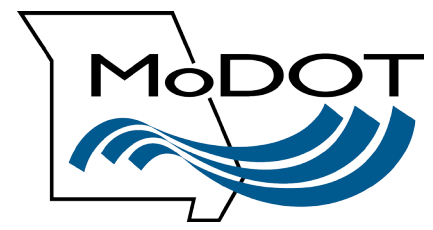




# 2022 MISSOURI

# State Freight & Rail Plan



## *Executive Summary*





## **PURPOSE AND GOALS**

Missouri's economic vitality and quality of life are inextricably linked to the state's multimodal freight and passenger rail transportation network. This State Freight and Rail Plan is a next-generation blueprint with supporting tools to guide investments in the multimodal freight and passenger rail network that will serve Missouri today and well into the future. This data-driven and stakeholder-supported plan is intended to help Missouri maintain its competitive advantage and economic vitality by ensuring safe, efficient movement of goods throughout the state.

MoDOT developed the SFRP to guide current and future multimodal freight and passenger rail transportation investment strategies in collaboration with a wide range of stakeholders.

The SFRP is a planning tool for public and private entities statewide, nationally and globally. It represents a deeper dive into the multimodal freight and passenger rail component of the Long Range Transportation Plan and supports the Citizen's Guide to Missouri's Transportation Future and the State's multimodal Statewide Transportation Improvement Program.

# STATE FREIGHT & RAIL PLAN GOALS ALIGN WITH MoDOT'S 3 PRIMARY PILLARS



## Moving Missourians safely

- » **SAFETY:** Improve safety and security of the multimodal freight and passenger rail system by supporting efforts to decrease the number and severity of freight vehicle crashes, increase truck parking options and improve safety throughout the multimodal freight system and the passenger rail network.



## Providing outstanding customer service

Delivering efficient and innovative transportation projects  
Operating a reliable transportation system

- » **CONNECTIVITY AND MOBILITY:** Improve the connectivity and mobility of the multimodal freight and passenger rail system.
- » **EQUITY AND ENVIRONMENTAL RESILIENCY:** Reduce and/or mitigate the adverse environmental and community impacts of freight, and strengthen the resilience of the multimodal freight network against extreme weather events.
- » **CUSTOMERS AND PARTNERSHIP:** Improve coordination and collaboration with regional planning partners and multimodal freight and passenger rail stakeholders.



## Managing our assets

Stabilizing resources and engaging our workforce  
Building a prosperous economy for all Missourians

- » **MAINTENANCE:** Maintain the multimodal freight and passenger rail system in good condition.
- » **ECONOMY:** Support economic growth and competitiveness in Missouri through strategic improvements to the multimodal freight network and passenger rail system.
- » **PROCESS AND INNOVATION:** Institute policies and practices that support the multimodal freight and passenger rail systems, encourage innovation and promote an efficient use of resources.

# FREIGHT DRIVES MISSOURI'S ECONOMY

## MOVING THE GOODS, FUELING THE ECONOMY

Missouri Economy at a Glance, 2018

**6.1**  
million  
PEOPLE

**2.5**  
million  
JOBS

**\$295**  
billion  
in INCOME

**\$285**  
billion  
GROSS STATE  
PRODUCT

In 2018, more than

**985** MILLION  
tons of freight

Total Statewide Economic Impact of Freight Transportation  
and Freight-Generating Industries in Missouri

**482**  
thousand  
JOBS

**\$26**  
billion  
in INCOME

**\$42**  
million  
in GROSS  
STATE PRODUCT

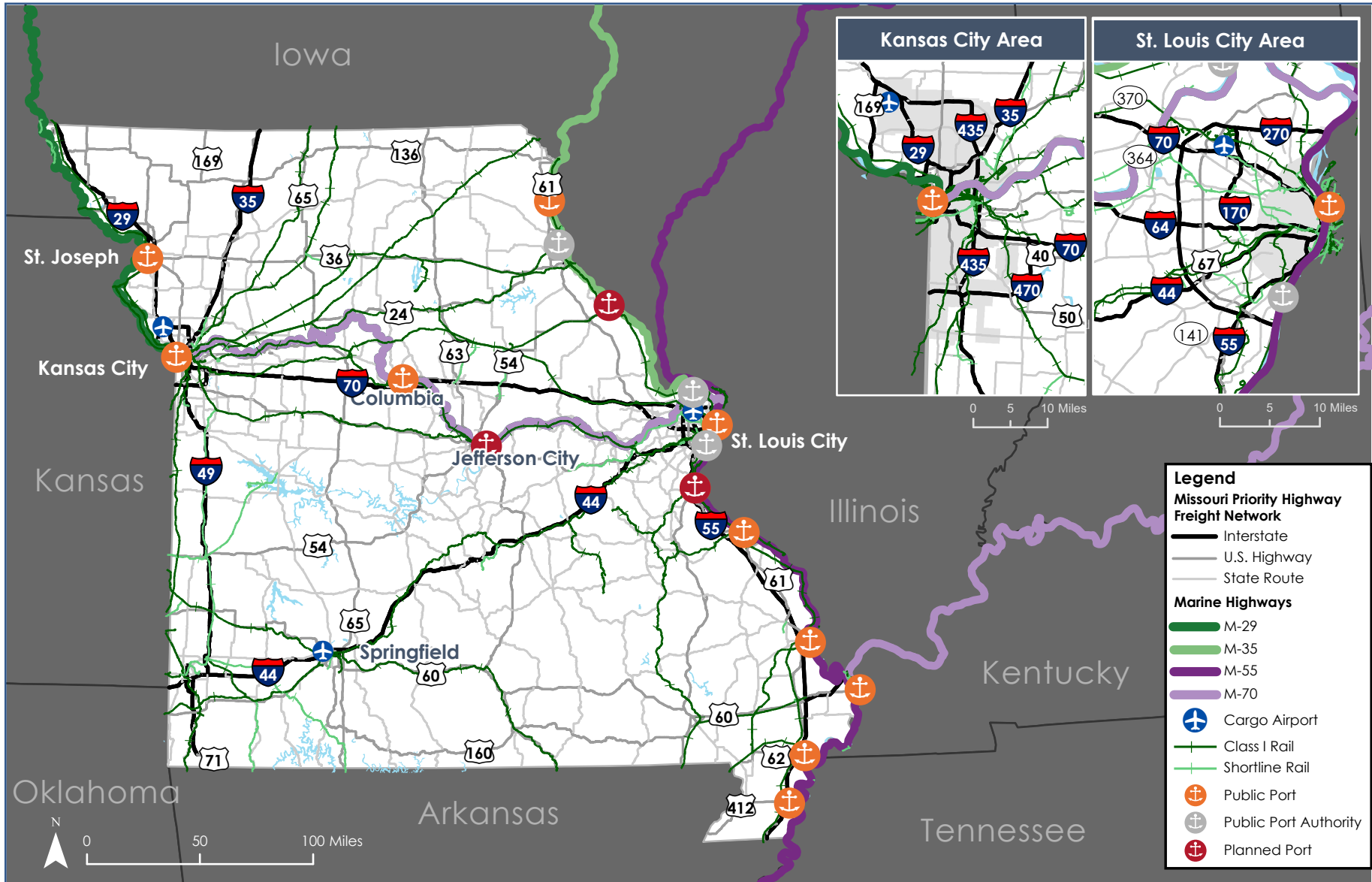
**\$7**  
million  
in FEDERAL, STATE  
AND LOCAL TAXES

