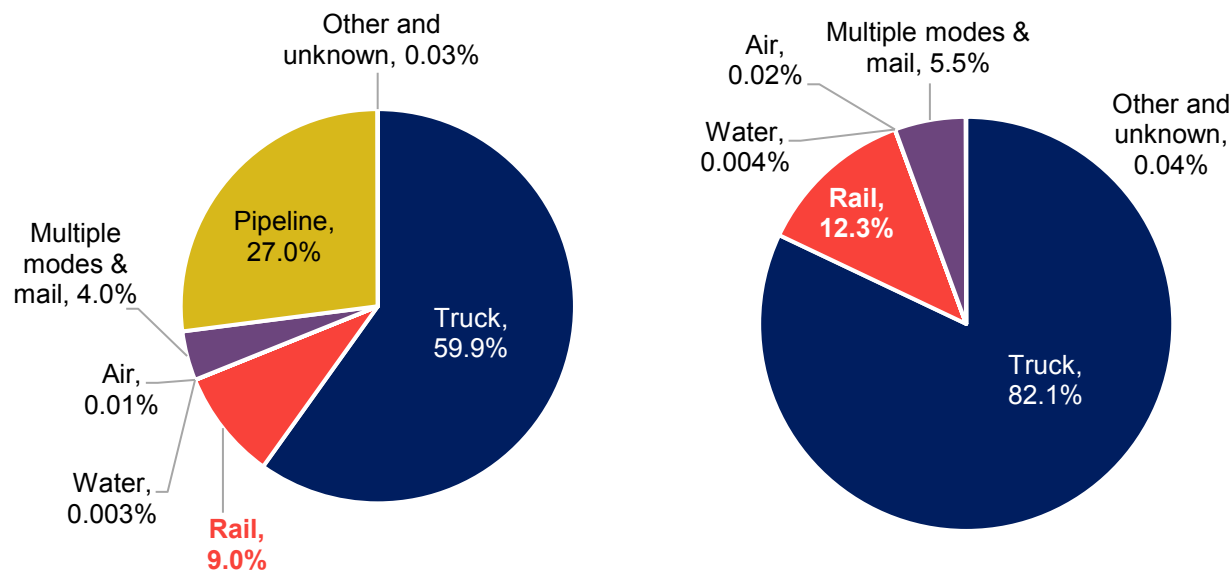
According to FHWA's FAF5, about 574.4 million tons of freight were handled in Kansas in 2017. Rail handles about 9 percent of the total cargo tonnage transported on Kansas' freight system. The rail

¹⁰⁸ The current FAF version 5 provides information for the base year 2017 using data from the 2017 Commodity Flow Survey (CFS), international trade data from the U.S. Census Bureau, and data from other sectors, from https://ops.fhwa.dot.gov/freight/freight_analysis/faf/. Note: For the purposes of this FAF analysis, the entire state of Kansas is included, in addition to the entire metropolitan region of Kansas City that includes both the Kansas and Missouri sides. Kansas City is critical to freight movements in the state of Kansas, with infrastructure assets that serve both the states of Kansas and Missouri.

¹⁰⁹ FHWA & TXDOT, Transportation And Economic Impact Of Texas Short Line Railroads, 2015. Report No. FHWA/TX-0-6887.

system's share of total freight volume increases to over 12 percent when the pipeline mode is removed from the comparison.

Figure 7-21: Kansas Total Flows by Mode (Tonnage) – with Pipeline (Left), without Pipeline (Right)

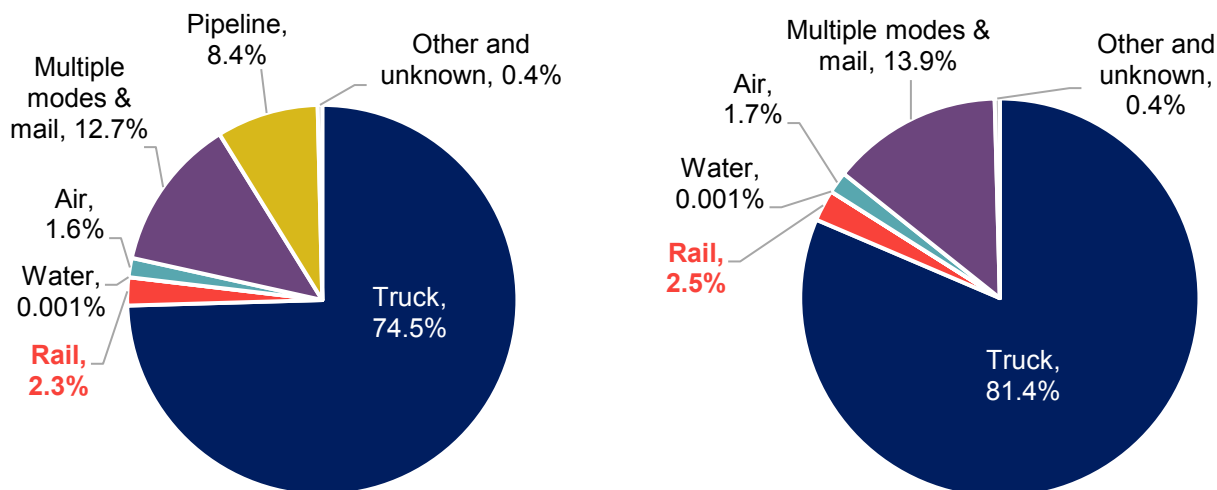


Source: FHWA FAF5, 2017 data; Analysis by CPCS, 2021. Note: Modal shares represent modes used for the domestic movement of goods. Therefore, for international goods movement (i.e., imports and exports) within the total flows, "mode" refers to the domestic movement of import and export goods within the US.

Share of Freight Value Handled by Rail

The total freight handled in Kansas in 2017 was worth over \$457.4 billion. Rail accounted for 2.3 percent of the total flows when the pipeline mode is included in the analysis. When excluding pipeline, rail handles about 2.5 percent of Kansas freight flows by value.

Figure 7-22: Kansas Total Flows by Mode (Value) – with Pipeline (Left), without Pipeline (Right)



Source: FHWA FAF5, 2017 data; Analysis by CPCS, 2021. Note: Modal shares represent modes used for the domestic movement of goods. Therefore, for international goods movement (i.e., imports and exports) within the total flows, "mode" refers to the domestic movement of import and export goods within the US.

Stewardship

Stewardship: Continuously improve the quality of the transportation system and surrounding communities through strong partnerships and focused, lower-cost, and higher-value improvements.

For stewardship evaluation, the number of state rail program loans and grants made by Kansas is used. KDOT provides information on the types of rail funding programs available, the number of projects funded, the amount of historical funding, and the total cost of projects enabled. In addition, the stewardship assessment identifies federal funding for rail projects in Kansas enabled by KDOT matching funds.

Number of State Rail Program Loans/Grants Made

Monitoring the rail-focused investments in Kansas promotes responsible and transparent allocation and management of available funds in alignment with the short and long-term needs of the rail stakeholders and the general public. Figure 7-23 highlights the total amount of loans and grants provided for rail projects in Kansas since the establishment of the RSIF and SLRIF programs.

RSIF supports short line infrastructure rehabilitation investments.¹¹⁰ KDOT has also used the RSIF program to leverage federal grant funds, such as for multi-state (Kansas, Colorado, and New Mexico) projects to improve rail infrastructure and safety on the BNSF/Amtrak Southwest Chief lines. Since 2000, the RSIF program has provided nearly \$58 million in grants and over \$29 million in loans to enable 95 rail projects totaling \$142.8 million in projects for Kansas.

SLRIF provides funding to support short and long-term short line track maintenance projects, spur and siding additions, and major rehabilitation and safety improvement projects.¹¹¹ In its first two years, the new SLRIF program has provided nearly \$9.4 million in grants to 22 short line rail mainline and shipper siding projects in the state, totaling \$13.4 million in project costs.

Figure 7-23: KDOT State Rail Program Loans/Grants

Program Type	Number of Projects	Total Project Costs	Loan Amount	Railroad Share	Grant Amount
RSIF SFY 2000-2022	95	\$142,843,103	\$29,024,369	\$55,834,185	\$57,984,550
SLRIF SFY 2021-2022	22	\$13,439,908	N/A	\$4,066,973	\$9,372,935

Source: KDOT.

In addition to statewide programs, KDOT has provided support and matching funds to secure several federal freight rail improvement grants. Since 2010, KDOT has provided \$3.1 million in matching funds to secure \$48.5 million in federal grant funds to enable \$68.1 million in freight rail projects. Additionally, in cooperation with CVR, KDOT was awarded a \$127.5 thousand Diesel Emissions Reduction Act (DERA) grant for the short line.

Chapter 10 provides further detail about the history of KDOT funding support for freight rail in Kansas.

¹¹⁰ KDOT, Railroad Assistance Program Webpage, accessed August 2021. <https://www.ksdot.org/burrrail/rail/loans/srsif.asp>

¹¹¹ KDOT, Short Line Rail Improvement Fund Program Guidelines, 2020.

Workforce

Workforce: Get the best from our workforce by attracting and retaining talent, modeling diversity, supporting professional development, and inspiring action.

At present, a workforce measure has not been recommended nor analyzed as part of the Kansas State Rail Plan. KDOT has engaged stakeholders in conversations related to KDOT staffing challenges and opportunities. KDOT has indicated an interest in further studying how other states organize rail-fronting activities in order to make an informed decision about how to “right-size” their approach to their workforce.

7.2 Passenger System

The Passenger Rail System Assessment uses Amtrak’s “State Fact Sheets”, Amtrak monthly/annual reports, and available FRA and KDOT passenger rail data to evaluate the performance of the Southwest Chief service in Kansas according to PRIIA metrics. For several measures, a subset of the data used for the freight assessment was evaluated specific to Amtrak passenger rail trains operating in Kansas.

Safety and Security

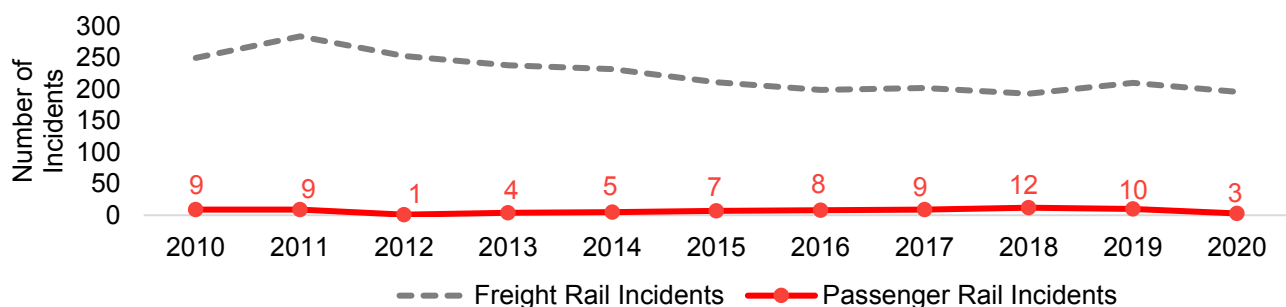
Safety and Security: Enhance the safety and security of the transportation system for all users and workers.

Total Passenger Rail Incidents

A total of 77 passenger rail (Amtrak) incidents happened in Kansas between 2010 and 2020, resulting in 9 deaths and 122 person injuries. In 2016, a single derailment near Cimarron, Kansas resulted in 60 injuries to passengers and train crew members. This derailment resulted from track displacement caused by an unrelated event where an unattended agriculture truck damaged the rail. In 2019, the passenger rail system in Kansas saw 10 incidents in total, which led to 3 deaths and 5 person injuries. As Figure 7-24 shows, between 2010 and 2020, the total number of passenger rail incidents in Kansas has remained fairly steady, ranging from 1 incident in 2012 to 12 incidents in 2018. These incidents make up a small portion of the overall incidents in Kansas but remain important, as a singular incident can result in multiple, on-board casualties of passengers and train crew members.



Figure 7-24: Passenger Rail Safety Trend



Source: TranSystems and CPCS analysis of FRA Safety Data, 2021.

Passenger Rail-Related Incidents at Crossings and Trespassing

Between 2010 and 2020, seven passenger-rail-related incidents occurred at highway-rail grade crossings in Kansas, resulting in two deaths and three injuries. In 2019, two crossing incidents led to one fatality. The passenger rail-related highway-rail grade crossing fatal incident resulted from an Amtrak train striking a pedestrian in Douglas County.

Six total passenger rail-related trespass incidents occurred between 2010 and 2020, resulting in five fatalities and one injury. Four of the passenger rail-related trespass incidents occurred in Shawnee County. None of the fatalities or injuries were Amtrak passengers or crew members.

Figure 7-25 shows the passenger-rail-related highway-rail grade crossing and trespass incidents by year.

Figure 7-25: Rail Crossing Risk Trend

Type	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Highway-Rail Grade Crossings												
Incidents	1	0	0	0	1	1	1	1	0	2	0	7
Fatality	0	0	0	0	0	0	1	0	0	1	0	2
Injury	1	0	0	0	0	1	0	1	0	0	0	3
Trespass												
Incidents	0	0	0	0	1	1	0	1	1	1	1	6
Fatality	0	0	0	0	1	1	0	1	1	1	0	5
Injury	0	0	0	0	0	0	0	0	0	0	1	1

Source: TranSystems and CPCS analysis of FRA Safety Data, 2021.

Positive Train Control (PTC) Compliance

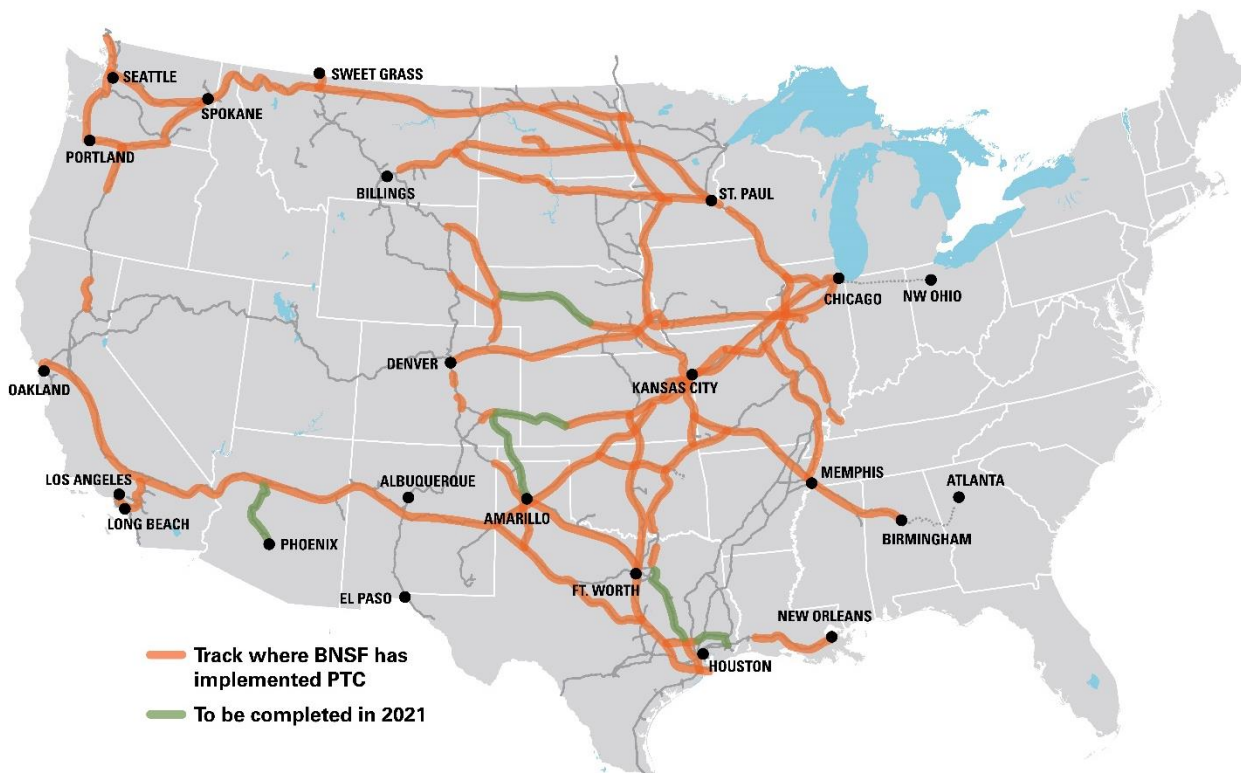
PTC systems are designed to prevent train-to-train collisions, over-speed derailments, incursions into established work zones, and movements of trains through switches left in the wrong position. A primary purpose of PTC is to provide protection where freight and passenger service runs on the same tracks.

The Rail Safety Improvement Act of 2008 required PTC systems to be fully implemented by December 31, 2015, on Class I railroads' main lines that transport certain hazardous materials and any main lines with regularly scheduled intercity or commuter rail passenger service. After several schedule extensions, FRA announced on December 29, 2020, that PTC technology was operational on all 57,536 required freight and passenger railroad route miles.¹¹²

For the Southwest Chief Route in Kansas, the corridor from Dodge City to the Colorado state line was not part of the initial PTC mandate due to the low volume of passenger and freight trains carried on the route. A 2019 CRISI grant was awarded to the Colorado DOT for PTC installation on the Southwest Chief route on the BNSF from Dodge City, Kansas to La Junta, Colorado. As Figure 7-26 displays, this route will be PTC equipped and compliant in 2021 upon completion of the federally-funded grant project.

¹¹² <https://railroads.dot.gov/train-control/ptc/positive-train-control-ptc>

Figure 7-26: BNSF PTC Equipped Network



Source: BNSF Railway, 2021.

Transportation System Management

Transportation System Management: Maximize the performance of the existing system by investing in transportation choices and intelligent transportation systems.

According to the 2045 Kansas LRTP, the population of Kansas is expected to grow by 11.6 percent through 2044. Although Kansas population growth is expected to be slower than both the national average and the state's historical growth, any population growth will increase the demand for transportation.

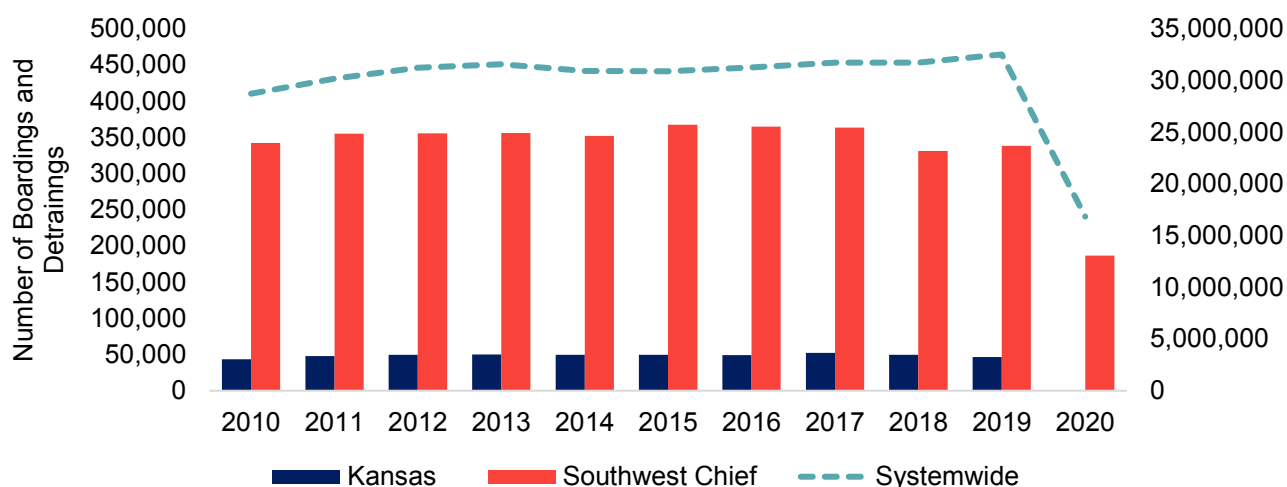
Despite slow population growth in Kansas, the proportion of older Kansans is expected to increase as people live longer and population growth slows. The 2045 Kansas LRTP reports an 88 percent increase in the older adult population from 2016 to 2044. This growth will be particularly evident in rural portions of Kansas.

More demand on the transportation system will likely result in more congestion and a continued need for transportation system management. An aging population will increase demand for non-drive alone modes, which could include passenger rail services. Maximizing the passenger rail system through investment in alternative choices for the growing and aging population in Kansas supports the transportation system management goal.

Percent Change in Ridership

Ridership in Kansas has been remarkably stable over the years as illustrated in Figure 7-27. In FY 2019, there were 46,483 boardings and alightings in Kansas. Also, 91,423 riders passed through Kansas in FY 2019, boarding and alighting outside the state. Data from Amtrak shows that overall ridership on the Southwest Chief peaked in 2015 but has declined by about 8 percent since (excluding ridership declines due to COVID-19 pandemic).¹¹³

Figure 7-27: Southwest Chief Ridership at all Kansas Stations, FY2010-2020



Source: Amtrak Fact Sheets.

Performance and Service Quality of Intercity Passenger Train Operations

Pursuant to Section 207 of the Passenger Rail Investment and Improvement Act of 2008 (Public Law 110-432, Division B), FRA publishes Performance and Service Quality of Intercity Passenger Train Operations data each quarter. Amtrak and the FRA jointly develop route-specific operating and service performance measures to provide Amtrak and government agencies with an indication of where improvements are required. Metrics and Standards from FY2019 Quarter 4 (Q4) and FY2021 Quarter 2 (Q2) are reported to account for the impacts to travel due to the COVID-19 pandemic.

Passenger Rail Customer On-Time Performance (OTP)

Customer on-time performance (OTP) measures the percentage of all customers on an intercity passenger rail train who arrive at their alighting point no later than 15 minutes after their published scheduled arrival time. This measure is calculated by taking the total number of customers on an intercity passenger rail train who arrive at their alighting point no later than 15 minutes after their published scheduled arrival time, divided by the total number of customers on the intercity passenger rail train. The minimum standard for OTP is 80 percent for any 2 consecutive calendar quarters.

The results in Figure 7-28 show that speeds have marginally decreased for the overall Southwest Chief route, with OTP substantially below the on-time standard of 80 percent. It is anticipated that the Southwest Chief's OTP performance will improve with the completion of the program of upgrades in Kansas, Colorado, and New Mexico.

¹¹³ Amtrak uses the Federal Fiscal Year from October 1 to September 30. No Kansas ridership is available for 2020.

Figure 7-28: FRA Quarterly On-Time Performance Measures

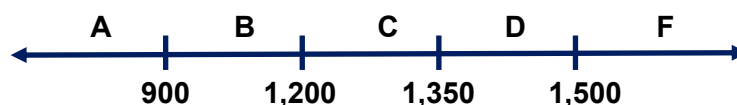
	Standard Service	Southwest Chief
Change in Effective Speed from FY 2008 Baseline (MPH) Last Four Quarters (FY 2019 Q1 to FY 2019 Q4)	≥ 0	-1.0
End Point OTP for FY 2019 Q4	80.0%	24.5%
All Stations OTP for FY 2019 Q4	80.0%	30.2%
Change in Effective Speed from FY 2008 Baseline (MPH) Last Four Quarters (FY 2020 Q3 to FY 2021 Q2)	≥ 0	-0.1
End Point OTP for FY 2021 Q2	80.0%	50.7%
All Stations OTP for FY 2021 Q2	80.0%	47.3%

Source: TranSystems and CPCS analysis of FRA Quarterly Report on the Performance and Service Quality of Intercity Passenger Train Operations, Published November 2019 and May 2021.

The OTP for the Southwest Chief as reported by Amtrak in its Host Railroad Report Card was 33 percent in 2019 and 64 percent in 2020. Amtrak ranked BNSF second out of six host railroads for OTP performance on its 2020 Host Railroad Report Card. BNSF received an A grade for its overall service. However, the Southwest Chief route received a failing grade because of its 64 percent OTP performance.¹¹⁴ Improvements to OTP in 2020 are somewhat related to the COVID-19 pandemic that resulted in reductions in the number of passenger trains operating and, at times, lower volumes of freight trains.

Amtrak measures host railroad performance based on minutes of host-responsible delay per 10,000 train miles. An 80 percent on-time performance is correlated to 900 host-responsible delay minutes per 10,000 train miles.

Figure 7-29: Amtrak Host Railroad Grading Scale



Source: Amtrak Host Railroad Report Card, FY2020.

