MISSOURI

State Freight & Rail Plan

STRATEGIES AND IMPLEMENTABLE ACTIONS

2022

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1.0 Introduction

The Missouri Department of Transportation developed this State Freight and Rail Plan to craft a next-generation blueprint and plan for multimodal freight and passenger rail investment for the future. The SFRP is data-driven and supported by stakeholders to help Missouri maintain its competitive advantage and economic vitality aligned with freight movement within the state.

The strategies and implementable actions identified in this document will help guide MoDOT towards implementation of the SFRP, to meet the challenges identified and prepare for future freight demand to meet industrial, business and consumer needs. A discussion of the fiscally constrained Freight Investment Plan, as required by U.S. DOT, is included in this document, which identifies programmed projects that address specific categories of needs. This document also recognizes that there are “unmet” freight needs that do not currently have funding or the full amount of funding allocated for moving those projects forward.

A full list of identified projects is presented in Appendix A as part of this State Freight and Rail Plan.

1.1 Report Organization

This remainder of this report is organized as follows:

Section 2.0 — Strategies and Implementable Actions presents MoDOT’s multimodal, multifaceted and comprehensive approach to meet the state’s multimodal freight and passenger rail challenges and needs. This section describes each of the four strategies and their associated implementable actions, including: Expand the “Ag Coast of America”; Missouri Manufacturers; Efficient and Intelligent Multimodal Freight Corridors; and Expand Freight and Passenger Rail Market Opportunities.

Section 3.0 — Fiscally-Constrained Freight Investment Plan describes how National Freight Highway Program funds will be invested between 2022 and 2026. Eligible projects, which must contribute to the efficient movement of freight on the National Highway Freight Network, include elements such as planning, construction, intelligent transportation systems and bridges.

Section 4.0 — Unmet Freight Needs identifies areas of Missouri’s multimodal freight network where freight needs exist, but no funding is currently in place to meet those needs.

2.0 Strategies & Implementable Actions

The SFRP identified a number of challenges and needs across the state's multimodal freight and passenger rail transportation network, including aging infrastructure, congestion and bottlenecks, safety concerns, system capacity constraints, rural and multimodal connectivity challenges and funding challenges. The strategies and implementable actions developed to meet those challenges and needs are multimodal, multifaceted and comprehensive. The overall strategy outlines statewide multimodal freight and passenger rail enhancements that will:

Strengthen the multimodal freight and passenger rail industry in Missouri by promoting a multimodal approach to mobility, reliability, efficiency and safety; and

Support long-term population and demographics changes, freight and economic growth, economic competitiveness and quality of life in Missouri.

This Section describes four strategies designed to change the course of multimodal freight and passenger rail in Missouri based on current and projected opportunities. To support these strategies, the SFRP also includes implementable actions under the context of four multimodal and broad-based categories designed for addressing multimodal freight and passenger rail transportation challenges in Missouri:

Operations & Technology. Specific planning, engineering and public works improvements to support improved multimodal freight and passenger rail mobility and safety.

Programs. A collection of programs and initiatives that can be undertaken to achieve policy goals.

Policy, Outreach & Coordination. Broad policy recommendations to help change the way Missouri approaches multimodal freight and passenger rail planning, including expanding communication and interaction with critical stakeholders.

Projects. Specific infrastructure projects that support policy goals and improve multimodal freight and passenger rail movement throughout Missouri.

2.1 Expand the "Ag Coast of America"

First coined by the St. Louis Regional Freightway, the "Ag Coast of America" is a region that covers a 15-mile stretch of the Mississippi River that features some of the highest levels of capacity anywhere along this crucial waterway.[1] The purpose of the strategy is to expand the Ag Coast of America to support increased shipments of agriculture products on the Mississippi and Missouri rivers, continuing the success of the Ag Coast of America and providing additional opportunities for agribusinesses to leverage Missouri's efficient and robust inland waterways network. This strategy will not only lead to increased job and business opportunities, but it will also benefit other