**161** TONS  
per capita

moved within **MISSOURI.**



# MISSOURI'S MULTIMODAL FREIGHT NETWORK



# MISSOURI'S FREIGHT NETWORK KEEPS THE ECONOMY MOVING

The multimodal freight transportation network supports key industries throughout Missouri including agriculture, manufacturing, mining, quarrying and oil & gas extraction. The multimodal network provides Missouri businesses with access to domestic and global supplies, facilities and markets.

## MISSOURI MANUFACTURES



**277,000**  
JOBS



**\$12.22B**  
in MANUFACTURED  
GOODS EXPORTS

### TOP SECTORS:

TRANSPORTATION  
EQUIPMENT MFG.,  
FOOD MFG.,  
FABRICATED METALS MFG.  
and MACHINERY MFG.



## MISSOURI MOVES GOODS – NORTH AMERICA'S LOGISTICS CENTER

More than

**19,000**

TRANSPORTATION &  
LOGISTICS COMPANIES



**7TH LARGEST**

HIGHWAY SYSTEM in the U.S.

## MISSOURI FEEDS THE WORLD

Missouri is home to



**95,320**

FARMS  
covering a total of

**27.7M**

ACRES,



which employ more than

**156,000** PEOPLE.

Missouri livestock and poultry  
farms sold more than

**286M** BROILERS,



**13M**

HOGS & PIGS and

**2M**

CATTLE & CALVES.



Missouri farms harvested  
nearly

**13.5M**

ACRES, producing



**563M**

BUSHELS OF  
CORN for grain

and



**37M**

BUSHELS of  
winter wheat.



Centrally located **WITHIN 600**  
**MILES** of **MORE THAN HALF**  
of U.S. HOUSEHOLDS and  
MANUFACTURING ESTABLISHMENTS

KANSAS CITY and



ST. LOUIS are the nation's

**2ND & 3RD**

**LARGEST** RAIL HUBS,  
respectively, after Chicago

**1,050 MILES**

of INLAND WATERWAYS on the Mississippi  
and Missouri rivers and HOME TO the most