Amtrak and Host Responsible Delays

Federal statutes direct host railroads to provide Amtrak trains preference over freight trains. However, many factors influence delays including limitations on the length of passing sidings, freight railroad yard or switching operations, and freight train congestion. Amtrak equipment and operations are also known to cause delays for passenger service. Host and Amtrak responsible delays on the Southwest Chief are shown in Figure 7-30.

The most substantial delays attributed to the host railroad are freight train interference (FTI) and slow order delays (DSR). Train interference delays – including freight train, passenger train, commuter train interference – result from meeting or following other trains in the area. A limited number of double track and sidings in Kansas can contribute to this delay. Slow order delays result from temporary reductions

¹¹⁴ Amtrak Host Railroad Report Card and FAQs, 2019 and 2020.

<https://www.amtrak.com/content/dam/projects/dotcom/english/public/documents/corporate/HostRailroadReports/Amtrak-2019-Host-Railroad-Report-Card-FAQs.pdf>

<https://www.amtrak.com/content/dam/projects/dotcom/english/public/documents/corporate/HostRailroadReports/Amtrak-2020-Host-Railroad-Report-Card-FAQs.pdf>

in allowable train speeds. Slow orders in Kansas are most likely attributed to needed maintenance on the route. Both reports referenced show that BNSF is below the standard threshold for total delay.

Amtrak attributed delays include crew and system (SYS), locomotive failure (ENG), and servicing or switching (SVS). These delays are likely due to limited crews and equipment nearing the end of its serviceable life. Pre-COVID-19 delays on Amtrak exceeded the standard threshold for total delay.

Figure 7-30: Host and Amtrak Responsible Delays on Southwest Chief

Service	Total Delay	Delay Code 1	Minutes	Delay Code 2	Minutes
FY2019 Q4					
BNSF (Host)	842	FTI	304	DSR	187
Standard	900				
Amtrak	542	SYS	121	ENG	120
Standard	325				
FY2021 Q2					
BNSF (Host)	772	FTI	440	DSR	138
Standard	900				
Amtrak	316	SYS	113	SVS	54
Standard	325				

Source: TranSystems and CPCS analysis of FRA Quarterly Report on the Performance and Service Quality of Intercity Passenger Train Operations, Published November 2019 and May 2021.

Passenger-miles per Train-mile

Capacity utilization of passenger train seats is important for the efficient operation of a passenger rail service. Passenger miles per train mile is a measure that reflects the average number of riders per train. Both periods presented in Figure 7-31 show declines in capacity utilization. The FY2021 Q2 values reflect less train service and lagging passenger volumes due to the lingering effects of the COVID-19 pandemic.

Figure 7-31: Passenger-miles per Train-mile on the Southwest Chief

Report	Current Period	Prior Period	Change	Percent Change
FY2019 Q4	165	175	-10	-5.7%
FY2021 Q2	120	160	-40	-25.0%

Source: TranSystems and CPCS analysis of FRA Quarterly Report on the Performance and Service Quality of Intercity Passenger Train Operations, Published November 2019 and May 2021.

Customer Service Indicator (eCSI) Scores

The Amtrak Customer Service Index is derived from customer survey responses. Topics cover a broad range of customer experiences on and off the train. As seen in Figure 7-32, the overall service standard was not consistently met for either standard.

Figure 7-32: Customer Service Indicator Scores on the Southwest Chief

Report	Overall Service Amtrak	Amtrak Personnel	Information Given	On-Board Comfort	On-Board Cleanliness	On-Board Food Service
2010 Standard	82	80	80	80	80	80
2020 Standard	70					
FY2019 Q4	59	78	60	65	55	63
FY2021 Q2	68	81	70	73	37	48

Source: TranSystems and CPCS analysis of FRA Quarterly Report on the Performance and Service Quality of Intercity Passenger Train Operations, Published November 2019 and May 2021.

Percent of Mileage with Double Track Along Passenger Rail Corridors

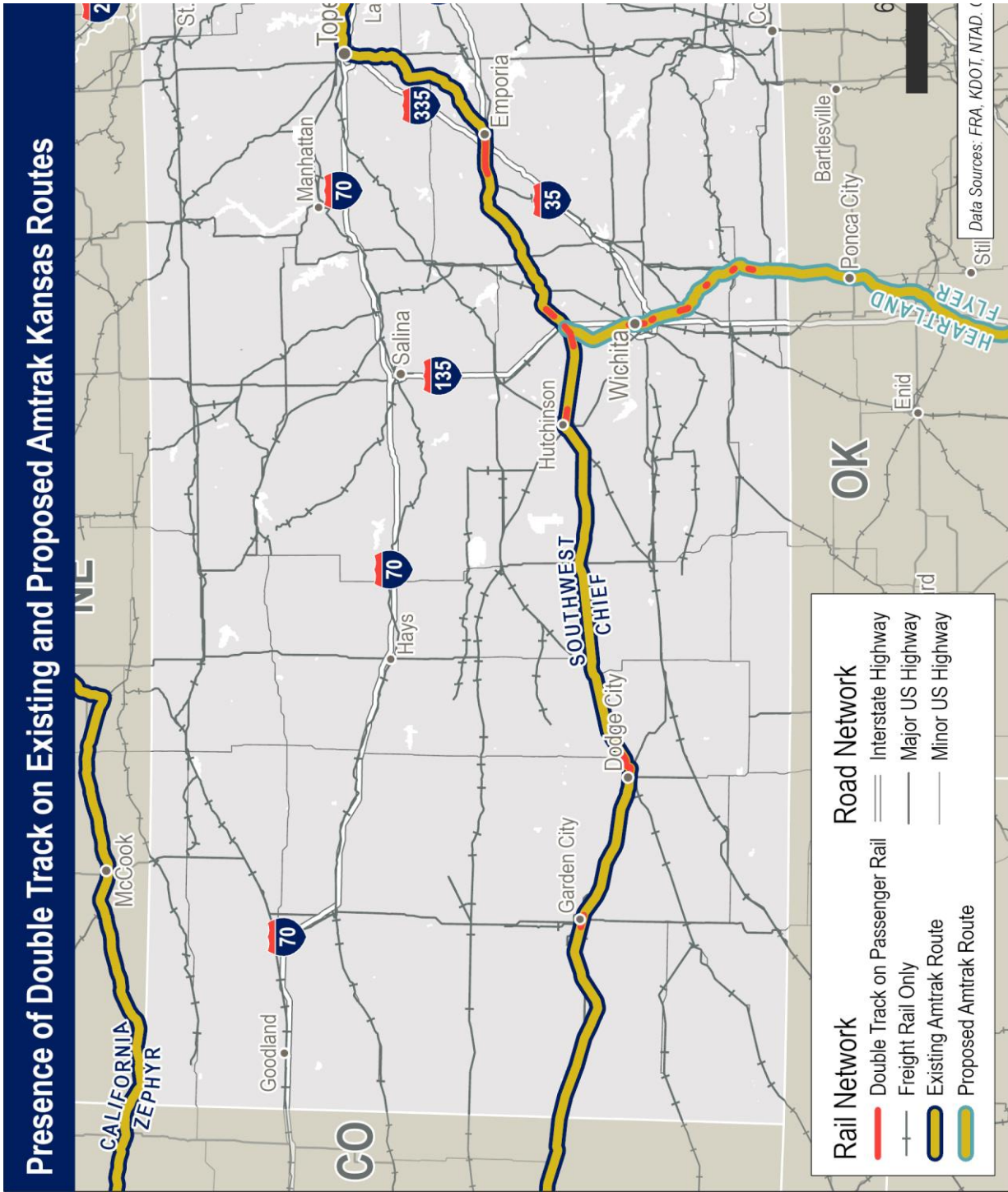
In passenger rail corridors, double-track segments allow passenger trains to pass freight trains without losing speed as long as the segment is of sufficient length. The presence of double track supports the ability to maintain on-time performance. Along the Southwest Chief corridor, 12 percent of the total length has two or more tracks. Meanwhile, along the proposed Heartland Flyer corridor, 10.3 percent of the total length has two or more tracks. This compares to approximately 8.2 percent of the length of the complete rail system in Kansas with two or more tracks. Figure 7-33 presents a summary of the double-track rail system in Kansas, which is further mapped in Figure 7-34 with passenger rail corridors highlighted.

Figure 7-33: Double Track System Length in Kansas (Passenger Rail)

Railroad Class	Miles of Double Track or Higher*	% of Total Length
Southwest Chief (Existing Service)	56.5	12.0%
Heartland Flyer Extension (Proposed Service)	13.6	10.3%

Source: TranSystems and CPCS analysis of NTAD North American Rail Lines Database, 2021; TranSystems analysis of BNSF network, 2021. * Note: Information pending validation by railroads.

Figure 7-34: Map of Double Track System in Kansas (Amtrak Passenger Rail Corridors)



Source: CPCS analysis of NTAD North American Rail Lines Database, 2021; TranSystems analysis of BNSF network, 2021.

Asset Preservation

Asset Preservation: Address risks and maintain assets through investments that both provide high-value returns and make the best use of limited funds.

Percent of Mileage that is FRA Track Class 4 Along Passenger Rail Corridors

The track classification system established by the FRA categorizes rail track segments according to their specific construction and maintenance details as well as their structural tolerances for carrying passenger and freight trains with various speed limits. The lowest class is known as excepted tracks, which can only accommodate freight trains with a maximum speed of 10 mph and have specific restrictions regarding carrying hazardous material. Track classes 1 to 9 allow for both freight and passenger operations with various restricted speeds. Figure 7-35 details track class speeds for passenger operations.

Figure 7-35: FRA Railroad Track Classification System

Track Class	Maximum Speed (MPH) for Passenger Trains	Track Class	Maximum Speed (MPH) for Passenger Trains
1	15	6	110
2	30	7	125
3	60	8	160
4	80	9	200
5	90		

Source: 49 CFR § 213.4, 9 & 49 CFR § 213.307, 2021

FRA Track Class 4 allows for passenger rail operations up to 80 mph. Amtrak passenger trains typically operate at the 79 mph speed limit. Track condition, grade crossing density, stations, and track warrants will reduce operating speeds.

In 2002, the BNSF dropped the passenger track speed on the La Junta subdivision from 90 mph (Class 5) to 60 mph (Class 3). The track condition at the time was deteriorating at a pace that would require passenger track speeds to further drop to 30 mph (Class 2) if major track rehabilitation was not undertaken. The reduction in track speed led to schedule, reliability, and ride quality concerns for the overall Southwest Chief route from Chicago to Los Angeles. From 2010 to 2014, partnerships were created and a phased approach to track improvements was developed.

Through subsequent federal discretionary grant program awards, improvements to the La Junta subdivision from Hutchinson, Kansas to Las Animas, Colorado have resulted in Class 4 track conditions for 92 percent of the passenger route miles. Upon completion of the TIGER IX (2017) Southwest Chief Route Stabilization Project, there will only be 27 miles still needing replacement between Hutchinson, Kansas, and La Junta, Colorado.

Upgrades to the 27-mile segment that remains at Class 3 are part of the City of Trinidad, Colorado's project that was awarded a 2021 RAISE grant. With this award, the entire La Junta subdivision where the Southwest Chief operates will operate at Class 4 track standards. BNSF's letter in support included in the 2021 RAISE grant application included a commitment to maintain the entire La Junta Subdivision at FRA Track Class 4 track standards, at BNSF expense, to support Amtrak operations and reduce long-term operating costs for the Southwest Chief.

Expansion planning for an extension to the Heartland Flyer state-supported service has documented a need to upgrade track on the BNSF Arkansas City and Red Rock subdivisions to support Class 4 track speeds. KDOT has received initial information from BNSF on the needed upgrades. KDOT will

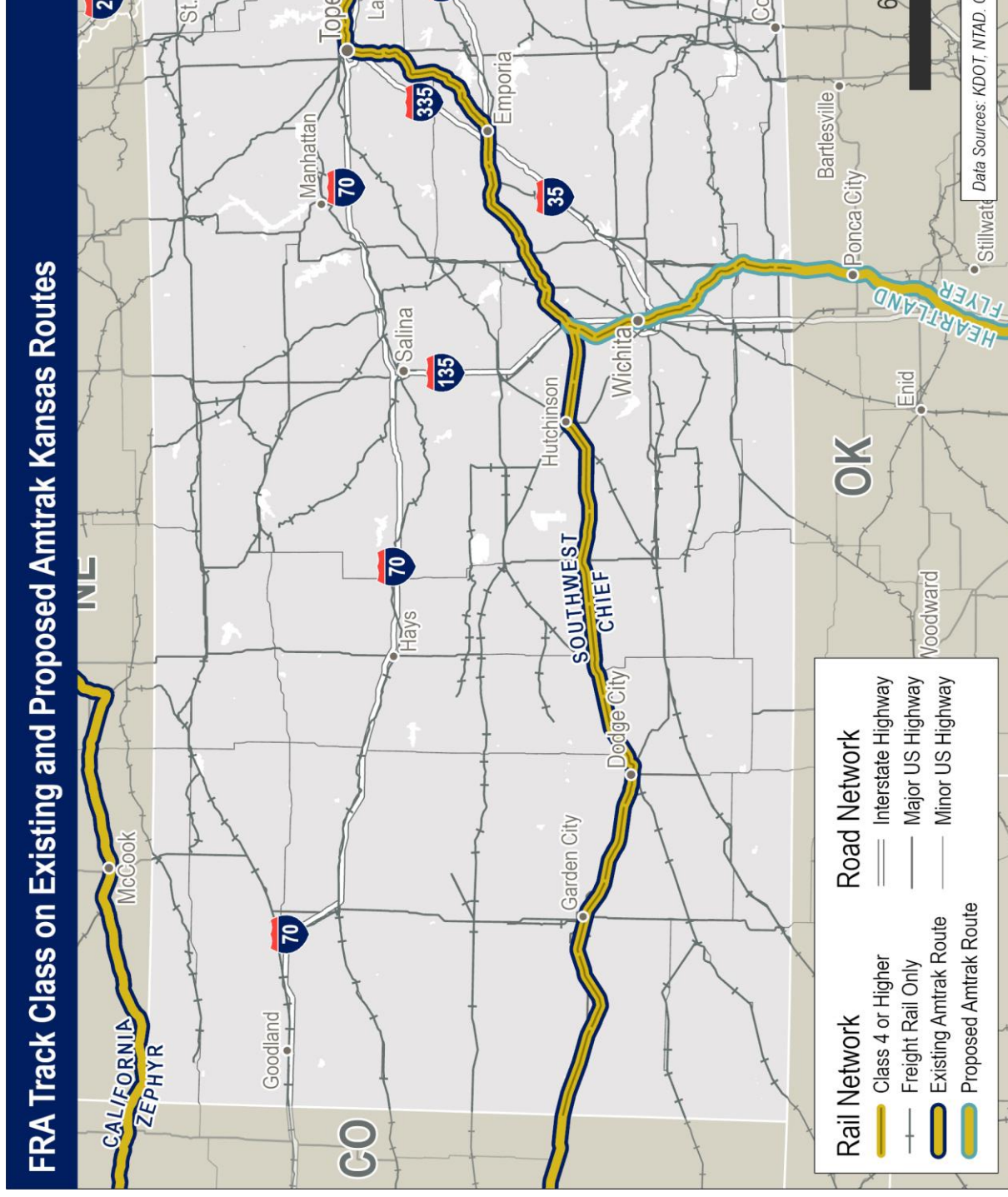
use the forthcoming Service Development Plan (SDP) update to fully understand the investments needed to support expanded passenger rail service.

Figure 7-36: Rail Track Classes in Kansas (Passenger Corridors)

Railroad	Active Track Mileage*	
	Class 4 or Higher	% Miles Class 4 or Higher
Southwest Chief (Existing Service)	459.5	98%
Heartland Flyer (Proposed Service)	78.9	93%

Source: CPCS analysis of NTAD North American Rail Lines Database, 2021. Note: FRA track class of 121 miles of the state's freight rail system is unknown, including 1.6 miles on the proposed Heartland Flyer Corridor. * Note: Information pending validation by railroads.

Figure 7-37: FRA Track Class (Amtrak Passenger Rail Corridors)



Source: CPCS analysis of NTAD North American Rail Lines Database, 2021.

Freight and Economic Vitality

Freight and Economic Vitality: Improve reliability and increase flexibility for cost-efficient movement of people, goods, and information to strengthen the Kansas economy.

Percent of Kansas Population within 25 Miles of an Existing Station

There are six passenger rail stations in Kansas, including Lawrence, Topeka, Newton, Hutchinson, Garden City, and Dodge City. Nearby stations in McCook, Nebraska (served by the California Zephyr) and Kansas City, Missouri are also accessible to Kansans seeking passenger rail service.

The Rail Passengers Association reports that 53 percent of Kansas residents live within 25 miles of a station and 75 percent live within 50 miles of a station. As the population shifts from more rural parts of the state to urban centers, the population served will likely increase over time.

Expansion planning for an extension to the Heartland Flyer state-supported service could introduce new stations at Wichita and Arkansas City. These stations would increase the population served by passenger rail.

Stewardship

Stewardship: Continuously improve the quality of the transportation system and surrounding communities through strong partnerships and focused, lower-cost, and higher-value improvements.

Number of Accessible Passenger Rail Stations

Amtrak initiated the ADA Stations Program in 2009. A goal of the ADA Stations Program is to bring all Amtrak served stations for which Amtrak has ADA responsibility into compliance with the ADA. Most Amtrak stations in major cities, and many other stations across the country, are accessible to passengers with a disability. Station structures, platforms, and parking in Kansas are owned by private entities. Amtrak is the ADA responsible party for every platform in Kansas and for a limited number of station structures and parking.

Figure 7-38 outlines accessibility for several station features in Kansas. In Kansas, all platforms, restrooms, and overnight parking are accessible. Some station features like waiting rooms are not accessible in some locations. All stations should provide comprehensive accessibility to passengers by upgrading features that are currently not accessible.

Figure 7-38: Accessibility of Station Features

Station Feature	Garden City	Dodge City	Hutchinson	Newton	Topeka	Lawrence
Platform	Accessible	Accessible	Accessible	Accessible	Accessible	Accessible
Restrooms	Accessible	Accessible	Accessible	Accessible	Accessible	Accessible
Waiting room	Accessible	Not Accessible	Accessible	Accessible	Accessible	Accessible
Overnight, accessible parking	Available	Available	Available	Available	Available	Available

Source: Amtrak. Various.

Number of Discretionary Grants Awarded for Southwest Chief Upgrades

KDOT and its rail partners have been successful in securing competitive discretionary funding through various federal grant programs that have enabled investment on the Southwest Chief route in Kansas, Colorado, and New Mexico, with projects that have replaced bolted rail with continuously welded rail, installed numerous new ties, rehabilitated crossings and turnouts, and installed PTC wayside technology.

Figure 7-39 provides an overview of matching funds provided by KDOT to secure federal grant funding for Southwest Chief upgrades. Since 2014, KDOT has provided \$7 million in matching funds to secure \$55.7 million in grants across five projects on the Southwest Chief.

Figure 7-39: KDOT Matching Funds for Discretionary Grants for Southwest Chief Upgrades

Program	Project Name	Grant Amount	KDOT Match Funds	Total Project Amount
TIGER VI (2014)	Southwest Chief Route Improvement Project	\$12.5 million	\$3 million	\$21.8 million
TIGER VII (2015)	Southwest Chief Route Advancement and Improvement Project (in CO and NM)	\$15.2 million	\$1 million	\$24.4 million
TIGER IX (2017)	Southwest Chief Route Stabilization Project	\$16 million	\$1 million	\$25.2 million
CRISI PTC (2018)	PTC Installation for the Amtrak Southwest Chief on BNSF Railway Through Colorado and Kansas	\$9.2 million	\$1 million	\$11.4 million
RAISE (2021)	Southwest Chief La Junta Route Restoration Program	\$2.8 million	\$1 million	\$23.4 million

Source: KDOT

Chapter 10 provides further detail about the history of KDOT funding support to secure federal grants for the Southwest Chief.

Workforce

Workforce: Get the best from our workforce by attracting and retaining talent, modeling diversity, supporting professional development, and inspiring action.

At present, a workforce measure has not been recommended nor analyzed as part of the Kansas State Rail Plan. KDOT has indicated an interest in further studying how other states organize rail-fronting activities, so that KDOT may make an informed decision about how to “right-size” their approach to their workforce.

8 Planning for the Future

Various trends will impact the future of Kansas' freight and passenger rail system, including the speed at which population and income grows, the technology that railroads introduce to improve their safety and operations, as well as other external events that impact how the system performs. Current forecasts estimate that the share of goods moved by rail will decrease by 2045, while the share moved by multiple modes and mail will increase. KDOT will consider these trends and forecasts, in addition to strengths, weaknesses, threats, and opportunities identified through data analysis and stakeholder input, to plan for the future of rail in the state.

8.1 Key Rail System Trends

Various trends will continue to impact Kansas' freight and passenger rail system use and operation in the future. A snapshot of key trends is presented below.



Population: In 2019, Kansas had an estimated population of 2.9 million people, and between 2010 and 2019, Kansas' total population increased by 101,323 people, or 3.6 percent. This represents a slow annual growth rate of 0.39 percent, compared to the nation's annual growth rate of 0.66 percent,¹¹⁵ which is expected to continue into the future. Kansas' population is clustered around the metropolitan areas of Kansas City (Johnson County and Wyandotte County), Wichita (Sedgwick County), Topeka (Shawnee County), Manhattan (Riley County), and Lawrence (Douglas County). Each of these counties experienced an increase in population between 2010 and 2019. However, 83 counties (79 percent of Kansas' counties), located in the state's more rural areas, experienced a population decline. Rural areas are experiencing a decline in population due to a combination of natural population decrease (more deaths than births) and out-migration to other Kansas counties and nearby states.¹¹⁶



Income: The median household income in Kansas was \$59,597 in 2019, representing a growth of \$1,650, or 2.8 percent, since 2010. Meanwhile, between 2010 and 2019, the national median household income increased by 3.2 percent, reaching \$62,843 in 2019.¹¹⁷



Workforce Requirements and Shortages: Train crew size has been debated in recent years. In 2016, the FRA issued a Notice of Proposed Rulemaking proposing a national minimum requirement of two crew members for trains. Over three years later, in 2019, the FRA issued an order purporting to adopt a nationwide maximum one-person crew rule and to preempt any state laws on crew size. Two Unions and the states of California, Washington, and Nevada challenged the order, with one result being that the order does not preempt state safety rules and that states may mandate crew requirements within their borders.¹¹⁸ Kansas has not instituted any crew size requirements; KDOT's proposed Crew Requirements regulation was denied by the Kansas Attorney General in September 2020.

¹¹⁵ U.S. Census, American Community Survey, 2010-2019.

¹¹⁶ U.S. Census, Estimates of the Components of Resident Population Change for Counties, April 1, 2010 to July 1, 2019; U.S. Census, County-to-County Migration Flows, 2014-2018 ACS.

¹¹⁷ Adjusted for inflation using BLS CPI Inflation Calculator, https://www.bls.gov/data/inflation_calculator.htm.

¹¹⁸ U.S. Court of Appeals for the Ninth Circuit, Transportation Division of the International Association of SMART Workers; Brotherhood of Locomotive Engineers and Trainmen (Petitioners) v. Federal Railroad Administration; USDOT (Respondents), Association of American Railroads (Intervenor). No. 19-71787 FRA No. FRA-2014-0033

KDOT continues to monitor this issue as it relates to overall workforce shortages, rail system safety, and the efficient operation of longer trains.



Disruptive Events: 2021 was a turbulent year that had impacts on all parts of the freight transportation system. From West Coast and inland port congestion that prompted railroads to curtail their train schedules to allow yards to clear,¹¹⁹ to other disruptive events that included major winter storms,¹²⁰ flooding,¹²¹ and wildfires,¹²² these events prompted railroads to re-route or reschedule services, reducing traffic volumes on the rail system. The COVID-19 pandemic further impacted workforces throughout the freight supply chain. Freight system resiliency and planning for the unexpected have never been more important as disruptive events continue to mount.