[1] https://www.thefreightway.com/ag-coast-of-america-now-has-all-the-ingredients-in-place-to-feed-the-world/

industries by lowering freight costs across the state and providing additional capacity and access to marine shipping modes. Implementable actions associated with this strategy include the following:

Operations & Technology

*Improve efficient road and rail access to inland port site*s – The competitiveness of Missouri farmers depends on efficiently moving product from farm to market, which often includes taking advantage of cost-effective barge rates. However, due to the rural nature of these sites it is often necessary to travel further to access a multimodal inland port. Improving road and rail access to inland ports will enable safer and more efficient access, allowing for greater capacity, a timelier move from truck and rail to waterways and vice versa, and for barge rates to remain competitive relative to other freight modes.

Programs

Support public-private partnership opportunities that expand port capacity and connectivity – There are 16 active public port authorities along the marine highways in Missouri in addition to hundreds of private dock facilities. These waterways connect the state to the entire Mississippi River system and its tributaries, including the Ohio, Tennessee and Illinois rivers. They also provide connections to Gulf Coast ports such as New Orleans and Mobile, providing Missouri shippers with access to global market. Of these ports, some are in the early stages of development, in addition to several others being revitalized after a period of inactivity. Public-private partnerships can help these ports continue developing in order to achieve their full potential in supporting Missouri's agribusinesses. These types of partnerships can enable greater capacity of ports, keeping the inland waterways a low-cost alternative to move large volumes of bulk freight throughout the inland waterways network.

Continuation of the Freight Steering Committee with public and private sector stakeholders – The Missouri Freight Steering Committee was established as part of the SFRP to connect with Missouri's freight and industry experts, review key documentation, and discuss current and future conditions, needs and challenges, and opportunities for multimodal freight and passenger rail activity. Continuation of the FSC is an essential element of the implementation of the SFRP, including checking in on progress, planned activities and any conditions and challenges being faced by the various public and private stakeholders. Many FSC members represent Missouri's agribusinesses and can provide important context for those critical industry sectors.

Support increased bulk and container cargo capacity and handling capabilities – The agriculture sector generates high volumes of bulk raw materials in addition to containerized processed products. Increasing bulk and container cargo capacity at multimodal and intermodal sites will enable Missouri's agribusinesses to process and ship higher volumes of goods, furthering the growth and prosperity of this important sector.

Develop a coordinated and unified approach for state and federal funding for port-related projects – Maintaining and enhancing Missouri's port system is critical for continued statewide economic vitality and competition with global markets. Despite these clear benefits for the state and nation, Missouri's public ports have limited funding streams, making it difficult to finance and prioritize maintenance, rehabilitation and expansion projects. Even modest investments in the port system can yield even significant benefits for Missouri's economy. It is critical for the state to continue providing financial support for public port authorities, and also assist in promoting their economic benefits by helping to position them for additional federal discretionary grant opportunities. It would also be beneficial to develop coordinated and unified approach for state and federal funding, which would lead to a more holistic approach to addressing priority port projects and leveraging available resources.

Continue support for container on vessel/container on barge ventures led by private sector partners – There are efforts being led by private sector partners to develop innovative COV/COB facilities throughout the inland waterways system. Missouri strongly supports the expansion of container on vessel and container on barge services at the state's public ports. This new shipping option would transport containerized freight on vessels and barges along the inland waterway system and to Gulf Coast ports. This type of service could transform the underutilized waterways and maximize the utility of Missouri's public river ports by expanding the types of cargo suitable for transport on the inland waterways, providing services along the Missouri and Mississippi Rivers. Primary Missouri COV hubs will be Kansas City and St. Louis with potential for secondary facilities at other locations. Supporting the development of intermodal connectors, railroad track connection, and other critical infrastructure to augment any public or private investment would support these ventures.