**NORTHERN ICE-FREE PORT**

on the Mississippi

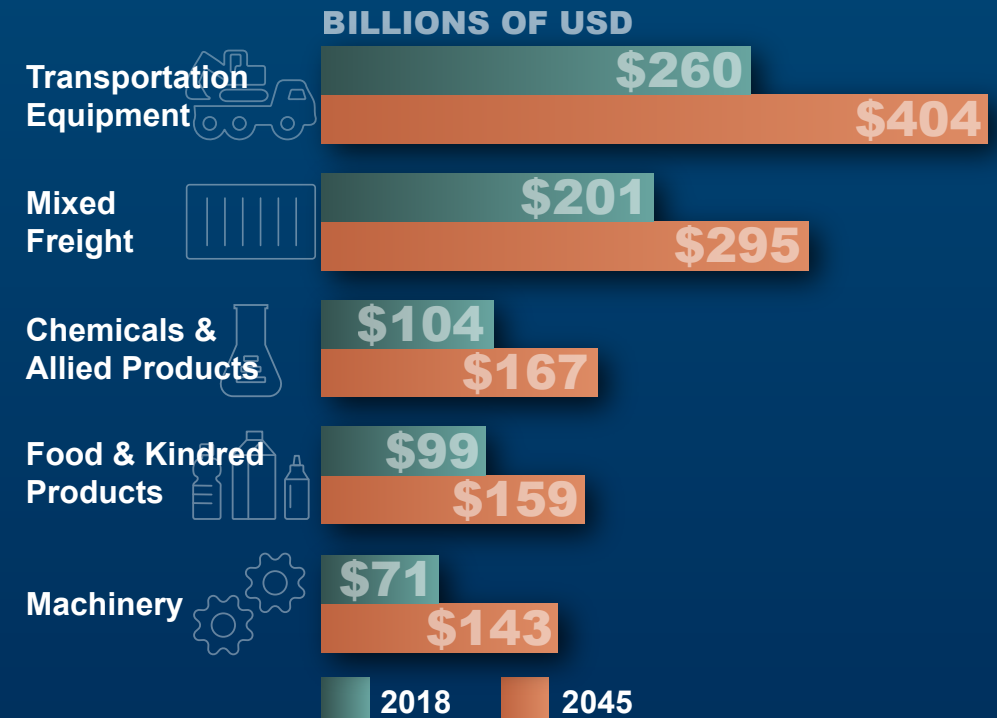
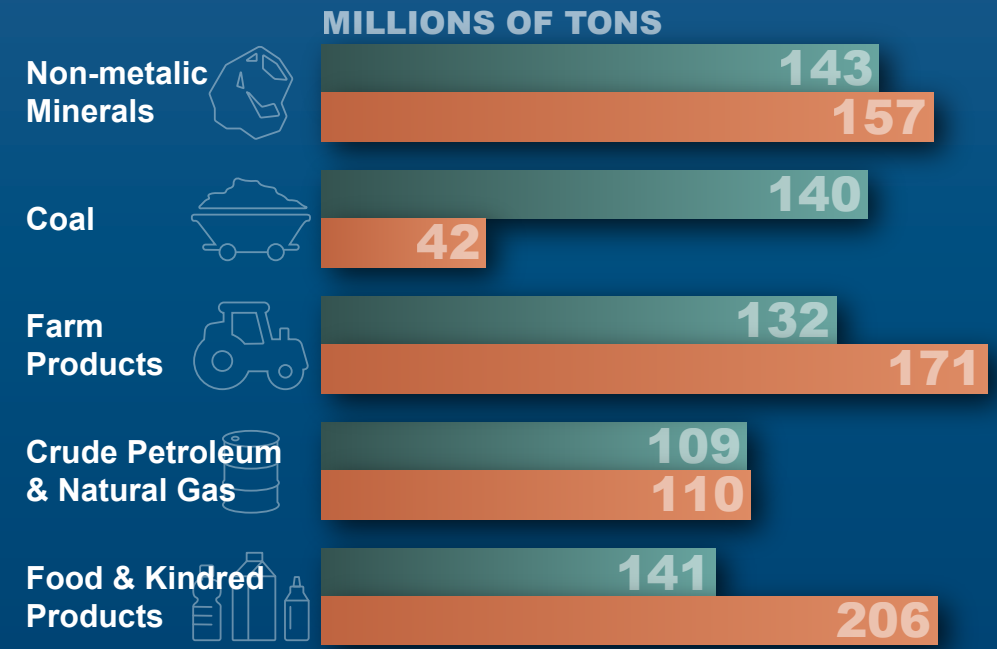


# A GROWING MISSOURI MEANS GROWING FREIGHT DEMAND

Missouri is at a national crossroads of extensive highway, rail and pipeline networks and enjoys access to global markets from its ports, waterways and airports. Missouri also has an abundance of natural resources and agricultural commodities, which are sold around the world. As Missouri's and the U.S. economies grow, so will the demand on the state's multimodal freight network.

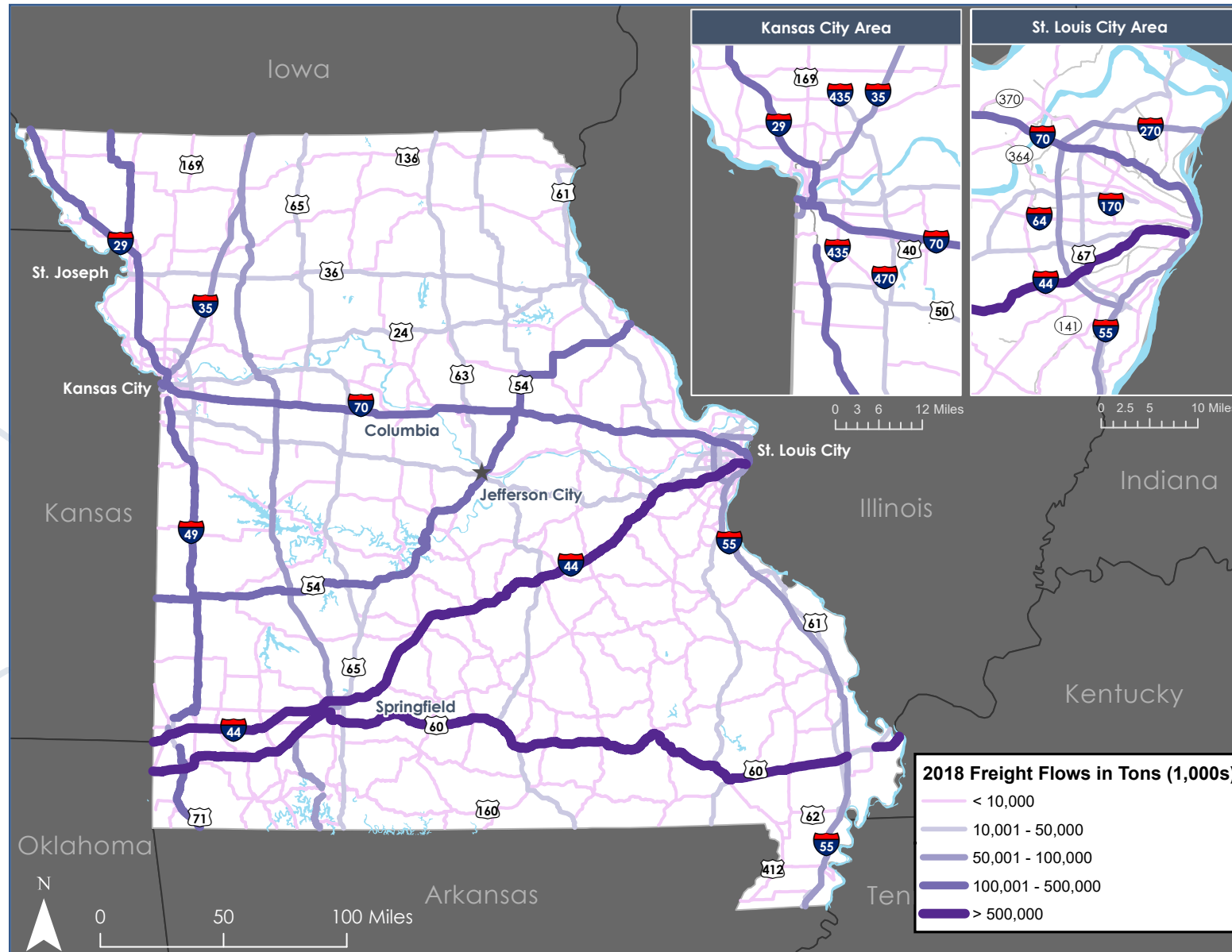
	2018	2045
 <b>406.6M tons</b> <b>\$495.6B</b>	<b>550.8M tons</b> <b>\$849.3B</b>	
 <b>445.9M tons</b> <b>\$590.4B</b>	<b>469.1M tons</b> <b>\$860.4B</b>	
 <b>201,000 tons</b> <b>\$21.9B</b>	<b>344,000 tons</b> <b>\$41.7B</b>	
 <b>39.9M tons</b> <b>\$15.5B</b>	<b>54.0M tons</b> <b>\$24.4B</b>	
 <b>87.0M tons</b> <b>\$27.0B</b>	<b>96.0M tons</b> <b>\$29.0B</b>	