Positive Train Control: PTC is a safety system that tracks the speed and movement of trains and can automatically stop a train to prevent specific human-error accidents. In 2008, Congress passed legislation requiring that PTC be installed on track that carries passengers and certain hazardous materials. In December 2020, FRA announced that PTC technology is in operation on all of the over 57,500 required freight and passenger railroad route miles, prior to the December 31, 2020 statutory deadline. PTC allows individual railroads' PTC systems to work together seamlessly, no matter which railroad owns the locomotives and track (i.e., a passenger locomotive operating on a freight railroad's track must behave the same way as that freight railroad's locomotive would on that same track). PTC technology is expected to prevent train-to-train collisions, derailments caused by excessive speed, accidents that can occur if trains are routed down the incorrect track, and unauthorized train movements on tracks undergoing maintenance,¹²³ promoting a safer rail system for Kansans in the future.



Longer Trains: Today, most Class I railroads in the US employ some form of precision scheduled railroading (PSR). The goal of PSR is to streamline operations, by pre-blocking traffic at the origin, and bypassing intermediate switching as much as possible. While PSR allows railroads to operate with fewer train crews and far smaller locomotive and carshop workforces, it also results in moving traffic in fewer, but longer, trains – 3 miles in length, in some cases. The Government Accountability Office has cited an increase in average train length of 25 percent since 2008¹²⁴, and stated concerns that longer trains may block traffic more often at road-crossings, impeding emergency responders and prompting unsafe pedestrian behavior (such as climbing through stopped trains). Braking and other operations can also be more complex for these longer trains.¹²⁵

¹¹⁹ Union Pacific pauses service from West Coast to Chicago as congestion hits inland terminals, July 2021.

<https://www.supplychaindive.com/news/union-pacific-rail-west-coast-chicago-service-suspension-congestion/603452/>

¹²⁰ Extreme Winter Weather Slows Traffic: AAR, Railway Age, March 3, 2021. <https://www.railwayage.com/freight/extreme-winter-weather-slows-traffic-aar/>

¹²¹ Vancouver Is Marooned by Flooding and Besieged Again by Climate Change: After a summer of deadly heat and uncontrolled wildfires, British Columbia was hit by record rainfalls that forced the evacuation of towns and destroyed highways and rail lines. New York Times, November 11, 2021. <https://www.nytimes.com/2021/11/21/canada-flooding-climate-change.html>

¹²² Western Fires Halt Hundreds of Canada Rail Cars, Slowing Exports, Bloomberg, July 26, 2020.

<https://www.bloomberg.com/news/articles/2021-07-06/fires-snarl-west-coast-exports-as-track-damage-halts-rail-cars>

¹²³ Federal Railroad Administration, PTC Overview. <https://railroads.dot.gov/train-control/ptc/positive-train-control-ptc>

¹²⁴ Data on train length are not publicly available; however data provided to GAO by two Class I railroads indicated that their average train length has increased by about 25 percent since 2008, with average lengths of 1.2 and 1.4 miles in 2017. Officials from all seven Class I railroads said they are currently operating longer than average trains on specific routes, although some said such trains are a small percentage of the trains they operate. One railroad said it runs a 3-mile-long train twice weekly.

¹²⁵ Rail Safety: Freight Trains Are Getting Longer, and Additional Information Is Needed to Assess Their Impact, GAO-19-443 Published: May 30, 2019. Publicly Released: Jul 01, 2019. <https://www.gao.gov/products/gao-19-443>

8.2 Kansas Future Rail Movements

The share of goods moved by rail is forecast to decrease by 2045, while the share moved by multiple modes and mail will increase.

Figure 8-1 displays the modal share of goods movement to, from, and within Kansas in 2017, compared to the 2045 forecast.

FAF5 uses the base year 2017 to provide information on freight movements for forecast year estimates, from 2020-2050. For the purposes of the Kansas Rail Plan, FAF5 forecasts for 2045 have been analyzed to align with the 2045 LRTP.

Among the 745.3 million tons of freight worth over \$760.4 billion that is forecast to move to, from, and within Kansas in 2045, rail is projected to carry 52.6 million tons of goods worth over \$15.8 billion, representing 7.1 percent of all goods moved by volume (Figure 8-2) and 2.1 percent by value (Figure 8-3). Although the share of total goods moved by rail is projected to decrease between 2017 and 2045, the absolute volume of rail movements is projected to increase by 1.6 percent during this time, while the value of rail movements will increase by 49 percent.

Meanwhile, multiple modes and mail¹²⁶ continues to move increasing amounts of goods (especially higher value goods), compared to just truck or just rail. The increasing share of multiple modes and mail, which includes intermodal movements, may account for the decrease in the rail-only share of total freight flows. By 2045, the share of goods moved by multiple modes and mail are forecast to increase to 4.5 percent of goods by volume and 15.3 percent of goods by value. Multiple modes and mail are projected to carry 33.6 million tons of goods worth over \$116.1 billion, representing an increase of almost 45 percent by tonnage and 100 percent (doubling) by value.

Figure 8-1: Kansas Modal Share of Total Flows – 2017 and 2045

Mode	Share of Total Flows (Tonnage)			Share of Total Flows (Value)		
	2017	2045	Trend	2017	2045	Trend
Truck	59.9%	61.3%	⬆️	74.5%	74.2%	⬇️
Rail	9.0%	7.1%	⬇️	2.3%	2.1%	⬇️
Water	0.003%	0.003%	—	0.001%	0.001%	—
Air	0.01%	0.02%	⬆️	1.6%	1.8%	⬆️
Multiple modes & mail	4.0%	4.5%	⬆️	12.7%	15.3%	⬆️
Pipeline	27.0%	27.1%	⬆️	8.4%	6.3%	⬇️
Other and unknown	0.03%	0.03%	—	0.4%	0.4%	—

Source: FHWA FAF5. Analysis by CPCS, 2021. Note: Modal shares represent modes used for the domestic movement of goods. Therefore, for international goods movement (i.e., imports and exports) within the total flows, "mode" refers to the domestic movement of import and export goods within the US.

¹²⁶ Refers to movements of commodities that utilize more than one mode. FAF and the CFS use Multiple Modes and Mail rather than intermodal to represent these movements. Intermodal typically refers to containerized cargo that moves between ship and surface modes or between truck and rail. Shipments reported as Multiple Modes can include anything from containerized cargo to coal moving from mine to railhead by truck and rail to harbor. The "Mail" component recognizes that shippers who use parcel delivery services typically do not know what modes were involved after the shipment was picked up. From BTS and FHWA, FAF5 User Guide, January 20, 2021, <https://faf.oml.gov/faf5/data/FAF5%20User%20Guide.pdf>.

Figure 8-2: Kansas Total 2045 Forecast Flows by Mode (Tonnage)

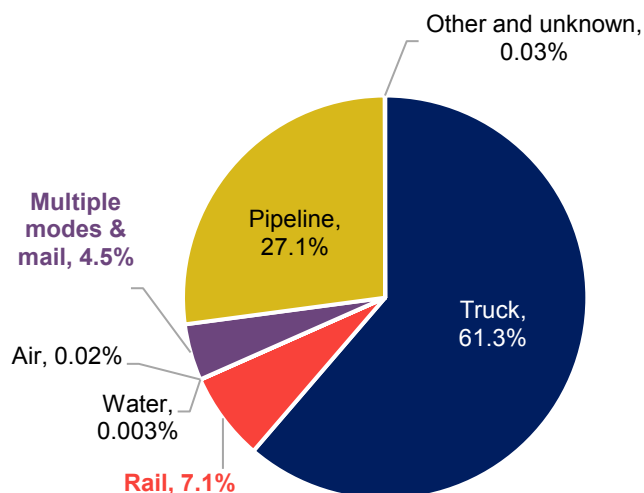
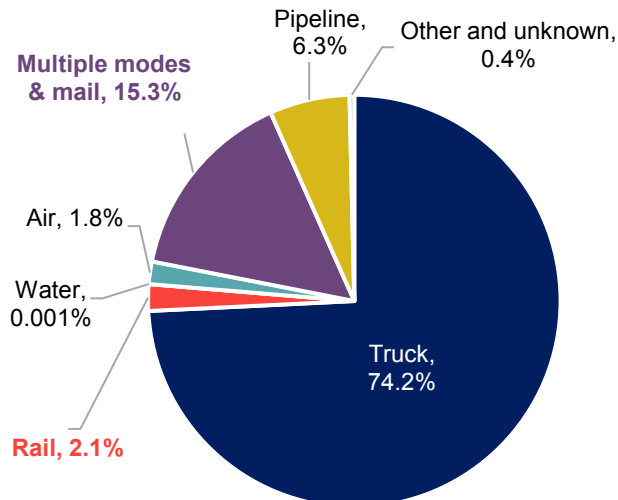


Figure 8-3: Kansas Total 2045 Forecast Flows by Mode (Value)



Source: FHWA FAF5. Analysis by CPCS, 2021. Note: Modal shares represent modes used for the domestic movement of goods. Therefore, for international goods movement (i.e., imports and exports) within the total flows, “mode” refers to the domestic movement of import and export goods within the US.

8.3 Strengths, Weaknesses, Opportunities, and Threats

The assessment of Kansas’ freight and passenger rail system through select evaluation measures (Chapter 7) provides data-driven insight into the system’s existing strengths and weaknesses. In addition to the quantitative analysis, rail-focused stakeholder outreach supported the evaluation of Kansas’ freight and passenger rail system. Based on data and stakeholder inputs, Figure 8-4 identifies Kansas’ top Strengths, Weaknesses, Opportunities, and Threats (SWOT) for the freight and passenger rail system.

Figure 8-4: Kansas Rail System SWOT

Strengths

- Kansas’ central location makes the state critical to goods movement nationwide. Passthrough rail movements reached almost 250 million tons in 2019.
- Kansas’ short line rail system makes up 39 percent of the state’s active rail infrastructure and transported 2.7 percent of total carloads in Kansas. Short lines provide competitive shipping costs and lower emissions compared to trucks.
- The majority of Kansas’ rail system meets FRA track class standards (class 4 or higher for Class I and class 2 or higher for short lines). Additional Class 4 track upgrades are expected to further improve efficiency and operations.
- Passenger rail ridership in Kansas has remained steady despite national declines in ridership.
- The passenger rail system in Kansas is accessible to its residents, with 75 percent living within 50 miles.
- KDOT coordinates and partners with railroads on large capital projects for rail improvements and accommodations, and administers Section 130 funds for highway-rail grade crossing projects.
- KDOT supports and on occasion has provided matching funds for federal grant applications.
- KDOT administers several state-funded rail programs that allocate funding to assist short lines and shippers with rail system maintenance and upgrade projects and siding improvements.
- Kansas rail stakeholders emphasize positive feedback for KDOT’s existing rail-dedicated workforce and the rail programs administered by KDOT.

Weaknesses

- Occurrence of freight and passenger rail incidents at highway-rail grade crossings.
- The majority of Kansas' freight and passenger rail system remains single track, with a need for more double track to account for maintenance needs and network disruptions. Insufficient number and length of sidings on Kansas' rail system also leads to blocked crossings and rail stoppage.
- At many locations statewide, rail maintenance and issues cannot be serviced during night hours when it is dark.
- Kansas is a small market due to lower population in rural areas and is unable to support frequent passenger rail service. The existing schedule for passenger rail service in Kansas is largely in the middle of the night, and low on-time performance for the Southwest Chief causes reliability issues for passengers.
- Due to annual carload volumes and revenues, short lines have difficulty making investments for needed rail infrastructure maintenance and upgrades. Currently, less than one-third of the active short line system is known to be at the industry-standard 286K capable.
- Difficulty recruiting and maintaining Kansas' private sector rail workforce, due to factors including rural job locations, undesirable and/or unreliable work hours, a limited pool of workers with rail experience, and a post-COVID-19 workforce shortage. A limited/diminishing public sector rail-dedicated workforce limits the ability to focus staff time on freight and passenger rail efforts.

Opportunities

- Advance policy and program recommendations in line with state long-range transportation planning focus areas – safety and security, transportation system management, asset preservation, freight and economic vitality, stewardship, and workforce.
- Improve highway-rail grade crossings.
- Provide and/or support efforts to secure funding support for rail projects.
- Work with railroads to identify opportunities to invest in infrastructure improvements.
- Improve economic efficiency and benefits for Kansas rail system users.
- Improve ability to attract businesses to locate or expand in Kansas.
- Coordinate Kansas' rail workforce to accomplish State Rail Plan goals.
- Monitor and support opportunities to implement new rail technologies.
- Evaluate opportunities to support planned and potential railroad projects that may address quantitatively-identified needs on Kansas' freight and passenger rail network.
- Enhanced grant funding opportunities for rail infrastructure improvements, passenger rail expansion, and highway-rail crossing improvements through the federal Bipartisan Infrastructure Law (BIL).

Threats

- Trains are getting longer, increasing the likelihood of blocked grade crossings when trains are stopped.
- Port and container volume growth (e-commerce boom), combined with system disruptions (COVID-19 and others), impact the availability of equipment and capacity. A shortage of containers, boxcars, chassis, and other equipment limits capacity and threatens efficient and reliable rail movements.
- Increasing customer demand and growing traffic put increasing stress on aging rail infrastructure, especially on the short line system. Meanwhile, the existing limited speed and weight capacity of rail lines, as well as aging rail facilities and equipment, limit the ability to capture growing customer needs and demands.
- Rates are highly controlled by Class I's, exacerbated by potential mergers.
- COVID-19 has resulted in less passenger train service and lagging passenger volumes.
- Private sector workforce challenges, exacerbated by a lack of reliability of train schedules.
- Turnover or retirement of public and private sector rail-dedicated workforce threatens the loss of institutional knowledge and efficiency of future rail efforts and programs administered by KDOT.

9 Rail Policy and Program Recommendations

KDOT identified 20 policy and program recommendations to guide next steps for freight and passenger rail planning in Kansas. These recommendations are organized into seven policy areas, each focusing on a different set of KDOT focus area(s) in alignment with the state's overall transportation guidance.

9.1 Policy and Program Recommendations

Data analysis and stakeholder input informed and validated the identification of policy and program recommendations to enhance Kansas' rail system. Recommendations are also classified by goal area to provide insight into how each recommendation aligns with KDOT's goals for the rail system.

Each policy and program recommendation identified in Figure 9-2 is organized into one of the policy and program areas in Figure 9-1.

Figure 9-1: Policy and Program Area Recommendations



Improve highway-rail grade crossings



Provide and/or support efforts to secure funding support for rail projects



Work with railroads to identify opportunities to invest in infrastructure improvements



Improve economic efficiency and benefits for Kansas rail system users



Improve ability to attract businesses to locate or expand in Kansas



Coordinate Kansas' rail workforce to accomplish State Rail Plan goals



Monitor and support opportunities to implement new rail technologies

Figure 9-2: Policy and Program Recommendations

ID		Policies and Programs	Safety & Security		Transportation System Management	
Improve highway-rail grade crossings						
P-1	Work with railroads to develop a corridor approach for grade crossing projects (e.g., grade crossing upgrades on line segments stretching 20-50 miles).	X		X		
P-2	Follow through with recommendations of ongoing Grade Crossing Safety State Action Plan, which may include recommendations for crossings (including blocked crossings) and corridors.	X		X		
P-3	Partner and coordinate with other state departments on Operation Lifesaver to improve awareness around and enhance safety at grade crossings.	X				
P-4	Identify active grade crossing locations and install signs, active warning devices, or other technologies to improve safety. This may include improved lighting to improve visibility or signage to direct drivers to other crossings that are open or grade-separated, among others.	X		X		
P-5	Administer Section 130 funds for improvements at Kansas highway-rail grade crossings.	X		X		
Provide and/or support efforts to secure funding support for rail projects						
P-6	Advance investments identified in the Kansas State Rail Plan's Rail Service Investment Plan, in partnership with freight rail stakeholders.	X		X		
P-7	Develop a program to fund emissions reduction investments in rail (e.g., retrofit engines, electric locomotives).					
P-8	Continue funding programs for short line railroads and railroad shippers (RSIF, SLRIF, Economic Development, Cost Share).	X		X		
P-9	Work with short lines and other state and local agencies to leverage partnerships and coordinate and secure funding for rail projects, including by providing non-federal match funds.	X		X		
P-10	Explore application of American Rescue Plan Act (ARPA) federal funds to short line rail (potentially funds available for broadband, so could perhaps similarly be applied to the short line network, to improve private network with public benefits).	X		X		

ID		Policies and Programs	Safety & Security	Transportation System Management
Work with railroads to identify opportunities to invest in infrastructure improvements				
P-11	Coordinate with freight rail stakeholders to identify locations and opportunities for lighting at yard facilities, grain elevators, and other rail facilities to enable crews to service facilities during night hours.	X	X	
P-12	Identify opportunities to rehabilitate inactive rail lines.			X
Improve economic efficiency and benefits for Kansas rail system users				
P-13	Develop a program to consolidate containers to address container shortages.			X
P-14	Conduct an economic study for new transload facilities in Kansas.			X
P-15	Identify infrastructure investment opportunities to expand access to Class I rail lines.			X
P-16	Conduct a study to identify opportunities to improve rail connections between Kansas and the Tulsa Port of Catoosa.			X
P-17	Evaluate opportunities statewide to construct unit train tracks.			X
Improve ability to attract businesses to locate or expand in Kansas				
P-18	Identify and prepare sites in Kansas for large-scale industrial development. This includes partnering with railroads to identify mega-sites and conduct due diligence (e.g., environmental testing, access to utilities, community support, etc.) to secure rail projects in the state.			
P-19	Continue to develop business attraction packages, in collaboration with other agencies and rail users, by proactively identifying rail improvement opportunities to incentivize businesses to locate or expand in Kansas.			
P-20	Identify potential locations for additional Class I certified sites.			

ID		Policies and Programs	Safety & Security	Transportation System Management
		<i>Coordinate Kansas' rail workforce to accomplish State Rail Plan goals</i>		
P-21		Develop staffing plan for the KDOT Freight and Rail Unit. This may include dedicating additional staff, succession planning to pass on institutional knowledge.		
P-22		Coordinate efforts with public and private rail stakeholders to promote rail workforce.		
		<i>Monitor and support opportunities to implement new rail technologies</i>		
P-23		Encourage the adoption of new rail technologies to improve system operations. This may include technologies to monitor locomotives to identify maintenance and repair needs before issues arise and technologies to improve visibility into rail movements.	X	X

10 Rail System Investment Plan

KDOT works with various public and private stakeholders to maintain and improve Kansas' freight and passenger rail system by advocating for rail system improvements, supporting and on occasion providing matching funds for federal grant applications, and administering state funded programs that enable rail system improvement projects. As KDOT continues to consider opportunities to support the state's rail system, the Kansas Rail System Investment Plan identifies planned and potential railroad projects, developed using data analysis and performance measure evaluation, consultations with freight and passenger rail stakeholders, and a review of projects seeking state or federal funding. While project opportunities do not represent KDOT's future funding plans, they do identify opportunities that may address qualitatively- and quantitatively-identified needs on the state's freight and passenger rail network, while also aligning with KDOT's transportation focus areas.

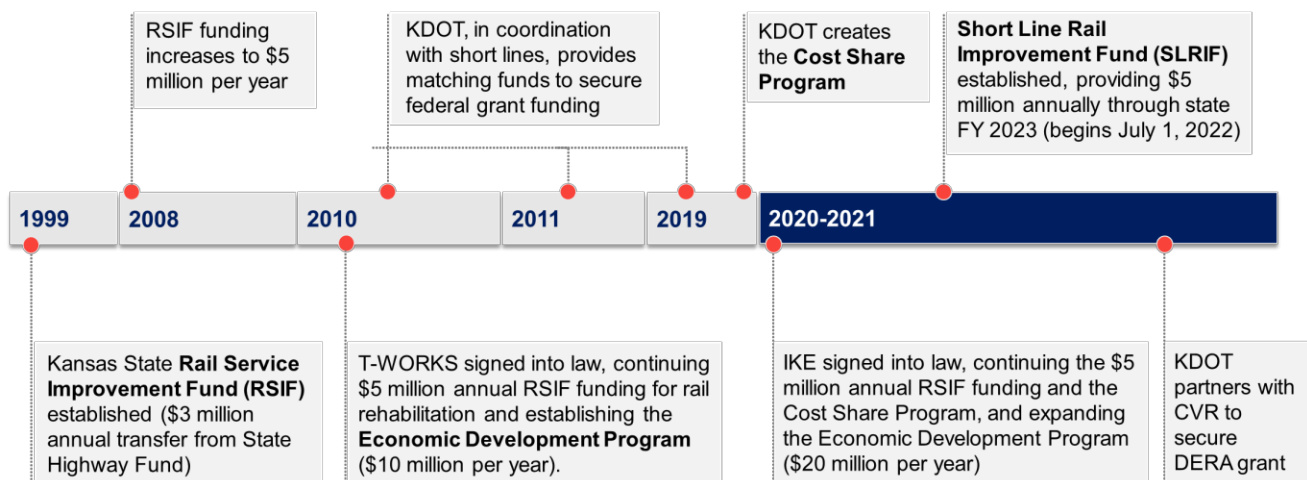
10.1 Kansas' Rail System Funding and Development

Although railroads in Kansas are privately owned and operated, KDOT leads and coordinates with various public and private stakeholders to maintain and improve Kansas' freight and passenger rail system. In addition to supporting public and private stakeholders in applying for federal grants and advocating for rail system improvements, KDOT administers several state funded programs that directly allocate additional funding to enhance the state's rail system. This section provides an overview of recent funding investments for Kansas' rail system, enabled by support from KDOT.

Freight Rail

KDOT coordinates and partners with railroads on large capital rail improvement projects, and the state has initiated several programs over the past two decades to support freight rail in the state. Since 2010, KDOT has also provided grant support to short line rail projects applying for federal funds. This includes providing \$3.1 million in match funds to secure \$48.5 million in federal grants for short line freight rail projects, as well as partnering with a short line to secure a grant of \$127.5 thousand. Additionally, KDOT administers funds for highway-rail grade crossings through the Section 130 program. Figure 10-1 provides a brief history of KDOT's support for the state's freight rail system, and Section 1.2 further details the freight rail projects enabled by KDOT funding and support.

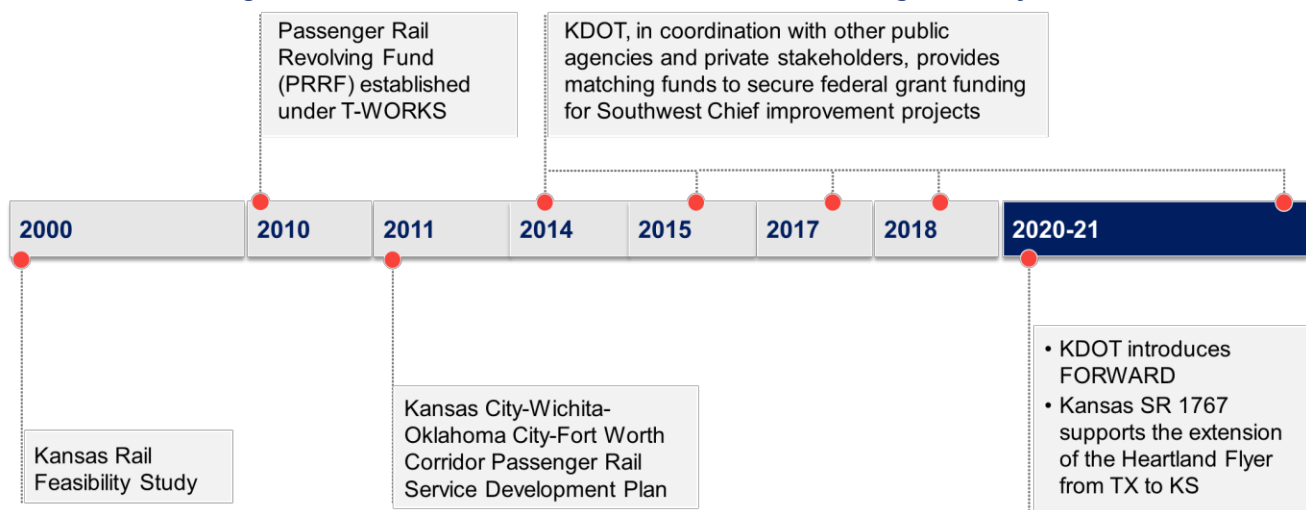
Figure 10-1: Timeline of KDOT Involvement in Freight Rail System



Passenger Rail

KDOT has also supported the maintenance of Amtrak's long-distance passenger rail route, the Southwest Chief. Within the past decade, KDOT has participated in several federal grant applications to fund route improvements along the line. This includes contributing \$7 million in matching funds to secure \$55.7 million in grants for Southwest Chief projects. In addition to supporting the long-distance Southwest Chief passenger route, KDOT is updating the SDP for the proposed Heartland Flyer extension project, which would extend the daily passenger train from its current northern terminus in Oklahoma City to Newton, KS where it would connect with Amtrak's Southwest Chief. In addition to the recent SDP, KDOT has commissioned various feasibility studies for the Heartland Flyer extension over the years. Figure 10-2 provides a brief history of KDOT's involvement in the Amtrak Southwest Chief passenger rail system, and Section 1.2 further details the passenger rail projects enabled by KDOT funding and support.