Policy, Outreach & Coordination

Convene a biennial freight and agribusiness transportation summit – Convening a summit with key stakeholders in freight and agribusiness transportation would accomplish two key objectives: 1) continue to strengthen MoDOT's relationship with the state's most critical freight and agribusiness stakeholders, and 2) discuss the agriculture industry's challenges and opportunities pertaining to multimodal freight operations and prospects for the future. This forum would also allow for connections and potential partnerships to continue forming, resulting in further growth and prosperity throughout the Ag Coast of America.

Promote importance of Missouri ports and waterways and the maritime industry to state and national economies – The ports and waterways industry benefits the economic well-being of Missouri. A 2017 MoDOT study also found that Missouri's public ports support nearly 290,000 jobs annually, resulting in nearly $15.7 billion in labor income and more than $100.6 billion in annual economic activity. About 34% of Missouri's economy and one out of every ten jobs is supported by the ports. This economic activity results in expansion of the state and local tax base, and Missouri ports give rise to more than $2.4 billion in state and local tax revenue annually. Despite these extensive benefits, many businesses, legislators, and members of the general public are not fully aware of just how essential ports and waterways are to the state's multimodal freight transportation system, and especially the state's agriculture sector. Promoting these freight assets may lead to stronger public support and funding resources allocated to this critical mode.

Strengthen partnerships between MoDOT, state and local agencies, and industry to identify site selection opportunities for shippers – Industrial sites with multimodal access – particularly inland waterway and/or rail access – are coveted but often difficult to acquire. It is especially challenging when these sites are occupied by tenants not utilizing non-highway freight modes. In order for the state's agriculture businesses and other freight-intensive industries to secure these valuable sites, there are opportunities for industry and the various public partners to work together to identify and secure site selection opportunities. This coordination offers the opportunity to support shippers in taking advantage of Missouri's extensive multimodal freight connectivity and keeping freight rates competitive across all modes.

Strengthen partnership between MoDOT, ports, and the U.S. Army Corps of Engineers for improved inland waterways maintenance – The U.S. Army Corps of Engineers is responsible for maintaining 12,000 miles of inland and intracoastal waterways with 218 lock chambers at 176 sites; and 1,067 coastal, Great Lakes, and inland channels and harbors comprising 13,000 miles of channels and 23 locks. In partnership with local port authorities, USACE personnel oversee dredging and construction projects at hundreds of ports and harbors at an average

annual cost of over $1.3 billion to keep the nation's waterways navigable.[2] However, one of the longstanding issues for condition and performance on Missouri's waterways is the aging lock and dam infrastructure. Missouri's location along the Mississippi River is at a particularly critical part of the river. In the northern half of the state, the Upper Mississippi River is maintained using locks and dams to control the depth of water and allow barge traffic through. Most of these locks and dams are close to 100 years old and have gradually outlived their useful life. There is an opportunity to strengthen the partnership between MoDOT, ports, and the USACE to improve maintenance of the state's inland waterways and identify potential state and federal investments.

2.2 Missouri Manufactures

Missouri has a long history of supporting some of the nation's most important manufacturing sectors, including motor vehicles, chemicals and e-commerce, warehousing and distribution. While the foothold of these industries remains strong in Missouri, certain macroeconomic and global trends – such as the near-shoring of manufacturing and the global impact of the COVID-19 pandemic – may lead to changes in sourcing, shipping and employment for Missouri's freight-intensive companies in some impacted industries. Shifting to increased domestic sourcing may result in increased inbound and outbound freight movements, advanced manufacturing employment, and demand for industrial space. The purpose of the Missouri Manufactures strategy is to enable the state to support the evolving freight transportation needs for goods movement and its supporting workforce. Implementable actions associated with this strategy include the following:

Operations & Technology

Improved road and rail access to air cargo facilities – Although capacity exists at airports in Missouri, it will be important to expand access to reach more parts of the state and provide service for highly time-sensitive commodities produced in Missouri. The top time-sensitive commodities, such as transportation equipment and chemicals, are well suited for air cargo transport and could take advantage of increased air cargo access to grow its manufacturing and distribution base within Missouri and across the U.S. Focusing investment towards seamless access to Missouri airports is necessary to stay competitive with other, less expensive freight modes, particularly trucks.