# TOP COMMODITIES, 2018

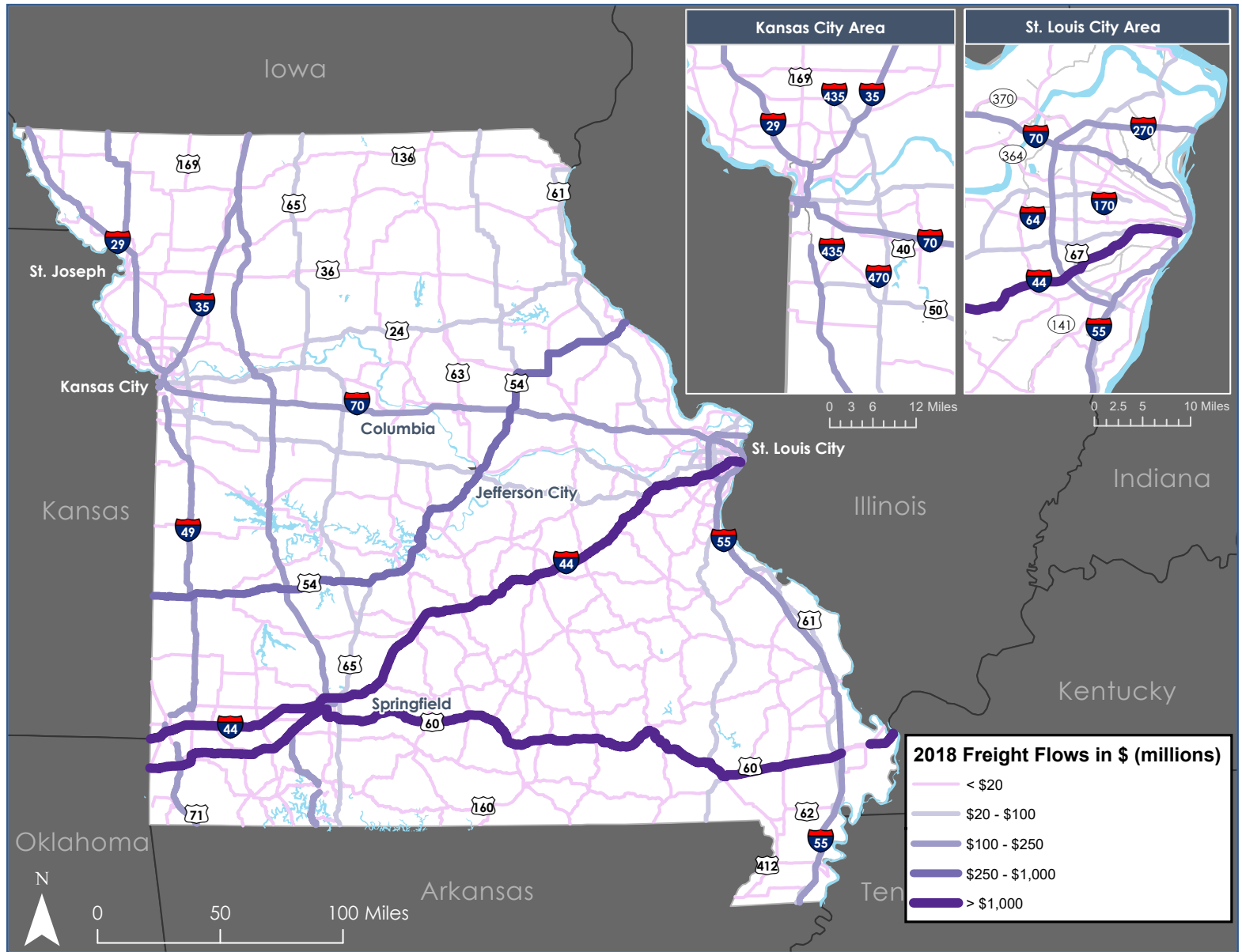


# FREIGHT DEMAND ON MISSOURI'S HIGHWAY CORRIDORS

## CORRIDOR FLOW BY VOLUME



CORRIDOR FLOW BY VALUE









I-44 and U.S. 60 are Missouri's top freight highway corridors, carrying a combined **2 billion tons** of freight valued at **\$5.4B** in **2018**.