Figure 10-2: Timeline of KDOT Involvement in Passenger Rail System



Funding Sources

A variety of funding programs are available from federal and state sources to support the freight and passenger rail systems. This section provides an overview of funding programs available to support Kansas' rail system.

Federal

Bipartisan Infrastructure Law – Expected Federal Funding

BIL creates a multi-year Federal program for freight and intercity passenger rail projects, with expanded funding for rail through both new and continued rail-eligible funding formulas and programs.

The Bipartisan Infrastructure Law (BIL) increases rail funding, providing \$66 billion for passenger and freight rail over the next five years.

For freight rail, BIL emphasizes the importance of multimodal freight. The freight formula funding (National Highway Freight Program (NHFP)) has increased to \$7.15 billion (compared to \$6.3 billion under the FAST Act), with the allowable multimodal cap increasing to 30 percent (from 10 percent), under which states may direct funding to rail-related projects. For passenger rail, Amtrak will receive

\$22 billion in funds, with \$16 billion reserved for the “National Network” (i.e., projects outside of the Amtrak-owned Northeast Corridor). BIL also places new emphasis on the FRA’s process for the development of an SDP. The actual establishment of the passenger rail expansion program will require the U.S. DOT to issue information on the process for submitting and reviewing funding applications for the various programs, including criteria for awarding grants, within 180 days of the law’s enactment (November 15, 2021). Figure 10-3 highlights key rail-eligible programs under BIL.

Figure 10-3: BIL Federal Freight and Passenger Rail Programs

Program	Description
National Infrastructure Project Assistance	<ul style="list-style-type: none"> Establishes and authorizes \$10 billion over 5 years (\$5 million appropriated) for grants to support multi-modal, multi-jurisdictional projects of national or regional significance Freight intermodal or freight rail projects, railway-highway grade separation or elimination projects, and intercity passenger rail projects are among eligible project types
Local and Regional Project Assistance	<ul style="list-style-type: none"> Authorizes \$1.5 billion a year (over 5 years) for the Local and Regional Project Assistance Program (the RAISE/BUILD program) to provide grants for projects that will have significant local or regional impact and improve transportation infrastructure Passenger or freight rail projects are among eligible project types
Grants to Amtrak	<ul style="list-style-type: none"> Authorizes appropriations for grants to Amtrak for activities associated with the Northeast Corridor and the National Network Activities eligible for funding include Interstate Rail Compacts, accessibility upgrades, and corridor development.
Consolidated Rail Infrastructure and Safety Improvements (CRISI)	<ul style="list-style-type: none"> Authorizes \$1 billion a year (over five years) for CRISI grants
Railroad Crossing Elimination Program	<ul style="list-style-type: none"> Establishes a Railroad Crossing Elimination Program and authorizes \$500 million a year (over five years) for the competitive grant program for highway-rail or pathway-rail grade crossing improvement projects that focus on improving the safety and mobility of people and goods. Also includes a small set aside for a Highway-Rail Grade Crossing Safety Information and Education Program
Restoration and Enhancement Grants	<ul style="list-style-type: none"> Authorizes \$50 million a year (over five years) for Restoration and Enhancement Grants to fund projects that initiate, restore, or enhance intercity passenger rail transportation
Federal-State Partnership for Intercity Passenger Rail Grants	<ul style="list-style-type: none"> Authorizes \$1.5 billion a year (over five years) for grants to fund capital projects that reduce the state of good repair backlog for qualified railroad assets.
Railway-Highway Grade Crossings (Section 130) Program	<ul style="list-style-type: none"> Authorizes \$245 million a year (over five years) as a set aside to install protective devices at railway-highway crossings, replace functionally obsolete warning devices, and reduce trespassing fatalities and injuries

Source: Infrastructure Investment and Jobs Act

Current Federal Funding

Federal agencies, including the U.S. DOT and FRA, currently administer a diverse range of funding programs to support freight and passenger rail. Figure 10-4 provides a list of select freight and passenger rail funding programs.

Figure 10-4: Current Federal Freight and Passenger Rail Programs

Program	Description
The Rebuilding American Infrastructure with Sustainability and Equity (RAISE) Grant	The RAISE program was previously known as Better Utilizing Investments to Leverage Development (BUILD) and Transportation Investment Generating Economic Recovery (TIGER). The program provides discretionary grants directly to public entities, including but not limited to states, municipalities, counties, port authorities, and MPOs, to fund road, rail, transit, and port projects. The RAISE program evaluates projects based on safety, environmental sustainability, quality of life, economic competitiveness, state of good repair, innovation, and partnership. The Federal share of costs for projects funded by the RAISE program may not exceed 80 percent in urban areas. For projects in rural areas, the Federal share of cost may be increased to over 80 percent. Section 2.5 lists the rail projects in Kansas funded by TIGER/BUILD/RAISE Grants.
Consolidated Rail Infrastructure and Safety Improvements Program (CRISI)	Initially authorized under the FAST Act and administered by the FRA, CRISI provides funding through grants for projects that improve the safety, efficiency, and reliability of intercity passenger and freight rail. Funding is available to a variety of rail stakeholders, including but not limited to states, groups of states, interstate compacts, other public agencies, Amtrak, select railroads, select rail carriers, universities, and non-profits. Eligible projects include but are not limited to railroad safety improvement, congestion relieving, technology enhancement, and service development.
Restoration and Enhancement Grant Program	Authorized by the FAST Act, this program provides funding for operating assistance grants to initiate, restore, or enhance intercity passenger rail transportation. Eligible recipients include states, groups of states, interstate compacts, Amtrak, and other public agencies, among others.
Federal-State Partnership for the State of Good Repair Grant Program	Authorized by the FAST Act, this program provides funding through grants for eligible capital projects to repair, replace, or rehabilitate qualified railroad assets and improve intercity passenger rail performance. Eligible recipients include states, groups of states, interstate compacts, Amtrak, and other public agencies, among others.
Railway-Highway Grade Crossings (Section 130) Program	<p>Established by Congress to fund railroad projects that eliminate hazards of railway-highway crossings in 1987, this program was continued by SAFETEA-LU in 2005, MAP-21 in 2012, and FAST Act in 2015. Based on a distribution formula that factors in the number of public crossings in a State (50 percent), lane miles of federal-aid highway (12.5 percent), vehicle miles on federal-aid highways (20 percent), and payments into the Highway Trust Fund (17.5 percent), each state receives a minimum of \$1.1 million per year. To fulfill Section 130's requirements, states need to update public crossing information in the U.S. DOT crossing inventory database and submit an annual report on the progress of implementing the Section 130 program.</p> <p>Eligible projects include all safety improvements at public crossings including roadways, bike trails, and pedestrian paths. At least 50 percent of awarded funding should be apportioned for installing protective devices at project sites. The remaining 50 percent can then be allocated for any other hazard elimination projects.</p>

State

KDOT administers several funding programs to support the freight and passenger rail system. This includes two programs specific to freight rail – the state Rail Service Improvement Fund (RSIF) and the Short Line Rail Improvement Fund (SLRIF). KDOT also administers the Economic Development Program and the Cost Share Program, which provide funding to eligible freight rail projects. Figure 10-5 further details these state-funded programs that provide financial assistance to public and private partners for freight and passenger rail projects in Kansas.

Figure 10-5: Current State Freight and Passenger Rail Funding Programs

Program	Description
The Kansas State Rail Service Improvement Fund (RSIF)	The RSIF supports local governments, railroads, port authorities, and shippers to carry out projects that improve the condition and accessibility of Kansas' railroad network. ¹²⁷ The Fund requires a local match of 40 percent. Since 1999, the three ten-year transportation programs in Kansas have provided RSIF funding for the state's rail infrastructure annually. The Comprehensive Transportation Program (CTP) passed by the Kansas Legislature in 1999, committed \$3 million annually to the RSIF. The two subsequent ten-year transportation programs, Transportation Works for Kansas (T-WORKS) and Eisenhower Legacy Transportation Program (IKE), have distributed \$5 million to RSIF annually. While RSIF began as a loan and grant program, with the 286K Initiative in FY2020 and moving forward, the loan component was removed; RSIF now provides grants only. The statute requires projects to have a benefit-cost of 1.0 or above in order to receive funding.
Short Line Rail Improvement Fund (SLRIF)	The SLRIF, established by IKE, provides funding for projects that maintain, reconstruct, or replace short line rail infrastructure, including tracks, bridges, industrial leads, and sidings. The program distributes \$5 million annually to qualified projects from SFY 2021 through 2023 and requires a 30 percent match from the applicants. ¹²⁸
Economic Development Program	The Kansas Economic Development Program was established under T-WORKS. The Program has \$10 million in annual funding to support transportation improvements that create new jobs and promote capital investment. Eligible applicants include local governments, often in partnership with private business. The funding is awarded on a rolling basis and usually requires a 25 percent minimum local match. ¹²⁹
Cost Share Program	The Cost Share Program, administered by KDOT twice a year in the fall and spring, offers financial assistance to a wide range of transportation projects, including but not limited to highways, bridges, railroads, in both urban and rural areas. The eligible projects should be able to provide a 15 percent local match and address a key need of enhancing safety, improving access or mobility, improving condition, relieving congestion, or supporting job retention and growth. The funding for the Program is approximately \$11 million per year, with more or less funding subject to annual funding needs. ¹³⁰
Passenger Rail Revolving Fund (PRRF)	K.S.A. 75-5089 established the PRRF and allows KDOT to offer loans or grants to passenger rail service providers, supporting the maintenance and improvement of railroad infrastructure, as well as the initiation and operation of passenger rail service. The eligible passenger rail service refers to "long-distance, intercity, and commuter passenger transportation, including the Midwest regional rail system development". ¹³¹ Funding has not yet been dedicated to the PRRF. Whether future funding is made available depends on the provision of funds to the PRRF by the Kansas State legislature, in addition to eligible (i.e., agreements, funding, etc. in place between all partners) passenger rail projects that would warrant funding from the PRRF.

¹²⁷ The Kansas Department of Transportation's State Rail Service Improvement Fund.

https://www.ksdot.org/TWorks/EcoDevo/downloads/fact-sheet_rail_2012.pdf

¹²⁸ Kansas State Legislature Section 75-5095 – Short line rail improvement fund. <https://casetext.com/statute/kansas-statutes/chapter-75-state-departments-public-officers-and-employees/article-50-department-of-transportation/section-75-5095-short-line-rail-improvement-fund>.

¹²⁹ KDOT Economic Development Program Fact Sheet. <http://www.ksdot.org/TWorks/EcoDevo/downloads/edfact.pdf>; Consultation, KDOT Economic Development Programs, May 3, 2021; KDOT, Cost Share Program,

¹³⁰ KDOT Cost Share Program Fact Sheet.

<https://www.ksdot.org/bureaus/burRail/rail/railroads/crossingfunds.asp#:~:text=Highway%2FRailroad%20Crossing%20Program%20Safety%20Funds%20for%20Kansas%20Railroads,the%20cost%20of%20these%20projects>; Consultation, KDOT Economic Development Programs, May 3, 2021; KDOT, Cost Share Program, <http://www.ksdot.org/CostShare/CostShareProgram.asp#:~:text=The%20KDOT%20Cost%20Share%20Program,state%20improve%20the%20transportation%20system>.

¹³¹ Kansas State Legislature Section 75-5089.

http://www.kslegislature.org/li_2020/b2019_20/statute/075_000_0000_chapter/075_050_0000_article/075_050_0089_section/075_050_0089_k/

COVID-19 Funding

The FRA provided \$1.018 billion to Amtrak under the Coronavirus Aid, Relief, and Economic Security (CARES) Act in April 2020.¹³² This federal assistance helped Amtrak sustain services while ridership and passenger revenue significantly decreased due to the COVID-19 pandemic.¹³³

The FRA distributed another \$1.69 billion in funding to Amtrak in April 2021 under the American Rescue Plan Act of 2021.¹³⁴ This funding allowed Amtrak to resume daily service on the Southwest Chief route starting May 24, 2021.¹³⁵ The Southwest Chief runs between Chicago and Los Angeles, with stops in Kansas City, Topeka, and Garden City. This service had been reduced to three days a week in October 2020 in response to decreasing service demand.

Historic Funding for Rail Projects and Initiatives in Kansas

There are several completed and ongoing projects and initiatives in Kansas that are supported by federal and state funds. This section provides an overview of these efforts to enhance the state's freight and passenger rail system.

Federally Funded Projects

Short Line

Four projects on Kansas' short line rail system have received federal funding support through TIGER, CRISI, and Diesel Emissions Reduction Act (DERA) grants.

- The **Great Plains Freight Rail** project received TIGER grant funds in 2010 for yard, shop, and rail line improvements on the South Kansas and Oklahoma rail line. By relocating its railroad hub from an urban to rural location, improving the tracks, and repairing locomotives, the Great Plains Freight Rail project aimed to reduce safety-related incidents, allow for the operations of 286,000-pound (286K) freight cars, increase average speeds from 10 miles per hour (mph) to 25 mph, and reduce impacts on surrounding communities.¹³⁶
- The **Solomon Rural Rail Upgrade** received TIGER grant funds in 2011 for a series of rail maintenance and improvement tasks, including rehabilitating 84 miles of rail, increasing operation weight limit to 286K pounds, and installing new signage at 24 highway crossings. The project was designed to accommodate the growing demand for rail transportation from agricultural production, as well as increase economic competitiveness by improving short line safety and efficiency.¹³⁷
- The **South Kansas and Oklahoma Railroad 286K Bi-State Project** received CRISI grant funds in 2019 to upgrade track on the short line. The funding will help replace the current rail with heavier rail and rehabilitate bridges, allowing trains to move faster and carry heavier weight. The modernization of the railroad will also improve safety and increase fuel efficiency.¹³⁸
- In partnership with the **Cimarron Valley Railroad**, KDOT received a DERA grant in 2021 from the U.S. Environmental Protection Agency (EPA), enabling CVR to install auxiliary power units

¹³² U.S. Transportation Secretary Elaine L. Chao Announces \$1 Billion for Amtrak in Response to COVID-19.

<https://railroads.dot.gov/sites/fra.dot.gov/files/2020-04/USDOT%20FRA%20CARES%20Act%20Supplemental%20Funding%20to%20Amtrak%20041020.pdf>

¹³³ Governance: Final Observations on Amtrak's Use of CARES Act Funds. <https://amtrakoig.gov/sites/default/files/reports/OIG-A-2021-005%20CARES%20Act.pdf>

¹³⁴ U.S. Transportation Secretary Pete Buttigieg Announces \$1.69 Billion for Amtrak in Response to COVID-19.

<https://www.transportation.gov/briefing-room/us-transportation-secretary-pete-buttigieg-announces-169-billion-amtrak-response>

¹³⁵ Amtrak Announces Dates to Restore Daily Service on 12 Long-Distance Routes. <https://www.trains.com/trn/amtrak-announces-dates-to-restore-daily-service-on-12-long-distance-routes/>

¹³⁶ FY 2010 TIGER Capital Grants. https://www.transportation.gov/sites/dot.gov/files/docs/TIGER_CAPITAL_GRANTS_2010.pdf

¹³⁷ FY 2011 TIGER Awards. https://www.transportation.gov/sites/dot.gov/files/docs/TIGER_2011_AWARD.pdf

¹³⁸ FRA's FY19 Consolidated Rail Infrastructure and Safety Improvements Program Projects.

https://railroads.dot.gov/sites/fra.dot.gov/files/2020-09/FY19%20CRISI%20Project%20Selections_0.pdf

to seven locomotives, which will reduce pollutants, save diesel fuel, improve operation efficiency, and enhance ambient air quality.¹³⁹

Figure 10-6 provides further details about project funding, including information about grant amounts, match funds, total project cost, and improvements in Kansas. Figure 10-7 on the following page also maps these projects.

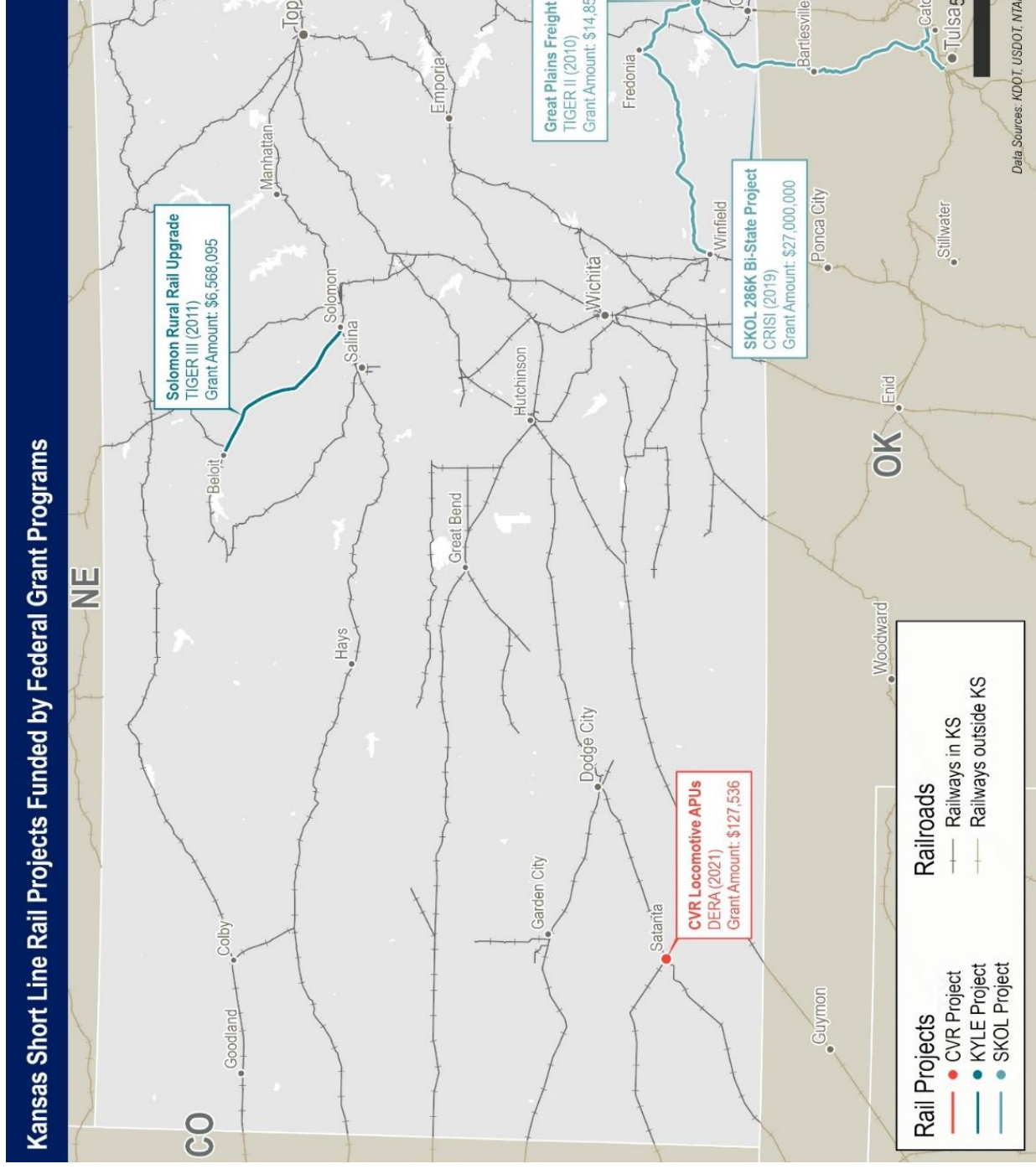
Figure 10-6: Kansas Short Line Rail Projects Funded by Federal Grant Programs

Program	Project Name	Grant Amount	KDOT Match Funds	Private and Other Public Agency Match Funds	Total Project Amount	Improvements in Kansas
TIGER II (2010)	Great Plains Freight Rail	\$14.9 million	\$1.7 million	\$2.7 million (SKOL)	\$19.3 million	\$18.7 million
TIGER III (2011)	Solomon Rural Rail Upgrade	\$6.6 million	\$0.4 million	\$1.2 million (KYLE)	\$8.2 million	\$8.2 million
CRISI (2019)	South Kansas and Oklahoma Railroad 286K Bi-State Project	\$27 million	\$1 million	\$0.45 million (Oklahoma DOT) \$12.2 million (SKOL)	\$40.6 million	\$30 million
DERA (2021)	CVR Locomotive Auxiliary Power Units	\$127,536	--	\$191,305 (CVR)	\$318,841	\$318,841
TOTAL		\$48.6 million	\$3.1 million	\$16.7 million	\$68.4 million	\$57.3 million

Source: KDOT

¹³⁹ KDOT receives EPA diesel reduction grant to help short line railroad lower emissions.
https://www.ksdot.org/Assets/wwwksdotorg/Headquarters/PDF_Files/pressrelease2021/Aug/CVR_grant_release.pdf

Figure 10-7: Kansas Short Line Rail Projects Funded by Federal Grant Programs (Map)



In addition to awards from federal grant programs, KDOT has received federal funding support for rail projects through the American Recovery and Reinvestment Act (ARRA) and other special federal projects, as detailed in Figure 10-8.

Figure 10-8: Kansas Short Line Rail Projects Funded by Special Federal Grants

Federal Program	Railroad	Description	City to City	Grant Amount	Railroad Share	Total Project Cost
ARRA	K&O	Rail track improvements	Near Colwich	\$967,820	\$232,200	\$1,200,000
ARRA	KYLE	Rail track improvements	Near Scandia	\$371,000	--	\$371,000
ARRA	NKCR	Bridge improvements	St. Francis/ Nebraska border	\$476,826	--	\$476,826
ARRA	City of Hutchinson	Rail track improvements	Hutchinson	\$844,800	--	\$844,800
Special Federal	K&O	Rail track improvements	Carvel to Coats	\$2,000,000	--	\$2,000,000
Special Federal	K&O	Rail track improvements	Salina to Corinth	\$4,590,762	\$1,147,690	\$5,738,452
Special Federal	SKOL	Rail track improvements	Cherokee to Sherwin	\$400,052	\$101,990	\$502,042
TOTAL				\$9.7 million	\$1.5 million	\$11.1 million

Source: KDOT

Passenger

Amtrak has received several federal grants dedicated to improving and rehabilitating the Southwest Chief route. Though some grants have funded projects outside of Kansas, improvements to the Southwest Chief route in nearby Colorado and New Mexico enhance operations along the entire route, including through Kansas.

- **Three TIGER grants (awarded in 2014, 2015, and 2017)** have funded the replacement and upgrade of 185.5 miles of track in Kansas, Colorado, and New Mexico. Once these projects are completed, only 27 miles will need replacement – between Hutchinson and La Junta, and between Pierceville and Howell.¹⁴⁰
- The **2018 CRISI PTC grant** funded a project to design, install, and test Interoperable Electric Train Management System (I-ETMS) PTC wayside technology on 179 miles between Dodge City, KS and Las Animas, CO.¹⁴¹ FRA also awarded Amtrak a **CRISI grant in 2020** to stabilize and enhance the Southwest Chief, including rebuilding three grade crossings, on a route from Trinidad, CO to Madrid, NM.¹⁴²

¹⁴⁰ Dodge City, TIGER Grant History, March 2018. <https://www.dodgecity.org/DocumentCenter/View/8577/TIGER-Grant-History---March-2018?bidId=>; Amtrak Southwest Chief TIGER 9 Grant Application Summary. <http://colorail.org/wp-content/uploads/2017/10/SW-Chief-TIGER-9-Status.pdf>

¹⁴¹ FRA, PTC Systems Grants under the Consolidated Rail Infrastructure and Safety Improvements Program FY 2018 Awards, https://railroads.dot.gov/sites/fra.dot.gov/files/fra_net/18284/%24250%20Million%20PTC%20CRISI%20Grant%202018%20Awards_re_v.pdf

¹⁴² FRA, FRA's Consolidated Rail Infrastructure and Safety Improvements Program, https://railroads.dot.gov/sites/fra.dot.gov/files/2020-10/FY20%20CRISI%20Project%20Listing%20for%20Press%20Release_FINAL2.pdf

- The City of Trinidad, CO received a **2021 RAISE grant** to replace the last 34 miles of unrehabilitated track on the Southwest Chief route, with work to occur in Kansas and Colorado.¹⁴³ BNSF's letter of support for the grant application included a commitment to maintain the entire La Junta Subdivision at FRA Class 4 track standards, at BNSF expense, to support Amtrak operations and reduce long-term operating costs for the Southwest Chief.