Improved road and rail access to new and repurposed industrial sites – In response to both shifting U.S. trade policy and the supply chain challenges triggered by the COVID-19 global pandemic, there has been an increase in investment in domestic sourcing and/or localized manufacturing, also referred to as "near-shoring." This has the potential to increase employment in advanced manufacturing employment, especially in automotive industry and metal manufacturing, which are already strong sectors in Missouri. This may increase the demand for industrial space for new manufacturing or repurposed manufacturing sites. Improving road and rail access to these new and repurposed industrial sites would allow Missouri businesses to capitalize on this increased domestic demand and fulfill production needs.

Programs

Develop a freight transportation public education and awareness program and share the road campaign – Manufacturing sites generate a significant amount of freight movements to source raw materials, produce parts,

[2] https://www.iwr.usace.army.mil/Missions/Value-to-the-Nation/Navigation/

and move products to consumer markets. These movements can increase the risk of conflicts between freight and non-freight users of the transportation system. Raising public awareness about freight transportation needs and issue could help improve safety and reduce interactions between freight and passenger vehicles, transit, and bicycle/pedestrian travelers. This awareness can also help the public with understanding the importance of reliable infrastructure and the impacts on supply chain which can affect their daily lives.

Develop a freight transportation planning training program for local and regional planners – Beyond education and awareness for the general public, there is also a need to increased training for local and regional planners to better understand and implement freight transportation planning best practices. Many critical decisions that impact statewide freight mobility occur at the local level, making it essential that local planners and practitioners understand the issues and impacts. The training program could also include and expand on improved curb management in urban cores and historic downtown areas to consider all road users in infrastructure design. Kansas City's Mid-America Regional Council has already started this process by putting together a resource guide to help address these urban/downtown issues.

Identify and invest in potential infrastructure needed to support new and emerging industries expected in new areas of the state – Another need arising from the increase in domestic manufacturing and "near-shoring" activity is the support of potential new and emerging domestic production industries. Beyond improved road and rail access to new and repurposed industrial sites, other infrastructure investments may be needed, including multimodal and intermodal ports and transfer facilities. It will be important to closely monitor these developments to identify and invest in these opportunities to best support new and emerging industries in Missouri.

Expand opportunities, regulations, and policies for intraregional mass transit or van-pool program for major freight employment sites – Workforce issues have come to the forefront of many discussions on the ability to move freight efficiently in the U.S. An underlying dimension of many barriers to employment is geographic access: the physical distance between a worker and the essential services that they need to find and maintain employment. In addressing geographic distance, it is critical to evaluate how transportation systems allow workers to traverse that distance or, more significantly, how they hinder workers' travel. Expanding opportunities, regulations and policies for transit services for major freight employment sites will help ensure workers can access these job opportunities, particularly in the state's rural areas.

Policy, Outreach & Coordination

Strengthen partnerships between MoDOT, state and local agencies, and industry to identify and invest in the transportation system to support the manufacturing sector – It is important that public agencies work closely with the manufacturing industry to identify transportation priorities and opportunities. This coordination offers the opportunity to address the real issues facing manufacturers and prioritize funding and resources.

Convene a biennial freight and manufacturing transportation summit - Similar to the previous strategy, convening a summit with key stakeholders in manufacturing sectors would accomplish two key objectives: 1) continue to strengthen MoDOT's relationship with the state's most critical manufacturing stakeholders, and 2) discuss the manufacturing industry's challenges and opportunities pertaining to multimodal freight operations and prospects for the future. This forum would also allow for connections and potential partnerships to continue forming, resulting in further growth and prosperity in traditional and advanced manufacturing sectors across the state.

Enhance coordination with metropolitan planning organizations and local governments to identify freight infrastructure needs of statewide importance – It is important that MPOs and local governments participate and are

engaged in discussion about the areas of infrastructure that would best serve the state and the priorities of those infrastructure needs. These discussions will complement the coordination between public sectors agencies and private sector stakeholders to gather and prioritize investment needs accordingly.