# TRENDS IMPACTING MULTIMODAL FREIGHT DEMAND IN MISSOURI

Understanding the trends driving the demand for freight transportation is critical to projecting and addressing future needs and challenges on the Missouri freight network. MoDOT, along with federal, sister state state agencies, private sector and local transportation agencies, can establish freight transportation policies and investment priorities by identifying significant freight demand trends and issues. MoDOT can then plan and execute appropriate strategies to promote, safe, efficient freight mobility today and in the future.

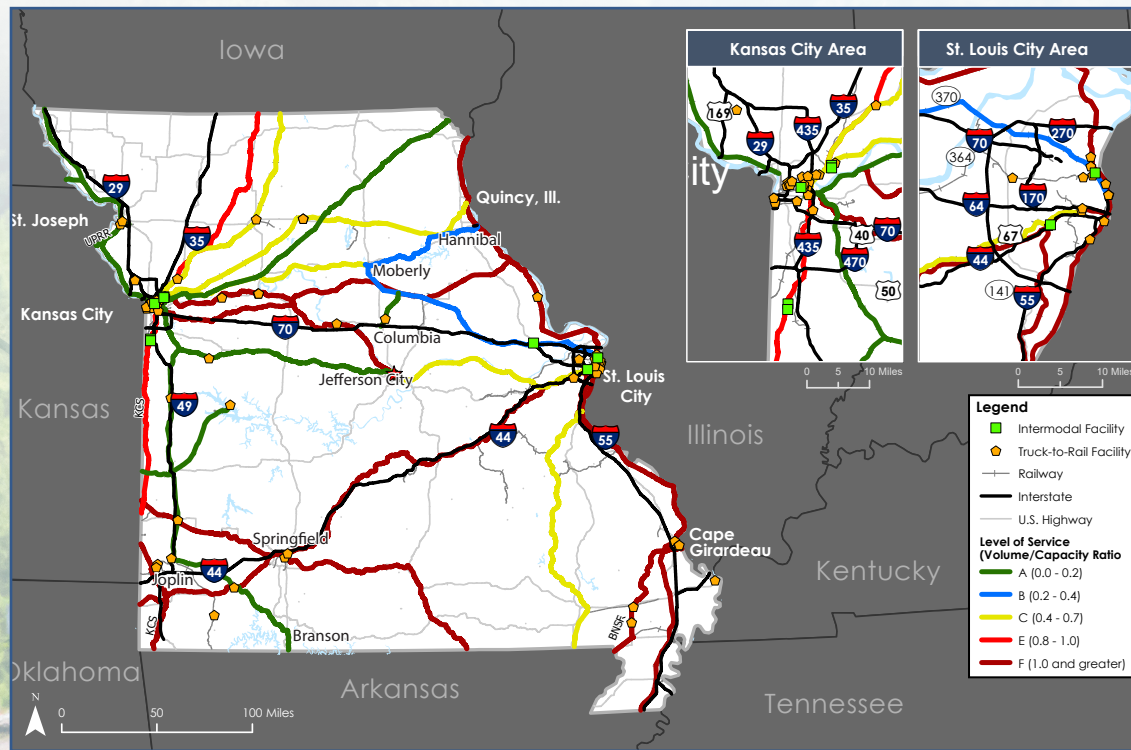
There are numerous trends that will impact the demand for freight, but some of the most important in Missouri include:

TRENDS	
 <b>Business and Consumer Practices</b>	<ul style="list-style-type: none"> <li>Near-shoring</li> <li>Growing e-commerce demand</li> <li>Growing demand for warehouse and distribution space</li> </ul>
 <b>Demographics</b>	<ul style="list-style-type: none"> <li>Continued population growth</li> <li>Aging population</li> <li>Increasing urbanization and concentration of population</li> </ul>
 <b>Workforce and Employment</b>	<ul style="list-style-type: none"> <li>Diversifying and growing employment</li> <li>Training in advanced manufacturing technologies</li> <li>Evolving automobile manufacturing practices and electric vehicle production</li> </ul>
 <b>Energy and Environment</b>	<ul style="list-style-type: none"> <li>Instability due to extreme weather</li> <li>Evolving battery technologies</li> <li>Reduced coal consumption and expanding renewable energy</li> <li>Increasing use of alternative fuels</li> </ul>
 <b>Policies and Regulations</b>	<ul style="list-style-type: none"> <li>Changing federal, state and local policies and regulations</li> <li>Evolving trade, carrier and freight industry regulations</li> <li>Shifting environmental policies and regulations</li> </ul>
 <b>Technology</b>	<ul style="list-style-type: none"> <li>Expanding use of Intelligent Transportation Systems (ITS)</li> <li>Emerging autonomous vehicles</li> <li>Advanced manufacturing technologies, particularly in biotechnology, agriculture (“agtech”), aerospace and defense.</li> </ul>