Figure 10-9 provides further details about project funding, including information about grant amounts, match funds, total project costs, and improvements in Kansas. Figure 10-10 maps federally funded projects along the Southwest Chief impacting Kansas.

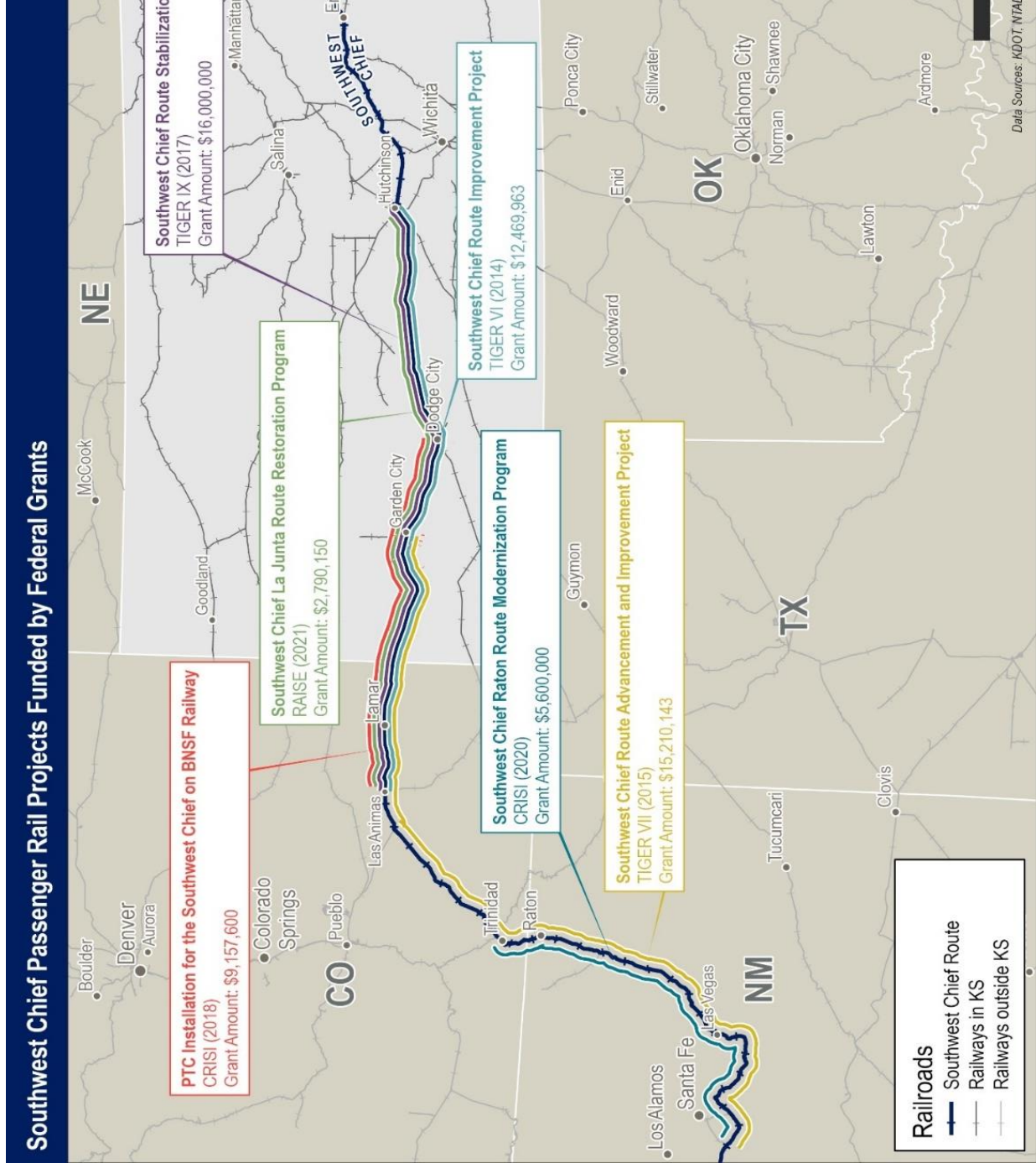
Figure 10-9: Southwest Chief Passenger Rail Projects Funded by Federal Grants

Program	Project Name	Grant Amount	KDOT Match Funds	Private and Other Public Agency Match Funds	Total Project Amount	Improvements in Kansas
TIGER VI (2014)	Southwest Chief Route Improvement Project	\$12.5 million	\$3 million	\$2 million (BNSF)	\$21.8 million	\$19.8 million
				\$4 million (Amtrak)		
				\$0.3 million (Local units of government)		
TIGER VII (2015)	Southwest Chief Route Advancement and Improvement Project (in CO and NM)	\$15.2 million	\$1 million	\$1 million (Colorado DOT)	\$24.4 million	\$5 million
				\$1 million (New Mexico DOT)		
				\$2 million (BNSF)		
				\$4 million (Amtrak)		
				\$0.2 million (Local units of government)		
TIGER IX (2017)	Southwest Chief Route Stabilization Project	\$16 million	\$1 million	\$1 million (Colorado DOT)	\$25.2 million	\$6 million
				\$1 million (New Mexico DOT)		
				\$3 million (BNSF)		
				\$3 million (Amtrak)		
				\$0.2 million (Local units of government)		
CRISI PTC (2018)	PTC Installation for the Amtrak Southwest Chief on BNSF Railway Through Colorado and Kansas	\$9.2 million	\$1 million	\$0.4 million (Colorado DOT)	\$11.4 million	\$9.5 million
				\$0.77 million (Amtrak)		
				\$0.01 million (Southwest Chief / Front Range Commission)		
CRISI (2020)	SW Chief Raton Route Modernization Program	\$5.6 million	--	\$1 million (New Mexico DOT)	\$11.5 million	--
				\$4.9 million (Amtrak)		
RAISE (2021)	Southwest Chief La Junta Route Restoration Program	\$2.8 million	\$1 million	\$19.6 million (Amtrak, BNSF, Colorado DOT, City of La Junta, Dodge City)	\$23.4 million	\$6.5 million
TOTAL		\$61.2 million	\$7.0 million	\$49.4 million	\$117.7 million	\$46.8 million

Source: KDOT

¹⁴³ FRA, RAISE Grants, Capital Awards, FY 2021, https://www.transportation.gov/sites/dot.gov/files/2021-11/RaiseGrants_Capital%20Fact%20Sheets.pdf

Figure 10-10: Southwest Chief Passenger Rail Projects Funded by Federal Grants (Map)



State-Funded Projects

Class I

Class I partners, in coordination with KDOT, frequently carry out a number of jointly funded safety-oriented projects, such as crossing service projects, as well as signal installation and upgrades. Safety is often the main driver behind these state-funded projects, which also enhance operations.¹⁴⁴

Short Line

The short line rail network is crucial to Kansas' agricultural and manufacturing sectors, connecting key freight-reliant industry establishments to Class I railroads in Kansas. KDOT has provided ongoing support for the rehabilitation and improvement of short line rail infrastructure through the RSIF, SLRIF, and other funding programs. Figure 10-11 maps these short line projects funded by KDOT funding programs.

¹⁴⁴ Consultation, BNSF, May 17, 2021.



RSIF

Since 2000, KDOT has supported 95 projects with over \$87 million in loans and grants through the RSIF program.

Figure 10-12 lists the eight short line rail projects and seven shipper projects funded by the most recent round of RSIF funding in SFY 2022, with \$10.1 million in grants awarded across 15 projects. Historically, KDOT has also directed RSIF funds toward specific initiatives to meet a demonstrated need, such as the 286K Initiative in 2020 and the Transload Facility Initiative in 2015. Appendix A provides a list of all projects funded by RSIF historically, from state fiscal year (SFY) 2000 to 2022.

Figure 10-12: RSIF Project Awards (SFY 2022)

Grant Recipient	Project Description	Grant Amount	Railroad Share	Total Project Cost
ADM	Scale installation and rail replacement	\$90,000	\$60,000	\$150,000
Americold Logistics	Siding replacement	\$28,951	\$19,300	\$48,251
Bestifor Farms	Siding rehabilitation and expansion	\$664,756	\$443,171	\$1,107,927
Dei-Fan Logistics	New siding construction	\$642,526	\$428,351	\$1,070,877
GCW	Major rehabilitation	\$187,652	\$125,102	\$312,754
K&O 286K Bridges	Upgrade 51 bridges to 286K	\$955,500	\$637,000	\$1,592,500
K&O Hutchinson	Replace rail on 0.5 miles of curves	\$112,595	\$75,063	\$187,658
K&O Wichita	Replace 4 switches from 90# to 115#	\$182,119	\$121,412	\$303,531
KYLE	Rail replacement	\$1,440,000	\$960,000	\$2,400,000
Midland Marketing Cooperative	Siding rehabilitation, new scales, railcar puller	\$231,015	\$154,010	\$385,025
MKC Elevator	Construction of 120-car loop track	\$1,625,169	\$1,083,446	\$2,708,615
Monarch Cement	Construction of new siding	\$2,100,000	\$1,400,000	\$3,500,000
New Century AirCenter Railroad	Major rehabilitation/ 286K compatibility	\$849,900	\$566,600	\$1,416,500
SKOL Coffeyville	Major rehabilitation/ 286K compatibility	\$619,564	\$413,043	\$1,032,607
SKOL Winfield	Replace 9 switches in Winfield Yard	\$380,803	\$253,869	\$634,672
TOTAL (SFY 2021)		\$10,110,550	\$6,740,367	\$16,850,917

Source: KDOT

SLRIF

In its first two years of funding, the SLRIF program has provided nearly \$9.4 million in grants to support 22 projects.

Figure 10-13 provides a list of the five short line rail projects and seven shipper projects funded by the most recent round of SLRIF funding for SFY 2022. Appendix A further provides a complete list of SLRIF projects funded between SFY 2021 and 2022.

Figure 10-13: SLRIF Project Awards (SFY 2022)

Grant Recipient	Project Description	Grant Amount	Railroad Share	Total Project Cost
Bartlett Grain	Siding expansion	\$1,813,950	\$777,408	\$2,591,358
Central Valley Ag Coop	Siding rehab and extension	\$421,971	\$180,845	\$602,816
CVR	Major rehabilitation	\$1,048,872	\$499,516	\$1,548,388
Gavilon Grain	Siding rail replacement	\$280,093	\$120,040	\$400,133
Hutchinson Transportation	Replace rail, Other Track Material (OTM), add ballast	\$513,718	\$220,165	\$733,883
K&O	Crossing rehab Bailey St. corridor	\$535,782	\$229,621	\$765,403
Kirk Grain	New scales	\$56,000	\$24,000	\$80,000
KYLE	Rail relay, OTM, ballast	\$700,000	\$300,000	\$1,000,000
Midland Marketing Cooperative	Rehab and extend siding	\$467,509	\$200,361	\$667,870
Scoular Grain Downs	Siding extension and switches	\$182,593	\$78,254	\$260,847
Scoular Grain Goodland	Siding rehabilitation and extension	\$421,918	\$180,822	\$602,740
SKOL	Cornell Lead – WATCO Mechanical Shop – Railcar maintenance	\$114,725	\$49,168	\$163,893
TOTAL		\$6,557,131	\$2,860,200	\$9,417,331

Source: KDOT; Kansas Office of the Governor, Governor Laura Kelly Announces 10 Short Line Rail Improvement Projects. Aug 17, 2021. <https://governor.kansas.gov/governor-laura-kelly-announces-10-short-line-rail-improvement-projects/>.

Other Programs

KDOT has awarded nearly \$5.9 million to rail projects under the Economic Development Program and Cost Share Program between 2019 and 2021.

Figure 10-14 provides a list of rail projects awarded under the Economic Development Program, and Figure 10-15 lists the rail project awarded by Cost Share during this time. Appendix A provides further details about each project.

Figure 10-14: Economic Development Program Rail Project Awards (2019-2021)

Year Awarded	Project Title	Description	City	County	Match	Total Project Cost	KDOT Award
2019	Project Bevo Part 1	New railroad track and railbeds	Garden City	Finney	15%	\$2,344,555	\$2,000,000
2019	Project Bevo Part 2	New railroad track and railbeds	Garden City	Finney	49%	\$1,987,400	\$1,000,000
2020	Great Plains Development	Track rehabilitation and upgrades, bridge repair	Parsons	Labette	14%	\$2,361,291	\$2,042,372
2021	City of Neodesha Rail Spur	Construct a rail spur	Neodesha	Wilson	0%	\$343,297	\$343,297
TOTAL						\$7,036,543	\$5,385,669

Source: KDOT

Figure 10-15: Cost Share Program Rail Project Awards (2019-2021)

Year Awarded	Project Title	Description	City	County	Community Match	Total Project Cost	KDOT Award
2020	Nutrien Ag Solutions Rail Siding	Install rail siding	Colby	Thomas	59%	\$2,012,487	\$500,000

Source: KDOT

Passenger

Midwest Interstate Passenger Rail Commission (MIPRC)

The Midwest Interstate Passenger Rail Commission (MIPRC) advocates for passenger rail for its eight member states in the Midwest Region – Illinois, Indiana, Kansas, Michigan, Minnesota, Missouri, North Dakota, and Wisconsin. MIPRC leads the Midwest Regional Rail Initiative (MWRRI), which aims to increase available services and reduce travel time for passenger rail in its eight member states. Kansas, as a member of the MIPRC, is included in the coalition's studies and initiatives, including exploring the potential of a regional passenger rail network.¹⁴⁵ Figure 10-16 displays the routes being studied by MIPRC states, including the Heartland Flyer Extension in Kansas.¹⁴⁶

Midwest Regional Rail Planning Study

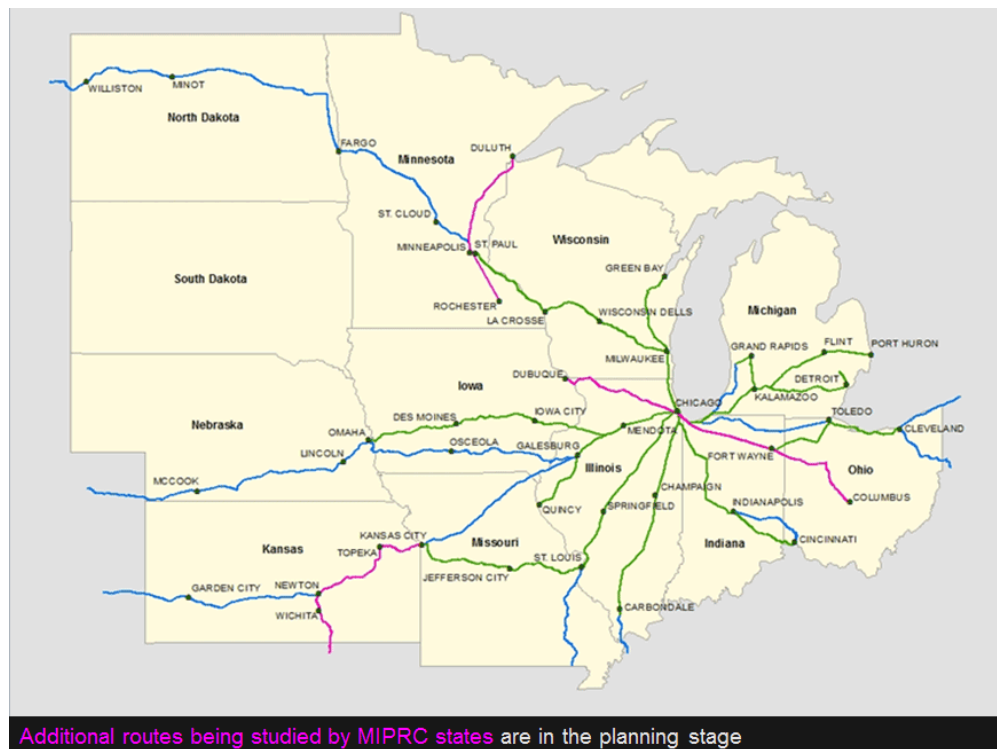
Since 2017, FRA has explored the potential for a high-performance, multistate, intercity passenger rail network in the Midwest region. In October 2021, FRA and MIPRC jointly released the Midwest Regional Rail Plan – a study that builds on current rail planning efforts across 12 Midwest States (Illinois, Missouri, Iowa, Michigan, Wisconsin, Ohio, Nebraska, Kansas, South Dakota, North Dakota, Indiana, and Minnesota) to support state rail planning efforts, as well as the coordinated planning of new and improved passenger rail services.¹⁴⁷

¹⁴⁵ FRA Midwest Regional Rail Plan. <https://www.midwestrailplan.org/>

¹⁴⁶ MIPRC, <https://miprc.org/>.

¹⁴⁷ FRA, Regional Rail Planning, <https://railroads.dot.gov/rail-network-development/planning/regional-rail-planning>; FRA, Midwest Regional Rail Plan, October, 2021, <https://railroads.dot.gov/sites/fra.dot.gov/files/2021-10/Final%20Report-MWRRP%20with%20Appendices%20PDFa.pdf>.

Figure 10-16: Additional Routes Being Studied by MIPRC States



Source: MIPRC

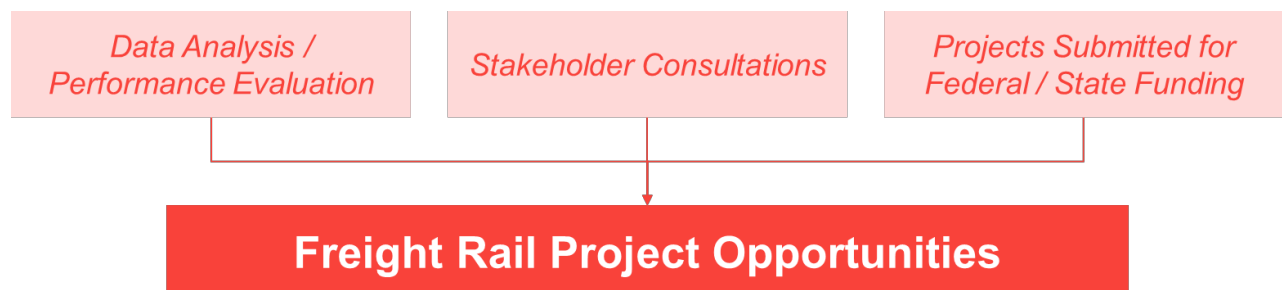
10.2 Rail Project Opportunities

The development of rail project opportunities for Kansas was completed using data analysis and performance measure evaluation, consultations with freight and passenger rail stakeholders, and a review of projects seeking state or federal funding. The project opportunities identified in this section do not represent KDOT's future funding plans; rather, they represent planned and potential railroad projects that may address qualitatively- and quantitatively-identified needs on Kansas' freight and passenger rail network. Each identified project opportunity also aligns with one or more of KDOT's focus areas.

Freight Rail

Freight rail project opportunities have been identified based on data analysis and performance evaluation of the Kansas rail system; stakeholder consultations with Class I and short line railroads, state agencies, and freight rail system users and support services; and an evaluation of projects submitted for federal or state funding (Figure 10-17).

Figure 10-17: Identification of Freight Rail Projects



Source: CPCS, 2021.

The identified list of freight rail project opportunities was then classified into one of three categories based on project readiness. Figure 10-18 details the evaluation criteria for each of the three groups – Ready Rail Project, Rail Projects in Development, and Other Rail Project Opportunities.

Figure 10-18: Freight Rail Project Opportunities

Ready Rail Projects	<ul style="list-style-type: none"> ✓ Identified by stakeholders ✓ Addresses a qualitatively- and quantitatively-identified rail need ✓ Aligns with KDOT Focus Area(s) ✓ At a specific location ✓ Calculated costs and benefits ✓ Have or are currently applying for state or federal funding ○ May be suitable for short term implementation
Rail Projects in Development	<ul style="list-style-type: none"> ✓ Identified by stakeholders ✓ Addresses a qualitatively- and quantitatively-identified rail need ✓ Aligns with KDOT Focus Area(s) ✓ At a specific location ○ Project costs and benefits still under development ○ May be suitable for short or medium term implementation
Other Rail Project Opportunities	<ul style="list-style-type: none"> ✓ Identified by stakeholders ✓ Addresses a qualitatively- and quantitatively-identified rail need ✓ Aligns with KDOT Focus Area(s) ○ No location identified ○ Concepts require additional details and benefit/cost analysis

Source: CPCS, 2021.

Ready Rail Projects

Ready Rail Projects have been identified by Kansas stakeholders as projects that will address a rail need at a specific location. Project details have been developed for Ready Rail projects, including project costs and benefits. Ready Rail Projects have also been submitted for state or federal funding grant applications, and they may be suitable for implementation in the short term. Figure 10-19 details Rail Ready Project opportunities in Kansas, and Figure 10-20 further maps the location of these project opportunities.

Figure 10-19: Ready Rail Projects (Table)

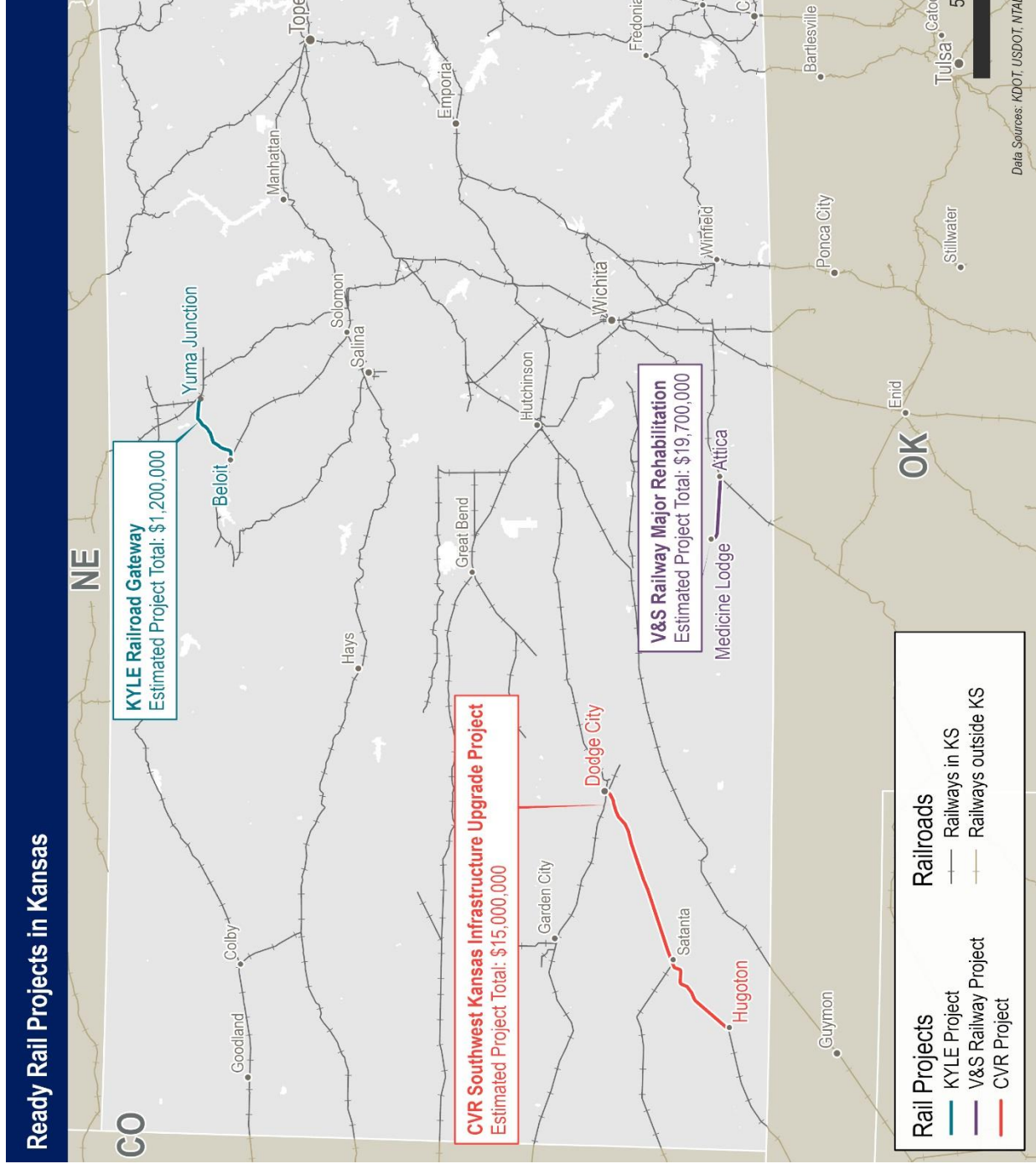
Project / Railroad	Project Description	Location	Project Need(s)	Goal Area(s)	Estimated Total Project Cost
V&S Railway	Major rehabilitation (20 miles).	Attica to Medicine Lodge	<ul style="list-style-type: none"> Improve aging infrastructure 	<ul style="list-style-type: none"> Asset Preservation Freight and Economic Vitality 	\$1.25
Southwest Kansas Infrastructure Upgrade Project (CVR)¹⁴⁸	Improve track conditions on 85 miles of rail line by installing new cross-ties, welding jointed rail, replacing worn out and derailment-prone rail in curves, and ballasting and surfacing rack. Upgrades will enable increased train speeds from 10 mph to 25 mph.	Dodge City to Hugoton	<ul style="list-style-type: none"> Improve aging infrastructure Increase capacity (train speeds) 	<ul style="list-style-type: none"> Asset Preservation Transportation System Management Freight and Economic Vitality 	\$15.0
KYLE Railroad Gateway¹⁴⁹	Replace 23.5 track miles of existing 100-year-old 85-pound rail with 115-pound welded rail on the Concordia subdivision. New rail will allow for an increase in track speed from 10 mph to 25 mph and will support 286K freight car weight limits.	Beloit to Yuma Junction	<ul style="list-style-type: none"> Improve aging infrastructure Increase capacity (train speeds) Increase capacity (286K compliance) 	<ul style="list-style-type: none"> Asset Preservation Transportation System Management Freight and Economic Vitality 	\$19.7

Source: KDOT, 2021.