Develop land use guidelines for mitigating freight and industry conflicts with residential and commercial land uses – It is important to establish a buffer between freight/industry uses and residential and commercial land uses to avoid safety and quality of life impacts for local residents. Mid-America Regional Council in Kansas City has begun to address this by providing resources for planners on curb issues for urban and downtown areas where residential, commercial and freight users can all come into conflict. However, this can apply outside of urban areas and historic downtowns when varied uses are located near each other, and it is important to provide guidelines for municipalities to consider where conflicts may occur and ways to effectively address them.

Promote capacity availability and development opportunities at Missouri's air cargo-handling airports – Air cargo capacity is available at Missouri's air-cargo handling facilities, including Kansas City International, St. Louis Lambert International, and Springfield-Branson National. Reaching out to the current and potential new users of the air cargo-handling airports in Missouri and promoting the capacity availability and development opportunities can help to grow those areas where it is possible within existing networks. Utilizing this mode of freight transportation to its full capacity can add value to the freight network in the state, keeping freight rates competitive and expanding expedited freight services to Missouri shippers and receivers.

2.3 Efficient and Intelligent Multimodal Freight Corridors

There are various levels of transportation technology – from dynamic signage to connected and autonomous vehicles – that have the potential to improve mobility and safety across the multimodal network. Some of these technologies are used by shippers while others can be implemented by state and local public works agencies. In addition to technology solutions, other operational, program and policy actions can result in mobility and safety outcomes through improved coordination, communication and education. The goal of this strategy is to leverage technology solutions and operational changes to improve the efficiency of freight movement across all modes. Implementable actions associated with this strategy include the following:

Operations & Technology

Increase wayfinding via road marking, signage and lighting on the highway freight network – Clear wayfinding and navigation assistance can help freight carriers navigate between their origin and destination more efficiently, avoiding idling, utilization of residential routes and excessive vehicle miles traveled while improving safety on freight-intensive routes.

Increase signage and Intelligent Transportation Systems on freight routes for locations of truck parking, safety hot spots, queuing and blocked rail crossings – Making information more readily available to truck drivers about truck parking availability and areas of safety issues or queuing can better support drivers in complying with federal hours of service requirements, avoiding congested areas, and anticipating other safety hazards while on-the-road.

Deploy advanced warning systems (e.g., over-height, over-weight, over-speed, hazards, detours/rerouting) – Investing in and deploying advanced warning about potential conflicts and hazards empowers truck drivers to avoid certain routes, anticipate detours, and avoid any other potential hazards that would pose a safety concern to not only the truck driver, but also other motorists.

Deploy truck parking availability system along highway network – Truck parking in Missouri is a challenge because demand often exceeds capacity, particularly on the interstate system. I-44, I-70 and I-55 have the greatest concentrations of truck parking spaces on a per-mile basis. There are notable gaps in truck parking availability along U.S. 60 east of Springfield and sections of U.S. 36, two of the highest traveled non-interstate corridors within Missouri. In addition, demand for truck parking during nighttime peak periods exceeds overall capacity by more than 2,300 spaces. Out of 141 designated truck parking sites within a half-mile of the interstate system, 87 sites (62%) are at or over capacity from 2-3 a.m. It can also be challenging for drivers to identify sites with availability while they are on-the-road. Providing real-time information about parking availability can help with safety and efficiency in moving freight, and enable drivers to comply with federal hours of services requirements.

Invest in a statewide travel demand model and supporting staff – Travel demand models are tools often used by state departments of transportation to better understand and plan for future travel demand patterns. Investing in a statewide travel demand model with a freight-specific module that could be utilized by MoDOT, MPOs and other partners to forecast short and long-distance travel by Missouri residents, freight handlers and pass-through travel would help with decision making in relation to infrastructure and resource investments. Hiring and training staff to run and distill the information from the model is key to making this a worthwhile investment.