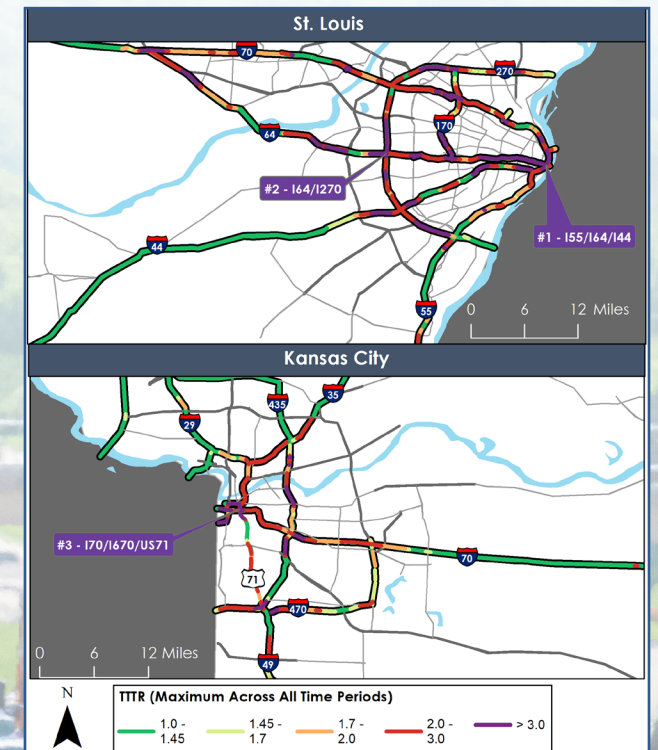
# CONGESTION AND LEVEL OF SERVICE CHALLENGES

Increased congestion, truck tonnage, daily truck trips and truck-miles traveled on the Missouri interstate system, coupled with population growth and other factors, will significantly constrain the efficient movement of freight and people throughout the state. This congestion on the state's interstate system and railroad network demonstrates the impact on Missouri's businesses and residents and the need for continued infrastructure investments.

## RAILROAD EXISTING LEVEL OF SERVICE



## TRUCK TRAVEL TIME RELIABILITY FOR 3 TRUCK BOTTLENECK LOCATIONS



# MISSOURI HIGHWAY FREIGHT NEEDS



**SAFETY**  
Reducing truck crashes resulting in severe injuries or fatalities and at-grade highway-railroad crossings.



**TECHNOLOGY**  
Improving availability of weigh-in-motion, transportation management center (TMC) coverage, traveler information or dynamic message signs (DMS), and traffic incident management or CCTV cameras.



**ASSET PRESERVATION**  
Addressing bridge weight restrictions, bridge condition issues, and pavement conditions.



**TRUCK PARKING**  
Reducing crashes involving parked trucks and locations with truck parking deficits on the interstate highway system.

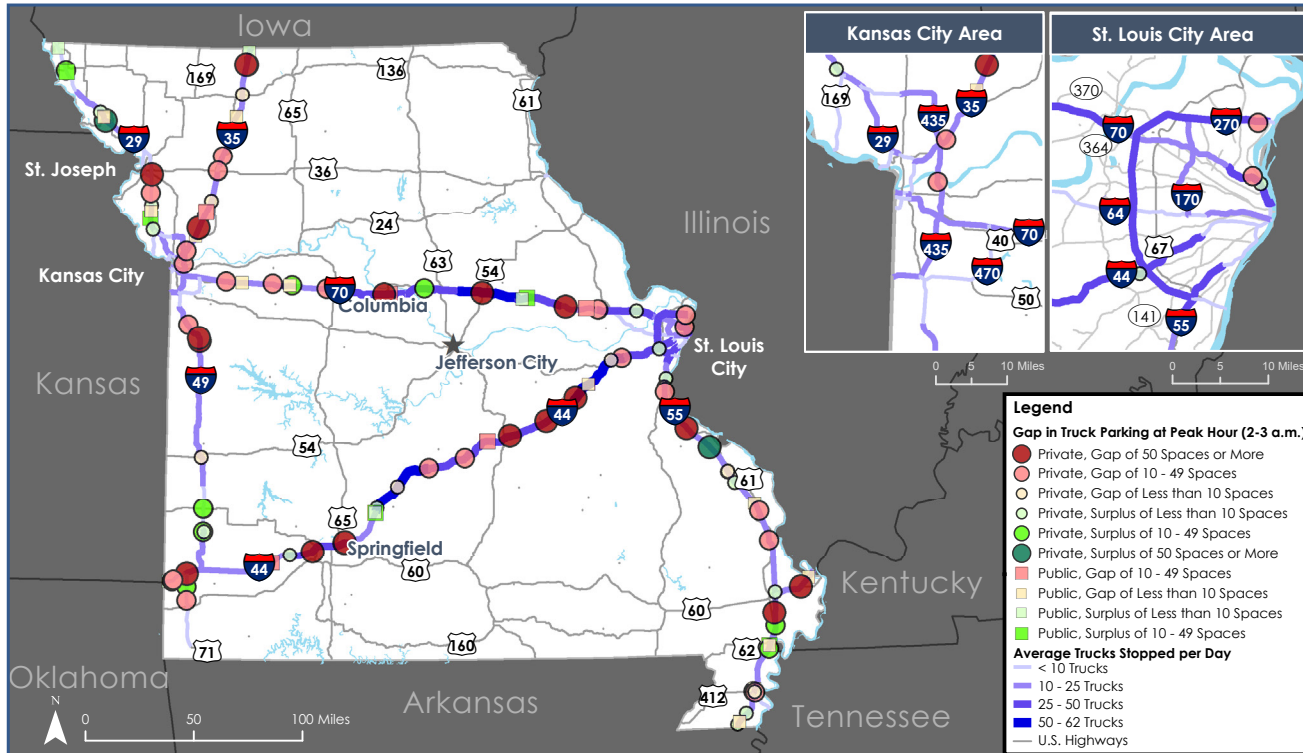


**MOBILITY & RELIABILITY**  
Improving level of service, truck travel time reliability, connection to significant economic generators in the state, and connection to intermodal terminals and gateways.



**FREIGHT DESIGN**  
Upgrading freight-critical two-lane highways and addressing vertical clearance limitations.

## TRUCK PARKING GAPS IN MISSOURI



# MISSOURI MULTIMODAL FREIGHT NEEDS

14

## Safety and At-Grade Crossings



Improving safety by upgrading passive at-grade crossings with no or limited signalization or signage, which is a potential safety concern.