¹⁴⁸ KDOT has submitted a CRISI Grant Application for this project, with \$10,991,971 in federal funds requested. If awarded, KDOT will provide \$500,000 in match.

¹⁴⁹ KDOT has submitted a CRISI Grant Application for this project, with \$9,367,112.50 in federal funds requested. If awarded, KDOT will provide \$500,000 in match.

Figure 10-20: Ready Rail Projects (Map)



Rail Projects in Development

Rail Projects in Development are rail projects that have been identified by stakeholders to address a rail need. However, these projects remain under development to identify potential project costs and benefits. Depending on the process, Rail Projects in Development may be suitable for implementation in the short to medium term. Figure 10-21 in Development for Kansas, and Figure 10-22 further maps the location of these project opportunities.

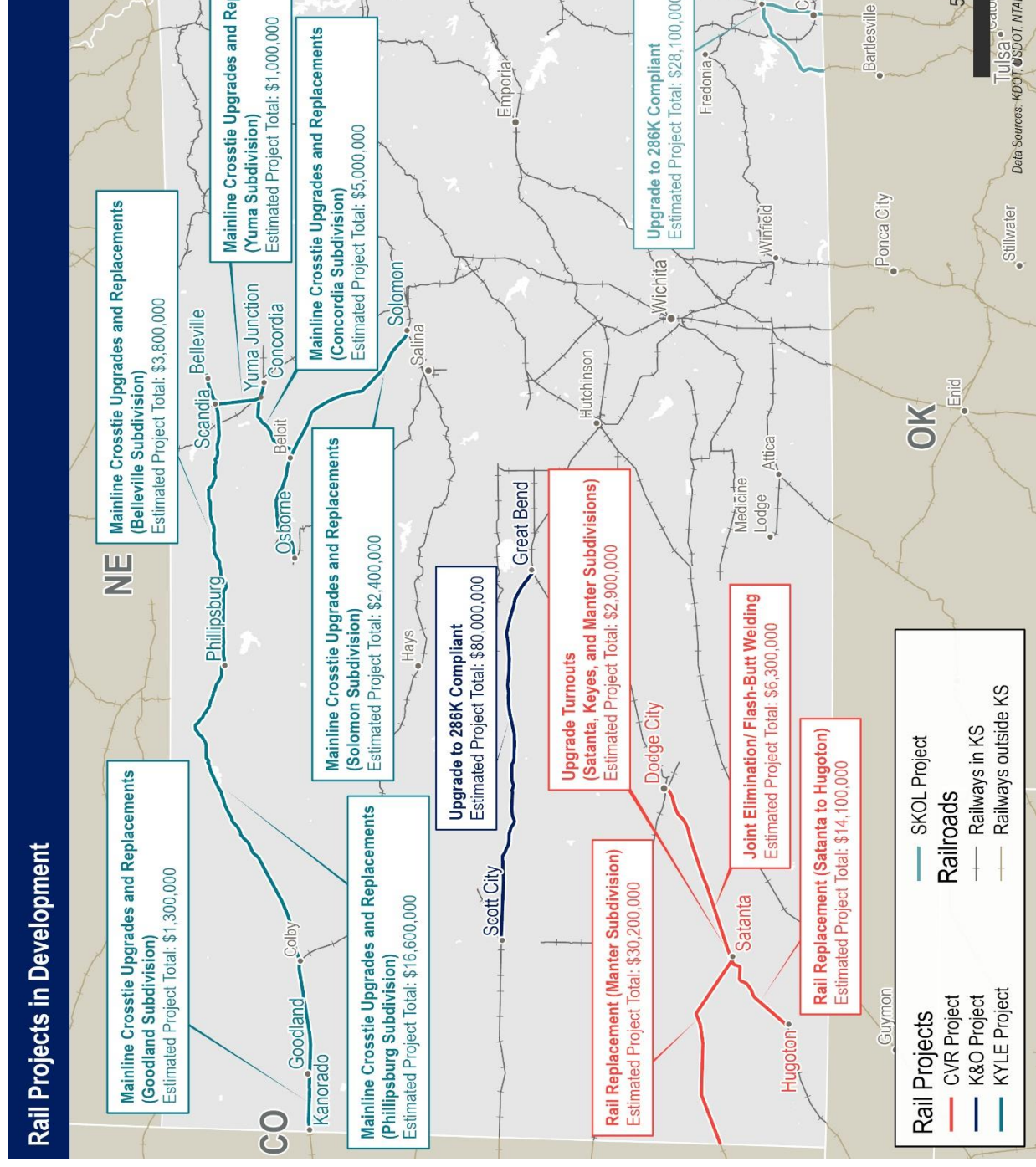
Figure 10-21: Rail Projects in Development (Table)

Railroad	Project Description	Location	Project Need(s)	Goal Area(s)
CVR	Joint elimination/flash-butt welding of rail (41 miles) on the Satanta Subdivision	Satanta Subdivision	<ul style="list-style-type: none"> Improve aging infrastructure 	<ul style="list-style-type: none"> Asset Preservation Freight and Economic Vitality
CVR	Additional rail replacement of 85#/90# rail in unit train route (24 miles) on the Keyes Subdivision	Satanta to Hugoton	<ul style="list-style-type: none"> Improve aging infrastructure 	<ul style="list-style-type: none"> Asset Preservation Freight and Economic Vitality
CVR	Additional rail replacement of 85# rail (51.5 miles) on the Manter Subdivision	Manter Subdivision	<ul style="list-style-type: none"> Improve aging infrastructure 	<ul style="list-style-type: none"> Asset Preservation Freight and Economic Vitality
CVR	Upgrade turnouts on 41 miles of the Satanta Subdivision, 24 miles of the Keyes Subdivision, and 51.1 miles on the Manter Subdivision. Approximately 45 for each route.	Satanta, Keyes, and Manter Subdivisions	<ul style="list-style-type: none"> Improve aging infrastructure 	<ul style="list-style-type: none"> Asset Preservation Freight and Economic Vitality
K&O	Improve weight compliance, up to the industry 286K standard.	Great Bend to Scott City	<ul style="list-style-type: none"> Increase capacity (286K compliance) 	<ul style="list-style-type: none"> Asset Preservation Transportation System Management Freight and Economic Vitality
KYLE	Mainline crosstie upgrades and replacements on the Goodland Subdivision	Goodland to Kanorado	<ul style="list-style-type: none"> Improve aging infrastructure 	<ul style="list-style-type: none"> Asset Preservation Freight and Economic Vitality
KYLE	Mainline crosstie upgrades and replacements on the Phillipsburg Subdivision	Phillipsburg to Goodland	<ul style="list-style-type: none"> Improve aging infrastructure 	<ul style="list-style-type: none"> Asset Preservation Freight and Economic Vitality
KYLE	Mainline crosstie upgrades and replacements on the Belleville Subdivision	Belleville to Pittsburg	<ul style="list-style-type: none"> Improve aging infrastructure 	<ul style="list-style-type: none"> Asset Preservation Freight and Economic Vitality
KYLE	Mainline crosstie upgrades and replacements on the Concordia Subdivision	Concordia to Osborn	<ul style="list-style-type: none"> Improve aging infrastructure 	<ul style="list-style-type: none"> Asset Preservation Freight and Economic Vitality

Railroad	Project Description	Location	Project Need(s)	Goal Area(s)
KYLE	Mainline crosstie upgrades and replacements on the Solomon Subdivision	Solomon to Beloit	<ul style="list-style-type: none"> Improve aging infrastructure 	<ul style="list-style-type: none"> Asset Preservation Freight and Economic Vitality
KYLE	Mainline crosstie upgrades and replacements on the Yuma Subdivision	Yuma Junction to Scandia	<ul style="list-style-type: none"> Improve aging infrastructure 	<ul style="list-style-type: none"> Asset Preservation Freight and Economic Vitality
KYLE	Mainline rail upgrades and replacements (3.75 miles) on the Belleville subdivision	Mankato	<ul style="list-style-type: none"> Improve aging infrastructure 	<ul style="list-style-type: none"> Asset Preservation Freight and Economic Vitality
KYLE	Mainline rail upgrades and replacements (3.75 miles) on the Phillipsburg subdivision	Norton	<ul style="list-style-type: none"> Improve aging infrastructure 	<ul style="list-style-type: none"> Asset Preservation Freight and Economic Vitality
KYLE	Mainline rail upgrades and replacements (14 miles) on the Yuma subdivision	Yuma Junction to Scandia	<ul style="list-style-type: none"> Improve aging infrastructure 	<ul style="list-style-type: none"> Asset Preservation Freight and Economic Vitality
KYLE	New siding (15,000 linear feet) on the Solomon subdivision	Milepost 9.10 to 11.95 on the Solomon subdivision	<ul style="list-style-type: none"> Increase capacity (siding) 	<ul style="list-style-type: none"> Transportation System Management Freight and Economic Vitality
KYLE	Cut and slide (8.4 track miles) on the Solomon subdivision	Beloit to Asherville	<ul style="list-style-type: none"> Improve aging infrastructure 	<ul style="list-style-type: none"> Asset Preservation Freight and Economic Vitality
SKOL	286K project on remaining subdivisions to serve the planned Bartlett Grain soybean processing facility just south of Cherryvale.	Various subdivisions on SKOL	<ul style="list-style-type: none"> Increase capacity (286K compliance) 	<ul style="list-style-type: none"> Asset Preservation Transportation System Management Freight and Economic Vitality

Source: WATCO (SKOL and K&O), Jaguar (CVR), Genesee & Wyoming (KYLE), 2021.

Figure 10-22: Rail Projects in Development Map



Other Rail Project Opportunities

Other Rail Project Opportunities have been identified by stakeholders and data analysis as projects that may address rail needs in Kansas, but remain in the concept phase, with project details – including location – yet to be determined. These concepts must also be further explored in order to identify potential costs, benefits, and other impacts of implementation. Figure 10-23 provides an overview of Other Rail Project Opportunities in Kansas, and the following section further describes each concept's typical work components and potential cost ranges.

Figure 10-23: Other Rail Project Opportunities

Project	Project Description	Project Need(s)	Goal Area(s)
286K Upgrade	Improve weight compliance of short line railroads up to 286K standard	<ul style="list-style-type: none"> • Increase capacity (286K compliance) 	<ul style="list-style-type: none"> • Asset Preservation • Transportation System Management • Freight and Economic Vitality
FRA Track Class Upgrade	Upgrade FRA track class of short line railroads.	<ul style="list-style-type: none"> • Increase capacity (train speeds) 	<ul style="list-style-type: none"> • Asset Preservation • Transportation System Management • Freight and Economic Vitality
Sidings	Build new and/or extend existing rail sidings	<ul style="list-style-type: none"> • Increase capacity to accommodate more, longer trains 	<ul style="list-style-type: none"> • Transportation System Management • Freight and Economic Vitality
Grade Crossing Upgrade	Improve highway-rail grade crossing infrastructure – upgrade crossing surface.	<ul style="list-style-type: none"> • Improve aging infrastructure 	<ul style="list-style-type: none"> • Safety and Security • Asset Preservation
Grade Crossing Upgrade	Improve safety at highway-rail grade crossing locations by upgrading safety devices and adding overhead lighting at crossings.	<ul style="list-style-type: none"> • Reduce highway-rail grade crossing incidents 	<ul style="list-style-type: none"> • Safety and Security
Transload Facility	Construct new or expand existing transload facility	<ul style="list-style-type: none"> • Business attraction 	<ul style="list-style-type: none"> • Freight and Economic Vitality

Source: CPCS, 2021.

286K Upgrade

The industry standard for the maximum weight of loaded rail cars is 286K. While much of the Class I rail network is capable of handling 286,000 pounds (or even 315,000 pounds) gross weight rail cars, many short lines or lower-volume Class I routes have infrastructure and bridge restrictions that were designed for the 263,000-pound weight standard. As a result, the owners of many of these lines have completed upgrades necessary to increase carrying capacity at bridges and on track.

Projects that focus on removing restricted capacity at bridges can consist of simple upgrades to specific bridge components or full replacements. For instance, a bridge component project may replace stringers or rebuild piers or abutments. Replacement of components may achieve the desired carrying capacity, avoiding the need for a full replacement. When most of the components of a bridge are not capable of carrying heavy loads, a full replacement may be justified. Depending on the length of the

bridge or what it is spanning (e.g., a river, floodway, or roadway), the replacement could be a simple, standard trestle or a more complex long span or tall bridge.

Projects to upgrade the track, tie, and ballast may also be required to permit the railbed infrastructure to safely handle heavier loads. Rail is manufactured at various weights (measured in pounds of steel per yard); the heavier the weight of the rail the more weight it can carry. The condition of the ties and ballast is also important to provide a durable and level surface for the tracks. Upgrade projects can include replacing the rail and ties, and a process called “surface and tamp” where fresh ballast (crushed rock) is added and tamped down to relevel the surface. A process using machines for lifting the track, filtering the existing ballast to remove fine dirt (to improve drainage), and replacing it can also be employed. Some fresh ballast is usually also installed as part of this process.

Figure 10-24 provides cost ranges for the project types and components that may be involved in a 286K upgrade project.

Figure 10-24: 286K Upgrade Cost Estimates

Project Type	Cost Range	Project Components
Bridge		
Component upgrade	\$1,000 - \$5,000/track foot (TF)	Design and installation to replace individual members to increase bridge capacity
Structure upgrade (Simple)	\$9,000 - \$13,000/TF	Design and construction for standard trestle
Structure upgrade (Complex)	\$19,000 - \$23,000/TF	Design and construction for specially designed, long span, tall structures
Track		
Tie & Surface	\$75 - \$125/TF	Install ties, ballast, surfacing
Tie, surface, & rail	\$125 - \$200/TF	Install ties, ballast, rail, and surfacing

Source: TranSystems, Recent project bid prices, Class I Railroad standard practice.

FRA Track Class Upgrade

The track classification system established by the FRA categorizes rail track segments according to their specific construction details as well as their structural tolerances for carrying passenger and freight trains with various speed limits. FRA track class 4 (60 mph freight and 80 mph passenger) is the most common track class in the U.S., which allows for regular commuter and passenger rail operations with a typical range of speed limit. While FRA track class 4 is the standard for Class I railroads, FRA track class 2 – allowing for freight train speeds of up to 25 mph – is the standard for short line railroads. FRA track class upgrade projects allow for increased train speeds, enhancing the capacity and efficiency of the freight and passenger rail systems.

Upgrading track from Class 1 (limited to 10 mph for freight speed) to Class 2 (25 mph freight train speed) can significantly reduce running time, which increases service quality and productivity, particularly on mainline track (it is less important on sidings where speed may be limited in any case). FRA publishes detailed regulations for minimum standards for minimum rail weight, percentage of good ties, track gauge, ballast quality, spikes, track level, vegetation, etc. for each class of track. Figure 10-25 provides cost ranges for the project types and components that may be involved in a project to upgrade track from FRA Track Class 1 to Class 2. The cost for upgrading track to succeeding higher classifications is typically higher.

Figure 10-25: FRA Track Class Upgrade (Class 1 to Class 2) Cost Estimates

Project Type	Cost Range	Project Components
Tie & Surface	\$75 - \$125/TF	Install ties, ballast, surfacing
Tie, surface, & rail	\$125 - \$200/TF	Install ties, ballast, rail, and surfacing

Source: TranSystems, Recent project bid prices, Class I Railroad standard practice.

Sidings

There are two main types of sidings, outside of terminal areas.

- **Passing sidings** are provided to allow trains to pass each other (most often for trains traveling in opposite directions to meet), and they also allow faster trains to overtake slower trains; these virtually always have turnouts (switches) on both ends. These sidings are normally on right-of-way (ROW) owned by the railroad. In many cases, the railroad owns enough ROW to add passing sidings.
- **Industry sidings** are provided to serve customers who ship or receive freight by rail and allow cargo to be loaded and unloaded. Larger customers may have multiple sidings. Industry sidings are typically located on land owned by the customer. Some sidings have some weather protection to facilitate loading and unloading in inclement weather, and they may even enter buildings. New sidings are usually paid for by the customer, although terms are subject to negotiation, with the expected and/or demonstrated business volume serving as an important consideration.

The track and civil components of a siding project include grading the rail bed to accommodate the parallel track. Ballast, ties, and rail are installed on the rail bed. At each end of the siding, connecting to the mainline track are turnouts or switches that allow a train to move from the mainline onto or out of the siding. Switches can be manually operated or automatic. Automatic switches require a nearby power source, and in cold weather climates, additional equipment may be installed to heat the switch to maintain proper function in snow and ice. Sidings with automatic switches or turnouts are normally integrated into the railroad's signal system. This integration will require the installation of pole or mast-mounted signal lights and track sensors.

Figure 10-26 provides cost ranges for the project types and components that may be involved in a new siding project.

Figure 10-26: New Siding Cost Estimates

Project Type	Cost Range	Project Components
Track and Civil	\$5M – \$10M/Mile	Design and construction for track, bridge, and site work
Signals	\$1M - \$2M	Design, construction, and testing for signals

Source: TranSystems, Recent project bid prices, Class I Railroad standard practice.

Grade Crossing Upgrades

A highway-rail grade crossing surface is the treatment used where the roadway crosses the railroad tracks. Timber or asphalt surfaces are often used on low-volume roadways, but they can deteriorate over time due to water damage, uneven surface, or use. A crossing surface upgrade often consists of an installation of segments of precast concrete panels, with steel borders. The use of these panels allows installation time to be minimized, provides a smooth (but skid-resistant) surface, and has proven to be very long-lasting. If necessary, they can be removed temporarily to permit repair of the track underneath. Segments can be custom-made to provide for crossings located on curved track or other

special situations. Figure 10-28 provides cost ranges for the project components that may be involved in a crossing surface upgrade project at a grade crossing.

Figure 10-27: Grade Crossing Upgrade (Crossing Surface) Cost Estimates

Project Type	Cost Range	Project Components
Crossing Surface	\$1,000	Crossing surface replacement to concrete or rubber and track rehabilitation through the crossing

Source: TranSystems, Recent project bid prices, Class I Railroad standard practice.

There are two types of highway-rail grade crossings – passive and active. A crossing controlled with passive warning devices may include crossbucks, yield or stop signs, advance warning signs, and pavement markings for paved roadways. An upgrade to an active warning device-controlled crossing includes the installation of flashing lights, bells, and gates. These devices require a nearby power source and integration into the railroad’s signal system. Figure 10-28 provides cost ranges for the project components that may be involved in an active warning device upgrade project at a grade crossing.

Figure 10-28: Grade Crossing Upgrade (Active Warning Device) Cost Estimates

Project Type	Cost Range	Project Components
Active Warning Device	\$200,000 - \$500,000	Installation of flashing lights, bells, and gates; track circuitry

Source: TranSystems, Recent project bid prices, Class I Railroad standard practice.

Installation of street lighting includes a light pole and fixture, along with a connection to a nearby power source. Street lighting at a crossing provides higher visibility to passing trains at passive crossings by illuminating the street at the crossing. Figure 10-29 provides cost ranges for the project components that may be involved in installing street lighting at a grade crossing.

Figure 10-29: Grade Crossing Upgrade (Active Warning Device) Cost Estimates

Project Type	Cost Range	Project Components
Street Lighting	\$40,000 - \$100,000	Design and construction for poles, fixtures, conduit, controls

Source: TranSystems, Recent project bid prices, Class I Railroad standard practice.

Transload Facilities

Transload facilities enable intermodal freight movements and can serve activities such as cross-docking, bulk breaking, storage, and repackaging. The presence of transload facilities may serve as a business attraction factor for the railroads on which the facilities are located. Stakeholders have indicated potential opportunities for the development of a new transload facility at various locations in Kansas, including but not limited to, western Kansas, central Kansas, north-central Kansas, south-central Kansas, and southeast Kansas.

KDOT recognizes the importance of transload facilities for intermodal freight movements that utilize the rail system. For instance, in 2015, KDOT directed RSIF funds to the Transload Facility Initiative, which received over 80 applications across over 100 sites. After a one-year selection and analysis process, two sites were selected – Great Bend (K&O) and Garden City (BNSF). Future projects to develop new or to expand transload facilities may be eligible for select state funding programs, provided that eligible transload facility site projects have right-size sites and proximity to rail and roads, meet minimum site readiness requirements, and have demonstrated interest from railroads and customers in using the facility.

Passenger Rail

Passenger rail project opportunities include passenger rail projects that KDOT has begun to implement, combined with additional opportunities identified through consultations with Class I railroads and Amtrak, state and local public agencies, and economic development agencies. Figure 10-30 provides an overview of the potential passenger rail project opportunities in Kansas.

Figure 10-30: Potential Passenger Rail Project Opportunities

Stakeholder(s)	Project	Description	Project Need	Goal Areas
Railroads: BNSF/Amtrak State Agencies: KDOT, ODOT, TxDOT	Service Development Plan Update – Heartland Flyer Extension	Service Development Plan Update to study Heartland Flyer service expansion from Oklahoma City, OK to Newton, KS	<ul style="list-style-type: none"> • Service expansion • Improved connectivity with more destinations 	<ul style="list-style-type: none"> • Transportation System Management • Freight and Economic Vitality • Stewardship
Railroads: BNSF/Amtrak State Agencies: KDOT, ODOT, TxDOT	Amtrak Connects US Heartland Flyer Extension Project	Amtrak Connects US plan includes an extension of the existing Heartland Flyer to link to Amtrak's Southwest Chief through potential federal funding investments.	<ul style="list-style-type: none"> • Service expansion • Improved connectivity with more destinations 	<ul style="list-style-type: none"> • Transportation System Management • Freight and Economic Vitality • Stewardship
Railroads: BNSF/Amtrak State Agencies: KDOT, CDOT	Connections Between the Southwest Chief and Front Range Services	Advocate with Front Range Commission (Colorado) for connections between the Southwest Chief and Front Range services between Pueblo and La Junta, CO.	<ul style="list-style-type: none"> • Service expansion • Improved connectivity with more destinations 	<ul style="list-style-type: none"> • Transportation System Management • Freight and Economic Vitality • Stewardship
Railroads: BNSF/KCT/Amtrak State Agencies: KDOT, MoDOT	Extension of Missouri River Runner to Kansas Destinations	Explore service expansion of the Missouri River Runner to destinations in Kansas (i.e., Lawrence, Topeka).	<ul style="list-style-type: none"> • Service expansion • Improved connectivity with more destinations 	<ul style="list-style-type: none"> • Transportation System Management • Freight and Economic Vitality • Stewardship
Various Parties, Local Units of Government, MPOs	Passenger Rail Station Improvements	Station improvements sponsored by responsible parties.	<ul style="list-style-type: none"> • Improve station infrastructure • Enhance passenger experience 	<ul style="list-style-type: none"> • Transportation System Management • Asset Management • Freight and Economic Vitality • Stewardship

Source: CPCS and TranSystems, 2021.