Programs

Develop wayfinding and signage guidelines for urban and rural areas to include private roads and major freight generators – Many of Missouri's most significant freight generators are located in rural areas, particularly in agricultural and its related industry sectors. It is important to consider those areas that are not located along the major interstate routes for wayfinding and signage needs. Consistency and guidelines for usage on private roads and for areas with major freight generators will provide key information to users of all types of roadways.

Implement freight-centric design guidelines for safety, bridges, interchanges, truck parking and construction – As infrastructure is upgraded or new infrastructure is needed, implementing freight-centric design guidelines for safety, bridges, interchanges, parking and construction would aid in avoiding some of the safety and logistical issues that can lead to delays and inefficiencies. This can also help with the conflicts between freight and other infrastructure users. Specifically considering the following: lengthening acceleration lanes; lower maximum vertical grades on arterials with significant truck traffic; expanding guidance on climbing lanes so they are warranted in more locations; increasing minimum lane widths; increasing the width of outside shoulders based on roadway type; designate the most common semi-trailer as the design vehicle for intersection turning radius considerations; and develop guidance on storage lengths and channel widths at intersections. States like Texas have been conducting peer reviews of freight-centric design elements, such as in TxDOT's Freight Infrastructure Design Considerations Final Report. These type of peer reviews identify areas like those listed above for greater consideration in the future.

Expand freight data collection program to include vehicle classification counts, truck parking capacity/utilization and safety hotspots – MoDOT collects and analyzes a multitude of data sources to measure departmental performance as part of its Tracker program. Expanding data collection to include additional categories that are specific to freight could augment freight transportation planning and programming, including for infrastructure upgrades or additions, as well as addressing logistical issues during planning and construction or during the day-to-day freight operations.

Support implementation of freight-based technology solutions and foster emerging transportation technologies across all modes – Statewide support of freight-based technology solutions and use of emerging transportation technologies will help address existing challenges as well as move towards the future by utilizing technologies that

can assist all modes of transportation with safety, service and stability. Some examples of new or upgraded technologies include sustainable aviation fuel using solid waste; the use of drones for tracking cargo and providing real-time inspection information for infrastructure such as rail bridges; digital freight matching to use software to match available loads with available carrier capacity; and battery-powered trains to further reduce costs and carbon emissions.

Integrate multimodal freight into regional planning programs – Missouri's freight transportation network facilitates the movement of goods – including both raw and finished goods – which is essential to livability and quality of life, but can also create negative impacts to air and noise emissions and potential road safety risks. Integrating multimodal transportation into regional planning programs, including those administered by regional and local agencies in Missouri, can play an important role in making freight transportation in urban areas more sustainable, more efficient, and safer in every part of the state. Many critical decisions that impact statewide freight mobility occur at the local level, making it essential that local planners and practitioners understand the issues and impacts.

Develop regional multimodal thoroughfare planning program – A regional multimodal thoroughfare planning program can create a framework to enhance multiple modes of transportation. This type of planning program can create a framework for future transportation decisions and investments to improve safety, reduce congestion, address public health and mode choice.

Policy, Outreach & Coordination

Collaborate with regional stakeholders to encourage truck parking at non-MoDOT public facilities and private commercial and industrial sites – Encouraging truck parking at non-MoDOT public facilities could help to address the supply and demand challenges around public truck parking by providing additional capacity in high-demand areas. Local communities that experience frequent unauthorized truck parking can encourage the development of safe and secure truck parking by modifying zoning and permitting rules to require on-site staging parking at large freight-centric businesses, which may help mitigate this important safety issue.

Promote and incentivize off-peak operations in congested areas – Encouraging the use of off-peak operations can lead to increased safety and efficiency, decreased cost, and reduced conflicts between freight and other transportation system users during peak hours in congested areas. One example of a successful program is NYC DOT's Off-Hour Deliveries program which provides technical assistance to freight receivers and shippers to help them shift deliveries to off-peak hours. The agency has been able to secure federal funding and enroll a number of locations in the program.