## Rail Spurs

Funding for spurs serving local businesses to support goods movement and increase competitiveness.



## Intermodal Connectivity



Improving intermodal network, facilities and connectivity through port improvements, transload facilities and rail infrastructure serving hubs.

## Bottlenecks

Addressing bottlenecks and constraints in the rail network.



## Short Line Railroads



Maintaining and expanding short line and local railroads.

## Aging Infrastructure

Addressing aging structures and clearance restrictions.



## Aging Infrastructure

Most of the locks and dams on the Mississippi River are undersized and close to 100 years old.



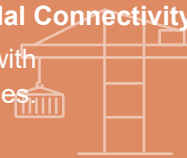
## Environmental Sustainability and Resiliency



Addressing issues related to environmental sustainability and resiliency, such as changing water levels and damage by flooding and other natural hazards.

## Intermodal Connectivity

Improved connectivity with highway, rail and pipeline modes.



## Emerging Port Development



Supporting emerging or underutilized public port facilities.

## Decline in Coal and Increase in Agricultural Commodities

Shifting commodity trends impacting future port demand, as coal volumes decline and agricultural products increase.



## Airport Access



Improving access to air cargo facilities to improve economic vitality and stay competitive with other freight modes.

## Airport Facilities

Improving on-site air cargo facility infrastructure, including runway and taxiway expansion, cargo aircraft aprons and more space for commercial vehicle staging.



## Industrial Development



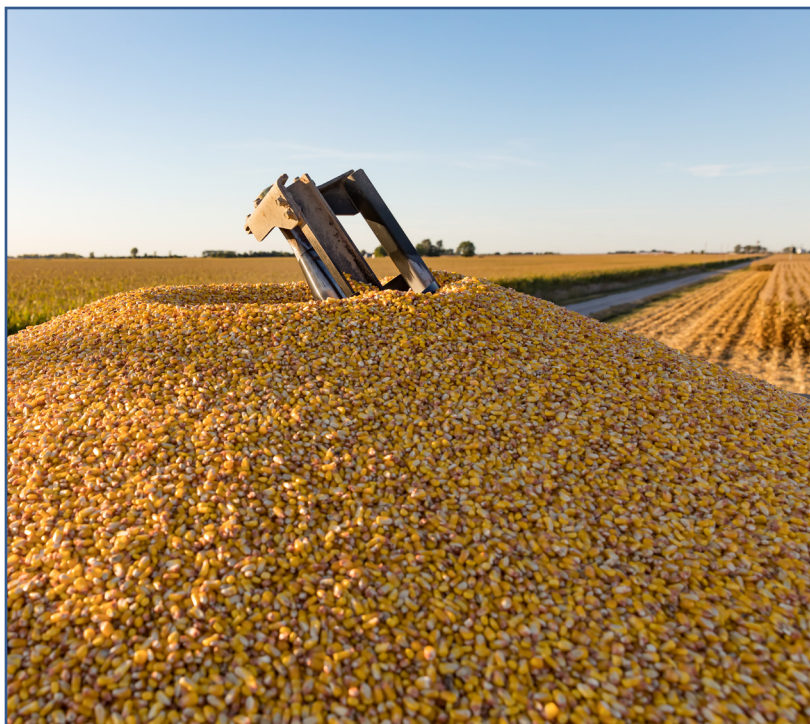
Supporting increased industrial development opportunities around Missouri airports.

# STRATEGIES FOR MULTIMODAL FREIGHT AND PASSENGER RAIL IN MISSOURI

## PLANNING AND INVESTING FOR SUCCESS

Meeting these challenges head-on requires that MoDOT embrace strategies, implementable actions and recommendations that are multimodal, multifaceted and comprehensive.

The 2022 SFRP presents four strategies with a total of 49 implementable actions to help MoDOT address the challenges and needs across the state's freight and rail transportation network, including aging infrastructure, congestion and bottlenecks, safety concerns, system capacity constraints, rural and multimodal connectivity challenges and funding challenges.



### Expand the “Ag Coast of America”

Support increased shipments of agricultural products on Mississippi & Missouri rivers.



### Missouri Manufactures

Support Missouri's existing and evolving manufacturing sectors, including motor vehicles, chemicals and e-commerce, warehousing and distribution.



### Efficient and Intelligent Multimodal Freight Corridors

Leverage technology solutions and operational changes to improve efficiency and safety of freight movement across all modes.



### Expand Freight and Passenger Rail Market Opportunities

Expand rail freight market to make Missouri more competitive for shippers, and improve and expand passenger rail service and access to improve passenger mobility options.