Service Development Plan Update – Heartland Flyer Extension

For many years, the primary focus of efforts to expand rail service in Kansas has focused on the gap in the Amtrak network between Oklahoma City (northern terminal of the Heartland Flyer to/from Ft. Worth (a Texas Eagle station) and Newton (a Southwest Chief station). KDOT is in the process of initiating an update to the 2011 SDP for the extension of the Heartland Flyer, with Figure 10-32 on the following page illustrating the proposed route on the passenger rail network in Kansas. The SDP update will confirm needed infrastructure improvements on this BNSF route, which handles a significant number of freight trains, along with potential station stops, train schedules, and frequency. Initial capital investment and annual operating costs will be included as well.

Amtrak Connects US Heartland Flyer Extension Project

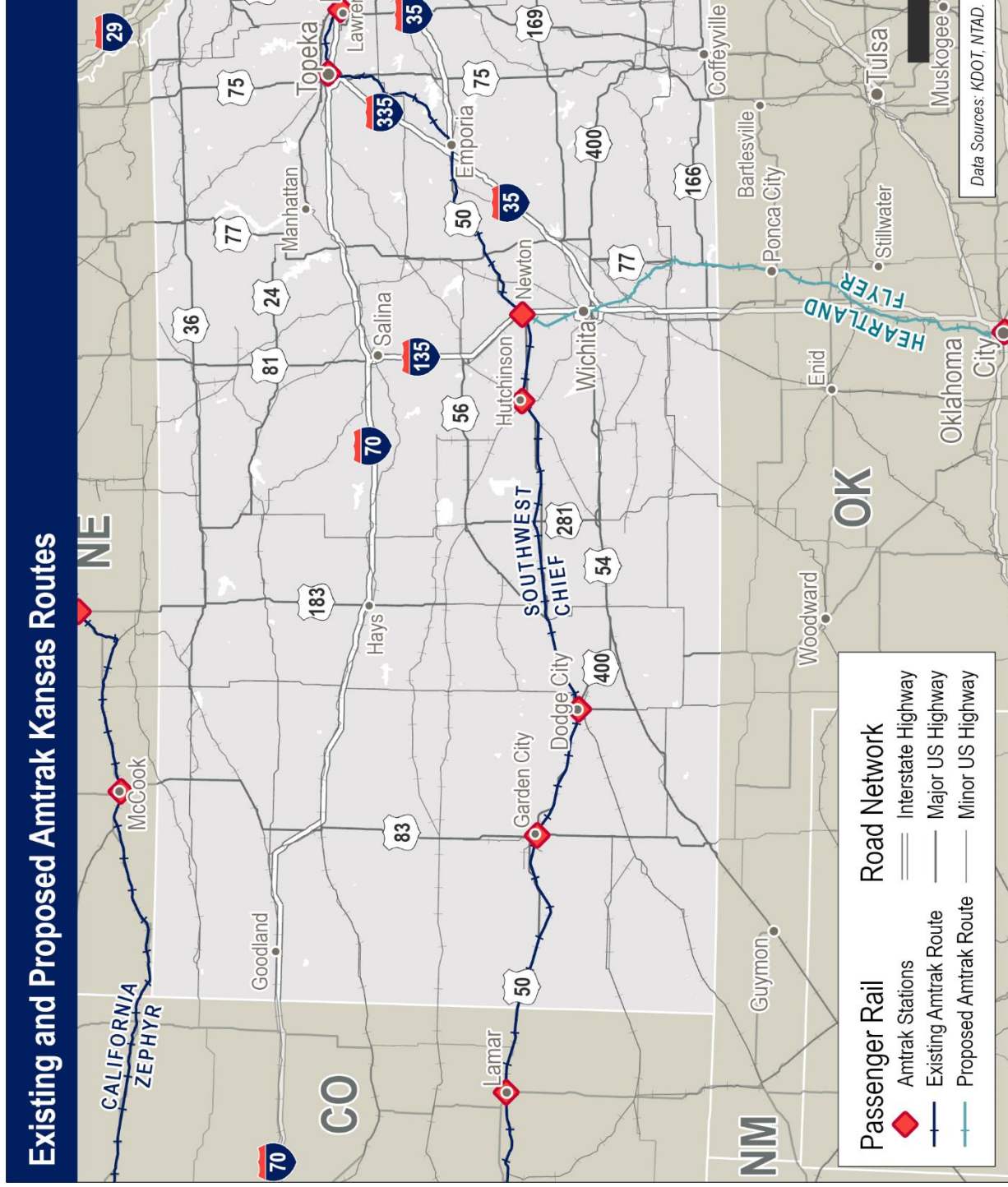
The Amtrak Connects US plan outlines Amtrak's vision for expansion, including the development of new and improved routes to add millions more passengers over 15 years. Amtrak's vision includes an extension of the existing Heartland Flyer to link to Amtrak's Southwest Chief through potential federal funding investments, in order to bring new service to Wichita and increase connectivity to the Amtrak network – including to routes in Texas – via Newton. As shown in Figure 10-31, the extension includes proposed new stations in Wichita and Arkansas City.¹⁵⁰

Figure 10-31: Amtrak Connects US – Heartland Flyer Extension



¹⁵⁰ Amtrak, Connects Us, Heartland Flyer <http://media.amtrak.com/wp-content/uploads/2021/06/Heartland-Flyer-Extension-Fact-Sheet-FINAL.pdf>

Figure 10-32: Proposed Route for Expansion of the Heartland Flyer



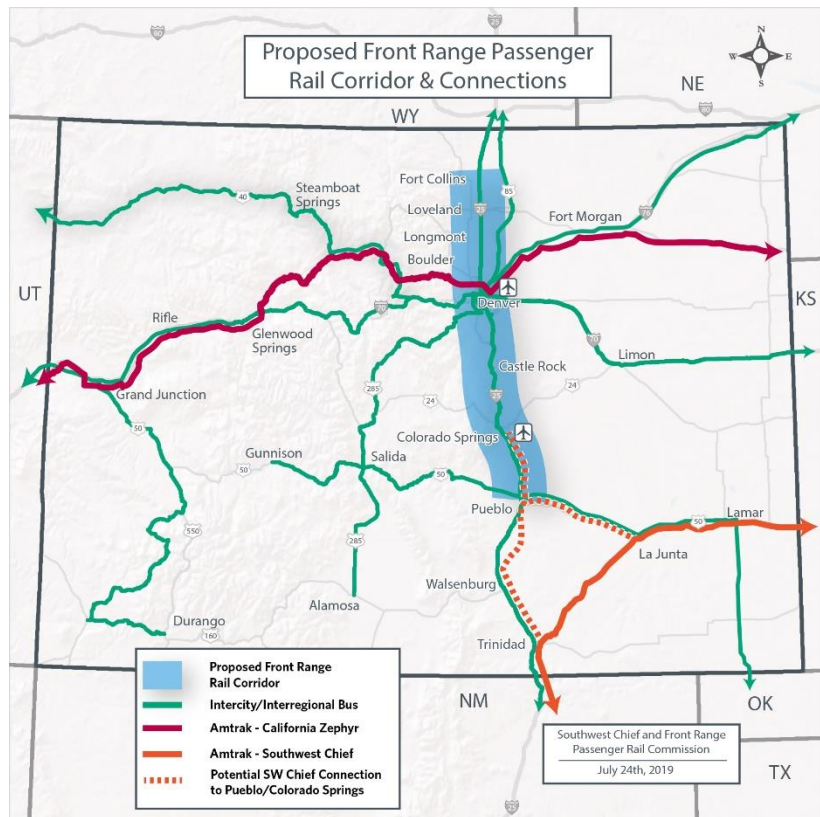
Connections Between the Southwest Chief and Front Range Services

KDOT may consider working with CDOT and the Front Range Passenger Rail District (Colorado) to establish connections between the Southwest Chief and Front Range services between Pueblo and La Junta, CO.

Colorado is exploring expanded Southwest Chief service to Pueblo via a through car feasibility study. It is also evaluating the feasibility of introducing intercity passenger rail service between Pueblo and Fort Collins (see Figure 10-33). In 2021, state legislation was passed creating a Front Range Passenger Rail District, with taxing authority (subject to a referendum), to further develop these concepts.

Colorado DOT currently supports one Pueblo-La Junta-Lamar round trip on its Bustang Outrider bus system, on weekdays only. It appears that its schedule might be able to accommodate a connection to/from the Southwest Chief as an interim step.

Figure 10-33: Proposed Front Range Passenger Rail Corridor & Connections



Source: Southwest Chief and Front Range Passenger Rail Commission, 2017.

Extension of Missouri River Runner to Kansas Destinations

A service expansion to consider that may serve Kansans is an extension of the Missouri River Runner from its terminus in Kansas City, MO to destinations in Kansas, such as Lawrence and Topeka. Further analysis would allow a better understanding of the potential cost and ridership of such a change.

It should be noted that, while there would be efficiencies from such sharing, a downside is that the timing of the trips would need to be tied to times convenient for riders within Missouri (i.e., on the existing Kansas City-St. Louis portion). The existing service uses two trainsets:

- One operates eastbound in the morning (leaving Kansas City at 8:15 am) and returns in the afternoon/evening (arriving in Kansas City at 9:40 pm). This trainset, which now overnights in Kansas City, would be the one that could be extended without requiring an added trainset. However, it would likely depart Kansas City about 10:00 pm, less than an hour before the Southwest Chief, and would need to depart Topeka at about 6:00 am, less than an hour before the Southwest Chief (as an originating train it would have the advantage of being much more likely to operate on-time).
- The other operates westbound in the morning (arriving in Kansas City at 1:55 pm) and returns in the afternoon/evening (leaving Kansas City at 4:00 pm). This second train set is only scheduled to spend about two hours in Kansas City, not nearly enough time to go to Topeka and back. Times more convenient for riders in Kansas would be if another trainset were added to this rotation. An

additional trainset could extend that train to Wichita and Oklahoma City. Alternatively, more convenient times could be provided if the need to provide immediate, through service to St. Louis, by simply terminating the trains in Kansas City.

Passenger Rail Station Improvements

Amtrak is investing in critical projects that will enhance the passenger experience, sustain the national passenger network, provide much-needed additional capacity, and improve reliability and safety.

Local entities expressed the need for various projects or upgrades at passenger rail stations in Kansas. The projects varied from tuck pointing building foundations, improving parking circulation, and acquisition of station structures. These projects all involve a range of stakeholders that may include Amtrak, federal and state agencies, local units of government, MPOs, property owners, or developers. Partnerships to advance projects at existing or future passenger rail stations in Kansas need to acknowledge and leverage ownership and responsible party relationships.

Passenger Rail Station ADA Requirements and Responsibilities

The ADA requires that all stations in the intercity rail transportation system be made accessible to and usable by individuals with a disability. Amtrak's ADA Stations Program aims to bring the stations it serves and for which it has ADA responsibility into compliance with ADA. Congress and the FRA have directed that a portion of Amtrak's National Network Grants be used to further ADA compliance. Responsibility for compliance is defined by federal regulations and based on ownership. Figure 10-34 outlines the ownership and ADA responsibility for stations on the Southwest Chief Route in Kansas.

Figure 10-34: Station Ownership and ADA Responsibility

Station	Owner			ADA Responsible Party		
	Station Structure	Platform	Parking	Station Structure	Platform	Parking
Garden City (GCK)	City of Garden City	BNSF	City of Garden City	City of Garden City	Amtrak	City of Garden City
Dodge City (DDG)	City of Dodge City	BNSF	City of Dodge City	City of Dodge City	Amtrak	City of Dodge City
Hutchinson (HUT)	James L Strawn Trust	BNSF	James L Strawn Trust	James L Strawn Trust	Amtrak	James L Strawn Trust
Newton (NEW)	Crossroads Lumber Co, Inc.	BNSF	City of Newton/ Crossroads Lumber Co, Inc.	Amtrak	Amtrak	Amtrak/City of Newton
Topeka (TOP)	BNSF	BNSF	BNSF	Amtrak	Amtrak	Amtrak
Lawrence (LRC)	City of Lawrence	BNSF	BNSF	City of Lawrence	Amtrak	City of Lawrence

Source: Amtrak Five-Year Plans, FY 2021-2026, current as of February 2021.

Passenger rail station platforms in Kansas do not include substantial amenities. One feature that communities have indicated as a priority for upgrades is platform lighting as the Southwest Chief primarily stops overnight in Kansas. Installation or upgrades to platform lighting include installation of light poles and fixtures along with a connection to a nearby power source. Historic lighting is generally more expensive to install but may be desired if a nearby station has historic features.

Passenger rail station platforms must comply with U.S. DOT regulations and provide accessibility, primarily with near-level boarding of trains. As platforms age, various rehabilitation projects need to be completed, as well as projects to maintain compliance with regulations. Rehabilitation projects at existing station platforms could include repairs to surface cracking, level-boarding installation, or ADA ramp repairs or installation.

Amtrak's goal for new platform installation is to provide sufficient length to avoid double-stopping to serve all cars and enough width to accommodate the movement of passengers and any baggage tractors or carts. Amtrak's Station Program and Planning Guidelines (2013)¹⁵¹ call for a preferred platform length for long-distance trains of 1,200 feet and a width of side platforms of 15 feet (with a minimum width of 12 feet). In recent years, the full-length consist of the Southwest Chief has 10 cars, requiring 850 feet (not including locomotives, about another 150 feet). Existing station platforms in Kansas vary in length from about 650 to 1,150 feet; widths are unknown. Amtrak's preferred guidelines for state-supported corridor services (the category which includes the Heartland Flyer) call for 700-foot-long platforms.

Figure 10-35 provides cost ranges for the project types and components that may be involved in a platform upgrade.

Figure 10-35: Platform Upgrade Cost Estimates

Project Type	Cost Range	Project Components
Add Lighting	\$50 - \$100/square foot (SF)	Design and construction for fixtures, conduit, controls
Platform Rehabilitation	\$300 - \$500/SF	Design and construction for platform rehabilitation that could include ADA upgrades, pavement repairs, or other elements
Install New Platform	\$5M - \$10M	Design and construction for a new sheltered platform, open-air waiting area, and basic amenities

Source: TranSystems, Recent project bid prices, Class I Railroad standard practice.

¹⁵¹ Station Program and Planning Guidelines. Amtrak. 2013; updated 2019. http://www.greatamericanstations.com/wp-content/uploads/2019/02/Amtrak-Station-Program-and-Planning-Guidelines-May-1-2013_Update-Feb-2019.pdf

Appendix A. Stakeholder Outreach – RPAC

Rail Plan Advisory Committee (RPAC)

Stakeholder Organizations and Agencies Represented:

- Chase County
- Great Plains Industrial Park
- Kansas Grain and Feed Association (KGFA)
- Kansas Railroads
- Kansas Legislature
- Sedgwick County
- SMART
- WATCO (Kansas and Oklahoma Railroad; South Kansas and Oklahoma Railroad; Kaw River Railroad)
- Kansas Department of Agriculture (KDA)
- Missouri DOT
- Oklahoma DOT
- Amtrak

Meeting Summaries:

Meeting 1: About the Kansas State Rail Plan Update and Rail Needs and Issues (held April 2021)

Meeting 1 of the Kansas Rail Plan Advisory Committee (RPAC) served as the kick-off meeting for the Kansas State Rail Plan. After RPAC member introductions, the Kansas Department of Transportation (KDOT) introduced the State Rail Plan (SRP) to the RPAC. This included an introduction from Secretary Julie Lorenz, who emphasized the importance of transportation planning, as well as the role of rail in supporting Kansas' residents, economy, and quality of life. KDOT and the Consultant Team then provided more information about the objective and purpose of the State Rail Plan, as well as an outline of the RPAC's role throughout the development of the plan. Then, KDOT and the Consultant Team presented previously identified needs and issues for rail in Kansas, classified by goal area. Needs and issues were first presented for passenger rail, followed by freight rail. The RPAC group had the opportunity to provide feedback and input on the goals, needs, and issues through a live polling platform, as well as through discussion.

Meeting 2: Passenger Rail in Kansas (held June 2021)

Meeting 2 of the Kansas Rail Plan Advisory Committee (RPAC) was the second meeting for the Kansas State Rail Plan (SRP). After a welcome from the Kansas Department of Transport (KDOT) and RPAC member introductions, the Consultant Team provided a progress update for the SRP. The Consultant Team then moved into the meeting's focus – passenger rail. First, the Consultant Team provided an overview of the Kansas Long Range Transportation Plan's Vision and Goals, which inform the development of the SRP. Performance measures for passenger rail were presented by goal area, and RPAC members had the opportunity to provide feedback on the performance measures through a live

polling platform, as well as through discussion. Next, the Consultant Team provided an overview of the passenger rail system in Kansas and led the RPAC members in polling and discussion about existing status, needs, and opportunities of passenger rail in the state

Meeting 3: Freight Rail in Kansas (held July 2021)

Meeting 3 of the Kansas Rail Plan Advisory Committee (RPAC) was the third meeting for the Kansas State Rail Plan (SRP). The meeting opened with a welcome from the Kansas Department of Transportation (KDOT) and RPAC member introductions. Then, the Consultant Team presented Kansas' Economic Profile, to provide context for both freight and rail planning efforts in Kansas. The Consultant Team also provided an overview of stakeholder outreach conducted to date to inform freight rail planning. Next, the Consultant Team then moved into the meeting's main focus – freight rail. Evaluation measures and data for freight rail were presented by SRP goal area to demonstrate the status of the state's freight rail system. RPAC members had the opportunity to provide feedback on this overview of Kansas' freight rail system, through a live polling platform, as well as through discussion about the existing status, needs, and opportunities of freight rail in the state.

Meeting 4: Kansas' Rail System Opportunities and Investment (held September 2021)

Meeting 4 of the Kansas Rail Plan Advisory Committee (RPAC) was the fourth meeting for the Kansas State Rail Plan (SRP). The meeting opened with a welcome from the Kansas Department of Transportation) and RPAC member introductions. The Consultant Team provided a summary of the assessment of Kansas' rail system, with a focus on strengths, weaknesses, and threats, classified by Plan goal area. Then, the Consultant Team presented potential policy and program opportunities for the state rail system, followed by potential freight and passenger rail project opportunities. Finally, the Consultant Team identified state and federal funding sources that may be used to support rail opportunities in Kansas, with considerations of existing needs and future changes. Throughout the meeting, RPAC members had an opportunity to provide feedback through a live polling platform, as well as through a discussion about the rail system assessment, potential opportunities, and considerations for allocating state funding.

Appendix B. Stakeholder Outreach – Consultations

Freight Rail Consultations

Stakeholder Organizations and Agencies Consulted (23)

Class I railroads:

- BNSF
- KCS
- UP

Short line railroads:

- Genesee and Wyoming – Kyle Railroad (KYLE)
- Jaguar Transport Holdings - Cimarron Valley Railway (CVR)
- New Century Air Center Railroad (JCAX)
- Pioneer Rail Corp – Garden City Western (GCW)
- V&S Railroad
- WATCO Companies (SKOL, K&O, and KAW/KCTR)
- Hutchinson Transportation Company

State agencies:

- Kansas Department of Agriculture (KDA)
- Kansas Department of Commerce (KDC)

Freight rail system users and support services:

- Cloud County Co-Op
- Coffeyville Resources
- Grain Craft
- Great Plains Industrial Park
- Kansas City Smart Port
- Kansas Farm Bureau
- Kansas Global Trade Services
- Kansas Grain and Feed Association
- Mickelson & Company
- Seaboard Energy
- South Central Transportation Coalition (attended by representatives from the City of Derby, Greater Wichita Partnership, Wichita Chamber, and TranSystems)

Passenger Rail Consultations

Stakeholders Organizations and Agencies Consulted (13)

Railroad owner/operators:

- Amtrak
- BNSF

Localities:

- City of Newton
- Dodge City
- Lawrence/Douglas County
- Sedgwick County
- Wichita Area Metropolitan Planning Organization (WAMPO)

Neighboring state DOTs:

- Colorado DOT
- Missouri DOT
- Nebraska DOT
- Oklahoma DOT
- Texas DOT

Other passenger rail system stakeholders:

- Northern Flyer Alliance

Appendix C. Stakeholder Outreach – Agriculture Roundtable

Agriculture Stakeholder Roundtable

Attendees

Agriculture stakeholder attendees represented the following organizations:

- AgMarkCloud County Coop
- CoMark Equity Alliance
- Conestoga Energy Partners
- Cornerstone Ag
- Dairy Farmers of America (DFA)
- DeLong Grain
- East Kansas Agri-Energy
- Garden City Company
- Grain Craft
- J-6 Enterprises
- Kansas Agribusiness Retailers Association (KARA)
- Kansas Corn
- Kansas Grain and Feed Association (KGFA)
- Kansas Sorghum Producer's Association
- Kansas Soybean Association
- Kansas Wheat Commission
- Nu-Life Market
- Renew Kansas Biofuels Association
- Skyland Grain
- Team Marketing Alliance (TMA) Grain
- US Wheat Associates

Summary of Findings

This Agriculture Stakeholder Roundtable was held to: Obtain a list of freight and rail transportation system strengths, needs, and opportunities from Kansas' diverse agricultural stakeholders to aid in developing the Kansas State Rail Plan and State Freight Plan Updates.

After welcomes from Secretary Mike Beam of the Kansas Department of Agriculture and Secretary Julie Lorenz of the Kansas Department of Transportation, the Consultant Team provided an overview of the Kansas State Rail Plan and Freight Plan. This was followed by roundtable participant introductions, which included polling (Mentimeter) to understand the commodities and freight system users represented at the roundtable. Then, participants were led through several modules focused on freight and rail system strengths, needs, and opportunities, and participants were asked to provide feedback through polling, discussion, and chat box comments.

Key points of the meeting included:

- *Introduction from Secretary Mike Beam (KDA):* Agriculture is a big part of the Kansas economy, and nationwide Kansas ranks in the top 5 of total value of agricultural production. Top commodities include sorghum for grain, wheat, and cropland.
- *Introduction from Secretary Julie Lorenz (KDOT):* Current freight rail investments in Kansas include \$5 million under the new IKE short line rail program and \$5 million for the existing rail service program. Short line rail program funds include those for expanding service, with new grain elevators (five to date) gaining access to rail service.
- *Roundtable Participant Introductions:* Participants represented grains, feed & forge, food processing, ag inputs/sales, pet food, proteins, ag manufacturing, and other commodities that use Kansas' highway, rail, and multimodal (e.g., intermodal/transload facilities, ports, grain elevators) systems, with commodities destined for domestic and international markets.

Freight and Rail System Strengths

- A top strength of Kansas' multimodal freight system is the state's location (provides good access to markets and points of exports), followed by good system maintenance and low levels of congestion.
- Stakeholders appreciate KDOT's efforts to maintain not only the highway system but also the bridge system.
- The Kansas agriculture supply chain is also a strength – including local wheat origination into Kansas flour mills.

Freight and Rail System Needs

- Participants' top multimodal freight system needs are located both within and outside of Kansas.
- Top infrastructure needs include system capacity and access to other modes, followed by system reliability and system condition, among other infrastructure issues.
- Rail rates are highly controlled by Class I, with little competition. This has been an issue in Kansas. Investments to improve the roadway system and access to/other modes (e.g., waterway) would provide competition to Class I railroads. Infrastructure investments to provide access to additional rail carriers would also unlock access to new markets.
- Stakeholders also noted needs for a transloading facility for containers in western Kansas, more domestic wheat mills with shuttle car capacity, improved rail access to grain elevators, ability to handle manifest cars faster, private car storage, siding programs, and aging infrastructure for grain handling facilities, among others.
- A top non-infrastructure or policy need is weight limits, followed by available/skilled workforce, carrier operations or scheduling, and delivery restrictions or route restrictions, among other non-infrastructure and policy issues.
- Kansas' weight limit for trucks is lower than neighboring states, which is a constraint for many stakeholders, especially given the chronic shortage of CDL drivers. In recent years, truck weights have been increased on 6 axles to 91k lbs, but northern neighbors have gone up to ~107k lbs. This would increase the industry's ability to utilize the roadway system.
- Stakeholders also noted the need for facilities for car repair.