Develop truck traffic impact analysis guidelines to include truck parking/queuing impact and inspection locations in urban and rural areas – Developing guidelines on truck impacts of parking and inspection locations will help identify the real impacts of the challenges in those areas. This can lead to better planning and identification of priorities in addressing the needs of the trucking industry.

D*evelop policy and programs to support statewide deployment of electric charging infrastructure for trucks* – Truck electrification is an emerging need in the trucking industry to support the use of alternative fuels. Electric charging infrastructure for trucks is different than passenger vehicles, requiring fast charge times to limit the time spent waiting to continue on-the-road transport. With the development of more freight-centric electric vehicles, having policies and programs in place to be able to provide the needed infrastructure can lead to an increase in electric vehicle utilization. The U.S. DOT's National Electric Vehicle Infrastructure Formula Program as part of the Bipartisan Infrastructure Law will provide funding to states to strategically deploy EV charging stations, including

operation and maintenance. The EV stations must be non-proprietary, allow for open-access payment methods, be publicly available or available to authorized commercial motor vehicle operators from more than one company, and be located along designated FHWA Alternative Fuel Corridors. This will inform and help guide investment in statewide EV infrastructure.

Promote capacity building for regional and state transportation planning staff – Capacity building helps to strengthen regional and state transportation planning staff to be able to identify needs, challenges and opportunities to improve freight transportation planning and policy development. Strengthening and developing these capabilities across regional and state transportation planning staff will lead to better outcomes for Missourians and other users of the state's transportation network.

2.4 Expand Freight & Passenger Rail Market Opportunities

Missouri is positioned to significantly grow rail freight in the state by capitalizing on recent developments within the state as well as global shifts in trade patterns. Through implementable actions, Missouri can expand its rail freight market, making the state more competitive for shippers and easing the pressures on the highway system. Missouri's passenger rail network has also struggled with funding shortfalls, limited support for unserved and underserved communities, station and track infrastructure maintenance and issues related to service, operations and coordination. The purpose of this strategy is to expand the rail freight market to make Missouri more competitive for shippers and to improve and expand passenger rail service and access to improve passenger mobility options. Implementable actions associated with this strategy include the following:

Operations & Technology

Reduce number of at-grade highway/rail crossings to improve the efficient movement of freight and increase quality of life through reduced congestion and improved safety – At-grade crossings can pose a significant safety risk for train operators and motorists. In 2019, there were 39 incidents across the active at-grade public and private crossings in Missouri. At-grade crossings can also block vehicular traffic for long periods as shuttle or unit trains move through a region, restricting mobility and frustrating commuters. Reducing this type of crossing can benefit both passenger vehicles and freight users through improved safety and benefit both rail and truck freight in terms of efficiency and reduced congestion.

Invest in grade separations for high-use/risk at-grade crossings to improve safety – Grade separations completely eliminate the conflict between both freight and passenger rail with other vehicles. Investing in separating highways and rail tracks at high-risk locations would significantly improve safety and reduce bottlenecks along the rail network.

Improve access and connectivity to multimodal freight rail and passenger rail facilities – Improving access and connectivity to multimodal freight and passenger rail facilities – including multimodal passenger terminals and multimodal/intermodal rail facilities – would allow for greater capacity and a timelier movement of goods and people. Investment in additional multimodal facilities would help to move people and goods between modes more quickly, increase efficiency, and potentially lower costs for users.

Programs

Continue work with private-sector rail industry to expand rail capacity, improve rail fluidity and ease traffic congestion to accommodate projected growth – The railroad network in Missouri is 100% privately owned and operated. As such, it is essential that MoDOT closely coordinate with private sector rail industry stakeholders to identify and prioritize projects that expand capacity, improve fluidity, and alleviate congestion. Adding main line and siding track in strategic areas could help to expand rail capacity, use and access and improve fluidity, all while helping to ease traffic congestion.

Increase truck to rail freight conversions by working with shippers and carriers to improve access to rail freight – Increasing truck to rail freight conversions improves access by shippers and receivers to the state's Class I and shortline railroad carriers, and may lead to increased volumes and utilization of the freight rail network. Targeted investments in major freight generating hubs could improve access, as well as funding local spurs to support individual businesses. In addition, investment to avoid the removal or reduction of short line operations would also help to maintain or increase access to rail freight.