# PASSENGER RAIL IN MISSOURI

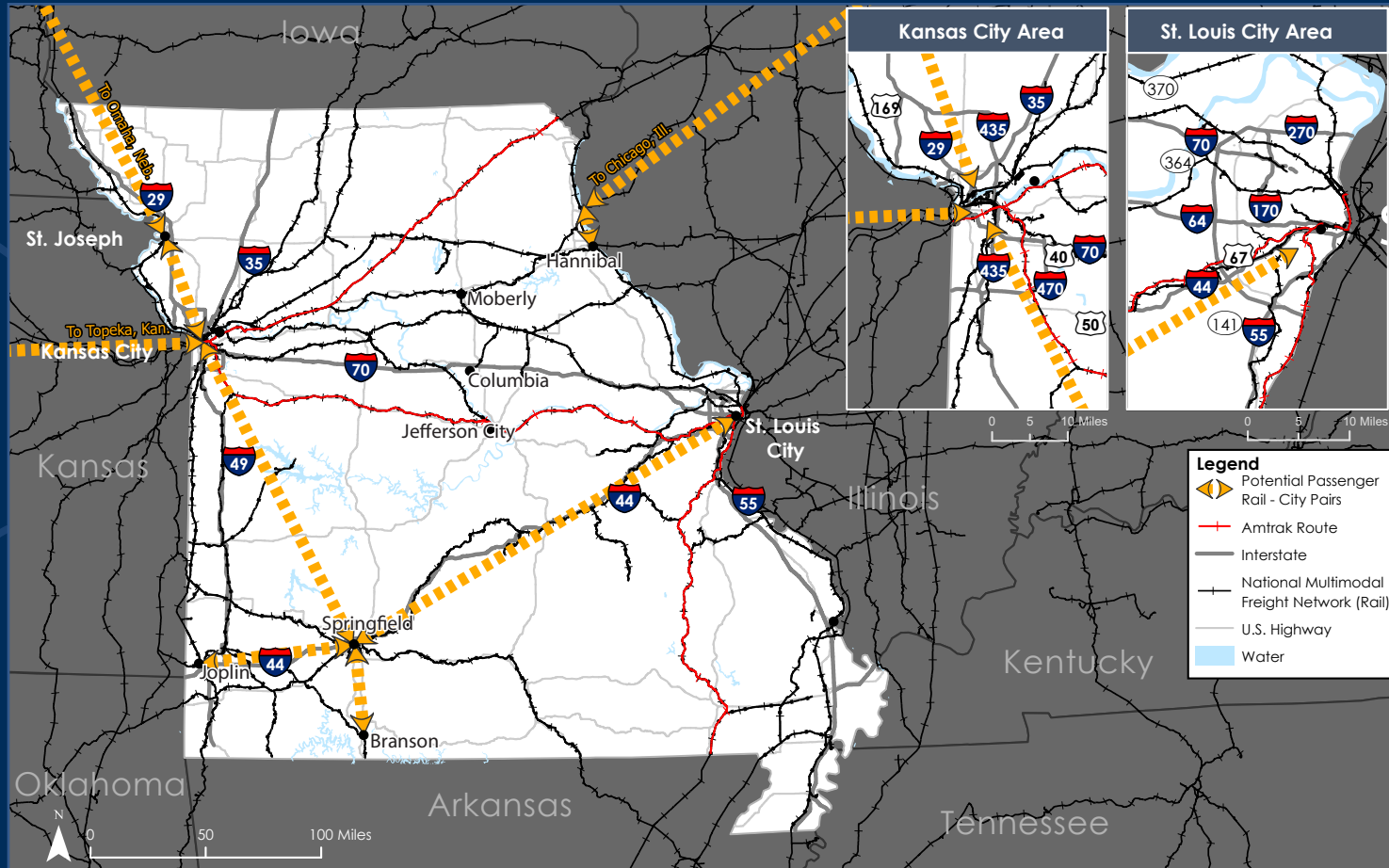
Amtrak passenger rail service in Missouri, via two long-distance routes and the state-supported *Missouri River Runner*, connect large urban centers to outlying suburbs and smaller communities in the interior of the state. The *Missouri River Runner* provides an alternative travel mode along the heavily traveled I-70 corridor between St. Louis and Kansas City and gives rise to significant benefits in Missouri through travel/transportation, reduced energy consumption, safety and tourism/visitor spending.

**MISSOURI RIVER RUNNER BY THE NUMBERS**

IN MISSOURI, THE TOTAL ANNUAL ECONOMIC IMPACTS GENERATED BY THE RIVER RUNNER INCLUDE:

 <b>1,250</b> JOBS ANNUALLY	 <b>\$65 MILLION</b> IN ANNUAL LABOR INCOME	 <b>\$208 MILLION</b> IN ANNUAL ECONOMIC ACTIVITY
MORE THAN <b>\$22 MILLION</b> IN ANNUAL TAX REVENUE		

**82% OF MISSOURIANS LIVE WITHIN 60 MILES OF A PASSENGER RAIL STATION.**



## LONG-TERM PASSENGER RAIL VISION IN MISSOURI

The long-term vision for passenger rail in Missouri is a network of interconnected services, expanded beyond the services of today, connecting major population centers, destinations and small communities alike.

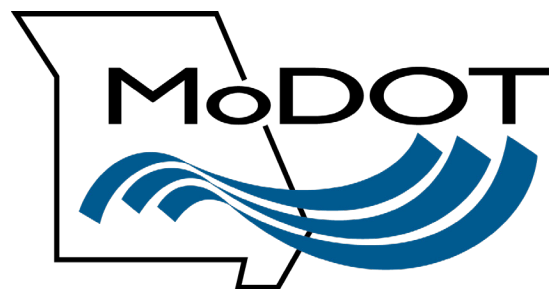
# IMPLEMENTING THE PLAN

This Statewide Freight and Rail Plan documents the multimodal freight and passenger rail transportation strengths, weaknesses, opportunities and challenges, both today and well into the future. The data-driven, stakeholder-informed planning process using the latest-available data and on-the-ground intelligence from Missouri's multimodal freight and passenger rail stakeholders to identify the state's most critical needs and challenges.

Shortage of funds is a critical problem. Securing the funding to maintain the freight network, address safety concerns, improve connectivity and mobility of the freight system and support economic growth and competitiveness for Missouri requires financial resources well beyond those currently available. In addition, Missouri has struggled to maintain existing *Missouri River Runner* service without a dedicated funding source, and investment has not kept pace with inflation of the cost to operate the service. The lack of funding available today represents the most significant obstacle to the implementation of the SFRP.

Missouri must continue to make smart investments, partner with the private and public sector partners on projects, and focus on actions to ensure mobility for people and freight despite funding shortfalls. Through implementation of this plan, Missouri will rise to the challenge of making its critical multimodal freight and passenger rail infrastructure stronger and more resilient in the decades to come.





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