Freight and Rail System Opportunities

- A top opportunity for Kansas' multimodal freight system is upgrading/expanding multimodal connections (including new transload or elevator sites), followed by upgrading/expanding railroad and roadway infrastructure.

- Opportunities for infrastructure include using funds to upgrade the existing aging infrastructure for grain handling facilities, short line infrastructure, rail sidings, and highway and bridge systems, among others. This includes investments in identified poor service areas. There is also interest in new and/or improved transloading facilities, multimodal connections, and commercial storage facilities.
- Opportunities for non-infrastructure/policy include using state funds for projects that have a return on investment (e.g., for freight rail to support agriculture as a backbone of the Kansas economy), continued rail access to Mexico with the pending KCS sale, increasing the load weight requirement, and working with neighboring states, among others.

Appendix D. History of State-Funded Rail Proj

This Appendix provides a complete listing of rail projects in Kansas funded by KDOT programs.

State Rail Service Improvement Fund (RSIF)

Figure D-1 provides a complete list of RSIF project awards funded through CTP, T-WORKS, and IKE since 2000. F is currently in the process of finalizing details for projects awarded under RSIF for SFY 2022.

Figure D-1: RSIF Project Awards (SFY 2000-2022)

Grant Recipient	Project Number	Length	MP to MP	Subdivision	City to City	Grant Amount	Loan Amount
Boothill and Western	RR-8019-21	9.0	0.0 - 9.0	Dodge City	Dodge City to Wilroads	\$184,911	\$246,548
KSW / Kansas & Oklahoma	RR-8028-01	22.2	550.5 - 572.7	Geneseo	Sterling to Geneseo	\$0	\$435,812
Kansas & Oklahoma	RR-8029-22	50.0	489.0 - 536.0	Hutchinson	Wichita to Hutchinson	\$296,438	\$395,250
Kansas & Oklahoma	RR-8029-23	10.0	44.0 - 54.0	McPherson	McPherson to Conway	\$111,600	\$148,800
Kansas & Oklahoma	RR-8029-32	17.0	103.1 - 120.1	Scott City	Amy to Scott City	\$137,761	\$183,681
Kansas & Oklahoma	RR-8029-33	13.5	223.2 - 236.7	Great Bend	Yaggy to Sterling	\$131,307	\$175,077
Kansas & Oklahoma	RR-8029-42	16.4	45.0 - 54.1 & 72.1 - 79.4	Kingman	Kingman to Calista & Waldeck to Pratt	\$127,524	\$170,032
Kansas & Oklahoma	RR-8029-43	1.2	482.3 - 482.8	Hutchinson	Wichita	\$112,831	\$150,441
Kansas & Oklahoma	RR-8029-44	15.0	255.0 - 270.0	Great Bend	Alden to Great Bend	\$133,793	\$178,390
Kansas & Oklahoma	RR-8029-45	17.5	495. - 512.5	Isabel	Frontier to Conway Springs	\$156,095	\$208,127
Kansas & Oklahoma	RR-8029-52	64.0	0.00 - 64.0	Scott City	Great Bend to Ness City	\$0	\$1,132,834

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Grant Recipient	Project Number	Length	MP to MP	Subdivision	City to City	Grant Amount	Loan Amount
Kansas & Oklahoma	RR-8029-63	14.0	506.0 - 492.0	Hutchinson	West Wichita to Andale	\$0	\$379,470
Kansas & Oklahoma	RR-8029-65	25.0	512.0 - 487.0	Newton	Newton to McPherson	\$0	\$462,928
Kansas & Oklahoma	RR-8029-91	13.0	223.0 - 236.0	Great Bend	Yaggy to Sterling	\$0	\$545,428
K & O/Kuhn-Krause	RF-0041-01	0.5	533.8 - 534.3	Hutchinson	Hutchinson	\$59,361	\$0
K & O/Golden Valley	RF-0044-01	0.3	12.1 - 12.3 & 23.9 - 24.0	Hanston Lead	Sanford and Burdett	\$131,721	\$175,628
Kansas & Oklahoma	RF-0046-01	1.7	47.2 - 48.9	McPherson	McPherson	\$679,375	\$905,833
Kansas & Oklahoma / PPA	RR-0218-61	35.3	21.7 - 57.0	Salina	Salina to Lincoln	\$0	\$600,000
Kansas and Oklahoma	RF-0049-01	0.5	N A	Great Bend	Great Bend	\$3,000,000	\$0
Kansas and Oklahoma	RF-0059-01	1	14.5 - 15.5	Scott City	Albert	\$165,568	\$220,757
Kansas and Oklahoma	RF-0067-01	1	92.10 - 91.10	Great Bend	Silica	\$126,122	\$168,163
Kansas and Oklahoma 286K	RA-2931-20	65	508.0 - 533.0 & 228.0 - 268.0	Huchinson, Great Bend	Wichita to Great Bend	\$4,321,170	\$0
Kansas and Oklahoma	RA-2921-21	1.4	47.2 - 48.6	Scott City	Bazine	\$934,422	\$0
V and S	RR-8024-51	10.0	10.5 - 20.5	Medicine Lodge	Sharon to Medicine Lodge	\$0	\$232,927
V and S	RR-8024-71	10.0	0.0 - 10.0	Medicine Lodge	Attica to Sharon	\$0	\$925,925
V and S	RF-0042-01	21.0	0.0 - 21.0	Medicine Lodge	Attica to Medicine Lodge	\$957,522	\$1,276,696
V and S	RA-5711-21	8.0	0.1 - 21.0	Medicine Lodge	Attica to Medicine Lodge	\$532,334	\$0

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Grant Recipient	Project Number	Length	MP to MP	Subdivision	City to City	Grant Amount	Loan Amount
Kyle	RR-8033-01	62.0	189.0 - 353.0	Belleville/ Phillipsburg	Belleville to Dresden	\$0	\$386,002
Kyle	RR-8033-11	59.0	329.0 - 335.0 & 389.0 - 442.0	Phillipsburg/ Goodland	Norton to Clayton & Colby to Kanorado	\$170,239	\$226,985
Kyle	RR-8033-21	85.0	199.0 - 284.0	Belleville (#3)	Scandia to Phillipsburg	\$199,885	\$266,514
Kyle	RR-8033-31	36.0	353.0 - 389.0	Phillipsburg	Dresden to Colby	\$305,197	\$406,930
Kyle	RR-8033-41	14.0	490.3 - 504.3	Yuma (#3)	Yuma to Scandia	\$174,411	\$232,548
Kyle	RF-0056-01	13.0	309.0 - 317.2 &	Phillipsburg	Almena to Clayton	\$326,085	\$434,780
Kyle	KA 2637-01	--	326.6 - 331.4	--	--	\$408,283	\$0
Kyle	RF-0066-01	41.0	241.0 - 255.0	Belleville	Lebanon to Phillipsburg	\$749,533	\$999,378
Kyle 286K - Bridges	RA-3331-20	235.5	203.5 - 439.0	Multiple	Courtland to Kanorado	\$1,744,796	\$0
Kyle	RA-3311-21	4.5	514.2 - 517.0 & 518.0 - 519.65	Concordia	Beloit to Glen Elder	\$2,289,534	\$0
Mid-States Port Authority/KYLE	RR-8035-71	0.2	189.0 - 189.2	Belleville	East of Belleville	\$0	\$460,797
Nebraska Kansas Colorado	RR-8049-01	73.2	133.1 - 59.9	St. Francis	Cedar Bluffs to St. Francis	\$0	\$443,098
South Kansas & Oklahoma	RR-8054-01	28.4	218-1 - 246.5	Moline	Grant Summit to Winfield	\$0	\$249,616
South Kansas & Oklahoma	RR-8054-02	23.6	130.5 - 153.6	Chanute	Chanute to Cherryvale	\$0	\$225,834
South Kansas & Oklahoma	RR-8054-21	27.0	414.0 - 387.0	Neodesha	Cherryvale to Fredonia	\$188,325	\$251,100

KANSAS STATE RAIL PLAN Draft Kansas State Rail Plan

Grant Recipient	Project Number	Length	MP to MP	Subdivision	City to City	Grant Amount	Loan Amount
South Kansas & Oklahoma	RR-8054-22	29.8	155.7 - 165.0 & 0.0 - 20.5	Tulsa	Cherryvale to Caney	\$225,090	\$300,120
South Kansas & Oklahoma	RR-8054-31	0.25	387.0 - 155.4	Neodesha/ Chanute Connector	Cherryvale	\$41,461	\$55,281
South Kansas & Oklahoma	RR-8054-33	26.7	325.8 - 379.5	Pittsburg Branch	Cherokee to Sherwin	\$142,588	\$190,118
South Kansas & Oklahoma	RR-8054-35	37.2	350.8 - 386.9	Neodesha	Hallowell to Cherryvale	\$185,405	\$247,207
South Kansas & Oklahoma	RR-8054-37	20.0	210.0 - 230.0	Moline	Grendola to Burden	\$122,791	\$163,721
South Kansas & Oklahoma	RR-8054-38	18.1	0.0 - 18.1	Coffeyville	Cherryvale to Coffeyville	\$133,557	\$178,076
South Kansas & Oklahoma	RR-8054-42	8.0	132.0 - 140.0	Chanute	Chanute to Thayer	\$62,937	\$83,916
South Kansas & Oklahoma	RR-8054-51	19.0	160.0 - 199.0	Moline	Fredonia to Moline	\$0	\$383,005
South Kansas & Oklahoma	RR-8054-53	11.1	128.5 - 117.4	Humboldt Lead	Chanute - Humboldt	\$0	\$196,142
South Kansas & Oklahoma	RR-8054-61	13.0	143.0 - 156.0	Chanute	Morehead to Cherryvale	\$0	\$308,934
South Kansas & Oklahoma	RR-8054-62	22.0	232.0 - 210.0	Moline	Grenola to Burden	\$0	\$430,264
South Kansas & Oklahoma	RR-8054-63	33.0	155.5 - 165.5 & 0.0 - 23.0	Tulsa	Cherryvale to Caney	\$0	\$763,733
South Kansas & Oklahoma	RF-0017-01	2.0	150.2-152.2	Chanute	Cherryvale	\$916,000	\$0
South Kansas & Oklahoma	RF-0034-01	2.1	414-NA	Neodesha	Fredonia	\$547,753	\$730,338
South Kansas & Oklahoma	RF-0036-01	4.5	150.8-155.3	Chanute	Cherryvale	\$465,411	\$620,548

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Grant Recipient	Project Number	Length	MP to MP	Subdivision	City to City	Grant Amount	Loan Amount
South Kansas & Oklahoma	RF-0048-01	1.5	164.0 - 165.5	Tulsa	Independence	\$227,291	\$303,054
South Kansas & Oklahoma	RF-0052-01	1.0	16.7-16.9	Coffeyville	Coffeyville	\$379,967	\$506,623
South Kansas & Oklahoma	RF-0055-01	6.0	144.0-150.0	Chanute	Cherryvale	\$362,552	\$483,402
SKO 286K	RA-5431-20	51.0	153.0 - 185.0 & 395.0 - 414.0	Moline, Neodesha W.	Cherryvale to Winfield	\$3,849,925	\$0
South Kansas & Oklahoma	RA-5411-21	--	153.9 - 247.2 & 356.2 - 405.5	Moline, Neodesha	--	\$951,922	\$0
New Century AirCenter	RR-8072-01	5.0	0.00 - 5.0	N/A	NCAC (Gardner)	\$0	\$210,000
New Century AirCenter	RR-8072-31	5.0	0.00 - 5.0	N/A	NCAC (Gardner)	\$162,898	\$217,197
New Century AirCenter	RR-8072-41	5.0	0.00 - 5.0	N/A	NCAC (Gardner)	\$200,071	\$0
Cimarron Valley	RF-0001-01	170	3.5-119 1-63	CVR/Manter	Dodge City/Elkhart, Satanta/Saunders	\$8,000,000	\$2,000,000
Cimarron Valley 6 Bridges	RF-0025-01	6	59-66	CVR	near Satanta	\$1,000,000	\$2,000,000
Cimarron Valley 286K - Bridges	RA-1631-02	180.1	3.76 - 62.4 and 121.5	--	Dodge City to Elkhart and Saunders	\$1,314,110	\$0
Cimarron Valley	RA-1611-21	3.385	3.76 - 62.40 and 121.50	CVR/Manter	--	\$971,217	\$0
Rice County/JACAM	KA-3034-01	0.36	--	--	Sterling	--	--
Bonanza Energy siding	RF-0020-01	1.0	401	LaJunta	Garden City	\$500,000	\$1,000,000
City of Bel Aire	RF-0039-01	0.75	--	N A	Bel Aire	\$316,019	\$421,358
Garden City Western	RF-0035-01	3.0	0.0-3.0	West Line	Garden City	\$89,611	\$119,481
Garden City Western	RF-0043-01	3.0	0.0-3.1	West Line	Garden City	\$107,866	\$143,821

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Grant Recipient	Project Number	Length	MP to MP	Subdivision	City to City	Grant Amount	Loan Amount
Garden City Western	RF-0045-01	3.0	0.0-3.0	West Line	Garden City (switches)	\$311,757	\$415,676
City of Garden City	RF-0050-01	2.6	397.0-398.0	La Junta	Garden City	\$3,000,000	\$0
Cargill, Inc.	RF-0051-01	2.26	336.51-337.23	Falls City	Atchison	\$967,086	\$1,289,448
Cargill, Inc.	RA-9321-21	0.1	--	--	--	\$180,000	\$0
Element, LLC	RF-0058-01	0.6	498.2 - 498.8	Hutchinson	Colwich	\$1,020,431	\$1,360,575
Occidental Chemical	RA-8421-21	2.57	--	--	--	\$2,262,140	\$0
Monarch Cement	--	--	--	--	Humboldt	\$2,100,000	\$0
MKC Elevator	--	--	--	--	Sterling	\$1,625,169	\$0
New Century AirCenter Railroad	--	--	--	--	New Century	\$849,900	\$0
South Kansas and Oklahoma Coffeyville	--	--	--	--	Coffeyville	\$619,564	\$0
South Kansas and Oklahoma Winfield	--	--	--	--	Winfield	\$380,803	\$0
ADM	--	--	--	--	Goodland	\$90,000	\$0
Kanas and Oklahoma Wichita	--	--	--	--	Wichita	\$182,119	\$0
Kansas and Oklahoma Hutchinson	--	--	--	--	Hutchinson	\$112,595	\$0
Kansas and Oklahoma 286K Bridges	--	--	--	--	Scott City Line	\$955,500	\$0
Bestifor Farms	--	--	--	--	Rydel	\$664,756	\$0
Garden City Western	--	--	--	--	Garden City	\$187,652	\$0
Midland Marketing Cooperative	--	--	--	--	Toulon	\$231,015	\$0
KYLE	--	--	--	--	Solomon Rapids to Glen Elder	\$1,440,000	\$0
Americold Logistics	--	--	--	--	Garden City	\$28,951	\$0

Grant Recipient	Project Number	Length	MP to MP	Subdivision	City to City	Grant Amount	Loan Amount
Dei-Fan Logistics	--	--	--	--	Scott City	\$642,526	\$0
TOTAL						\$57,984,550	\$29,024,369

Source: KDOT

286K Initiative

Through RSIF funding, KDOT launched the 286K Initiative for SFY 2020 to fund major rehabilitations, rail rep improvements for short line capacity improvements.¹⁵² Through this initiative, Kansas provided \$11.2 million in gr enabling almost \$18 million in rail rehabilitation projects. Figure D-2 provides further details on the four projects i the 286K Initiative.

Figure D-2: 286K Initiative Project Awards (SFY 2020)

Grant Recipient	Project Number	Project Description	Grant Amount	Ma An
CVR	RA-1631-02	Upgrade 17 bridges, replace 2.78 miles of 85# rail with 112# or larger rail, crossties and OTM, ballast, tamping and surfacing	\$1,314,110	\$
KYLE	RA-3331-20	Upgrade 144 bridges, replace 1.7 miles of 85# rail with 112# or larger rail	\$1,744,795	\$
K&O	RA-2931-20	Upgrade 19 bridges, replace 1.8 miles of 85# rail with 112# or larger rail, crossties and OTM, tamping and surfacing, rehabilitate crossings	\$4,321,170	\$2,
SKOL	RA-5431-20	Upgrade 4 bridges, crossties and OTM, tamping and surfacing, rehabilitate crossings	\$3,849,925	\$2,
TOTAL			\$11,230,000	\$6,

Source: KDOT

¹⁵² KDOT, AASHTO CORT Annual Meeting, Kansas Rail Improvement Projects, <https://rail.transportation.org/wp-content/uploads/sites/30/2020/10/4.-KDOT-Presentation.pdf>

Transload Facility Initiative

Through RSIF funding, KDOT also launched Transload Facility Initiative for SFY 2015 to fund transload projects in initiative, Kansas provided \$6 million in grants to two sites, as detailed in Figure D-3.

Figure D-3: Transload Facility Initiative Project Awards (SFY 2020)

Project	KDOT Investment	Other Investment	Total
Great Bend Facility	\$3 million	(City of Great Bend, Kansas Transload Services, K&O)	\$5.25 million
Garden City Facility	\$3 million	\$10 million (Local and developer investments)	

Source: KDOT

Short Line Rail Improvement Fund (SLRIF)

Figure D-4 provides a complete list of SLRIF project awards funded for SFY 2021 and SFY 2022.

Figure D-4: SLRIF Project Awards (SFY 2021-2022)

Award Year	Grant Recipient	Project Number	Project Description	Grant Amount	Railroad Share
SFY 2022	Bartlett Grain	5 RA-6321-22	Siding expansion	\$1,813,950	\$
SFY 2022	Central Valley Ag Coop	62 RA-6221-22	Siding rehab and extension	\$421,971	\$
SFY 2022	Cimarron Valley Railroad		Major rehabilitation	\$1,048,872	\$
SFY 2022	Gavilon Grain	87 RA-6611-22	Siding rail replacement	\$280,093	\$
SFY 2022	Hutchinson Transportation	78 RA-6411-22	Replace rail, OTM, add ballast	\$513,718	\$
SFY 2022	K&O	87 RA-2911-22	Crossing rehab Bailey St. corridor	\$535,782	\$
SFY 2022	Kirk Grain	86 RA-6111-22	New scales	\$56,000	
SFY 2022	KYLE	62 RA-3311-22	Rail relay, OTM, ballast	\$700,000	\$
SFY 2022	Midland Marketing Cooperative	83 RA-6021-22	Rehab and extend siding	\$467,509	\$
SFY 2022	Scoular Grain Downs	71 RA-9311-2	Siding extension and switches	\$182,593	
SFY 2022	Scoular Grain Goodland		Siding rehabilitation and extension	\$421,918	\$
SFY 2022	SKOL	19 RA-5412-22	Cornell Lead – WATCO Mechanical Shop – Railcar maintenance	\$114,725	
			TOTAL (SFY 2022)	\$6,557,131	\$2,
SFY 2021	Cimarron Valley Railroad	106 RA-1616-21	Rail Replacement, Bridges – 286K	\$1,147,789	\$
SFY 2021	New Century Air Center Railroad	36 RA-7216-21	Major Rehabilitation	\$256,163	\$
SFY 2021	Scott City Coop - Grigston	86 RA-9417-21	Siding Rehabilitation	\$36,048	
SFY 2021	Scott City Coop - Manning	86 RA-9417-21	Siding Rehabilitation	\$35,304	

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Award Year	Grant Recipient	Project Number	Project Description	Grant Amount	Railroad Share
SFY 2021	Scouler Grain - Downs	71 RA-9317-21	Siding Rehabilitation	\$97,242	
SFY 2021	Scouler Grain - Goodland	91 RA-9316-21	Preservation/Maintenance	\$71,306	
SFY 2021	Skyland Grain - Elkhart	65 RA-9218-21	Siding Rehabilitation	\$44,999	
SFY 2021	Skyland Grain - Manter	94 RA-9216-21	Siding Rehabilitation	\$34,955	
SFY 2021	SKOL	106 RA-5416-21	Rail Replacement – 286K	\$417,591	\$
SFY 2021	V&S Railway	4 RA-5716-21	Rail Yard Rehabilitation	\$674,407	\$
Total (SFY 2021)				\$2,815,804	\$1,
TOTAL				\$9,372,935	\$4,

Source: KDOT.



Economic Development

Figure D-5 provides a list of rail projects funded by the KDOT Economic Development program between 2019 and

Figure D-5: Economic Development Program Rail Project Awards (2019-2021)

Year Awarded	Project Title	Description	City	County	Match	Total Project Cost
2019	Project Bevo Part 1	Construct 7,617 track feet of new railroad track and railbeds, including earthwork, excavation of borrow material, placement of fill and cement stabilized sub-ballast rock located in Garden City, Kansas.	Garden City	Finney	15%	\$2,3
2019	Project Bevo Part 2	9,436 track feet of new railroad track and railbeds. The project will include all necessary rail and earthwork to construct new railroad tracks and rail-beds. Earthwork will include excavation of borrow material, placement of compacted fill, and placement of cement-stabilized sub-ballast rock. Rail construction will include track construction, switch construction, and the placement of ballast rock.	Garden City	Finney	49%	\$1,9
2020	Great Plains Development	1) At the Union Pacific (UP) service entrance into the park, remove and salvage 100 LB rail and switch to be used on project 2, replacing 1,000 ft of new trackage, with 115 LB continuous welded rail, new ties on 21" centers, ballast, and new No. 9 switch. (2) Track Rehab: replace 6,000 ties with new double shoulder tie plates and new box anchors, place 2,500 tons ballast, upgrade all the 80 LB and 85 LB rail with 100 LB rail reclaimed from project 1, approx. 2,166 ft track, relocate 100 LB No. 8 switch with new timber package, surface, and regulate 43,500 ft of the improvement area. (3) Repair 2 Bridges: replace all bridge ties, replace North & South headwalls on both bridges, replace bridge stringers on South bridge, replace cap bents, and add ballast and tamp approaches.	Parsons	Labette	14%	\$2,3

Year Awarded	Project Title	Description	City	County	Match	Total Project Cost
2021	City of Neodesha Rail Spur	The project scope is to construct a rail spur in order to facilitate the transload of products from the customer's planned laydown facility to railcar for outbound shipment. The various railroad construction components identified include the following: 811 LF of rail, an 82 LF wood panel road crossing for site access, a mainline LH #11 turnout, a RH derail for mainline track protection, and an EOT device.	Neodesha	Wilson	0%	\$3

Source: KDOT

Cost Share

Figure D-6 provides a list of rail projects funded by the KDOT Cost Share program between 2019 and 2021.

Figure D-6: Cost Share Program Rail Project Awards (2019-2021)

Year Awarded	Project Title	Description	City	County	Community Match	Total Project Cost
2020	Nutrien Ag Solutions Rail Siding	Install a 20-car rail siding with (2) turnouts to serve the Colby, KS Nutrien Ag Solution retail agriculture facility. This rail siding will supply liquid fertilizer to a local business that supports local farmers and ranchers that supply to the food supply chain across western Kansas and North America. This is a very important region of the country because of the numerous corn and wheat acres which is part of the backbone for an ever-important food chain. This rail siding is the final piece to a multi-year project that greatly expands Nutrien's ability to support the local market covering several counties as detailed later in the application.	Colby	Thomas	59%	\$2,000,000

Source: KDOT

Appendix E. K&O New Passing/Siding Track Project

KDOT Project No. RA-2921-21 is a 2021 RSIF state-funded rail project that involves the construction of new 7,400 foot passing/siding track on the Kansas and Oklahoma Railroad, just east of Bazine, Kansas, as well as the rehabilitation of existing track within project parameters. Project benefits include the following:

- Directional flow of unit trains between Great Bend, Kansas and Scott City, Kansas;
- Ability of railroad to double car movements over new section of track during high demand periods such as harvest;
- Increased annual rail carloads of 1,600 (6,400 truckload equivalent [TLE]);
- Reduced transit times;
- Improved railroad operating efficiencies;
- Improved service to grain elevators and other shippers;
- Improved railcar turn time; and
- Improved safety.

Figure E-1: Preconstruction Photos



Figure E-2: Materials Photos



Figure E-3: Construction Photos



Figure E-4: Postconstruction Photos