Support expansion of new intercity passenger rail service where feasible – Creating or expanding intercity passenger rail service would expand its reach in Missouri, enabling access by underserved or unserved communities in urban population centers as well as smaller cities and towns. Service to new cities would create access to the national intercity rail network for Missouri communities, providing residents improved transportation choice and spurring tourism and other economic development opportunities.

Expand opportunities, regulations and policies for intraregional mass transit and passenger rail to connect to major freight employment sites – Workforce issues have come to the forefront of many discussions on the ability to move freight efficiently in the U.S. An underlying dimension of many barriers to employment is geographic access: the physical distance between a worker and the essential services that they need to find and maintain employment. Expanding opportunities, regulations and policies for interregional mass transit and passenger rail services to and from major freight employment sites will help ensure workers can access these job opportunities, particularly in the state's rural areas.

Establish a sustainable funding source to support continuation of Missouri River Runner *service* – Although MoDOT maintains and improves existing passenger rail service, there are no dedicated state funds and limited federal funds available for passenger rail operations and infrastructure improvements. Rather, funding is subject to legislative general revenue appropriation and gubernatorial approval each year. The financial support Missouri has provided for the Missouri River Runner since 1980 allows this transportation option to exist. In Missouri, fuel taxes are constitutionally protected and must be used for maintenance and investment in roadways. This challenging funding environment complicates MoDOT's efforts to continue supporting the *Missouri River Runner*. The MoDOT Railroad Section manages a small grant program which provides $25,000 annually for improvements at existing Amtrak stations. Grantees are typically local communities and/or non-profits that own and maintain stations. Grants are provided for maintenance and repair projects and related operational and safety improvements. The funding for the station improvement program is included annually in the general revenue appropriation. Establishing a sustainable funding source would provide stronger support for continuing *Missouri River Runner* service.

Policy, Outreach & Coordination

Coordinate with local economic development agencies and short line railroads to craft solutions to avoid removal or reduction of shortline rail operations – Over the years, short line railroads have experienced a trend in removal and reduction of operations. Although this may make sense for a short line operator experiencing loss in profits, it may

negatively impact industries and shippers/receivers, and potentially limit economic development opportunities in a region. Coordinating with the local economic development agencies and the short line railroads could encourage and bolster existing the existence and role of short line rail operations in the state and national supply chain.

Support funding for spurs serving local businesses – Spurs provide last mile rail connection to businesses, providing an alternative option to move freight across the nation's rail network and to/from coastal ports for access to international markets. Missouri, like many states, has a gap in funding for local spurs due to a lack of dedicated funding mechanisms. Industrial rail spurs are eligible for funding from MoDOT's Freight Enhancement Program, though historically that program has not been large enough to cover a significant portion of the costs beyond the 20% local match requirement. Identifying a dedicated source of funding for spurs to local businesses can help make or keep these connections which can reduce shipping costs.

Support increased track capacity for rail corridors at or near capacity – Identifying the areas where track capacity is needed and prioritizing those locations would support the goal of increasing capacity. Assisting with infrastructure funding or partnerships to address track capacity could lead to greater efficiency, lower costs and improved safety.

Evaluate feasibility of reengagement of underused rail assets to improve freight and passenger rail in rural areas – By evaluating underused rail assets, the feasibility of reengagement can be determined. Rail lines with a high level of service (typically an A or B rating) can be found specifically along the Missouri border from Iowa to Kansas City, from Kansas City to Jefferson City (south of I-70), from Kansas along U.S. 54 to Warsaw, from Carthage south to the eastern side of Table Rock Lake and into Arkansas, from St. Louis to Moberly and Moberly to Hannibal. These rail assets may be capable of increased utilization, and may help to connect rural areas to both freight and passenger rail where gaps currently exist or enhance existing services.

Strengthen partnerships between MoDOT and railroad industry stakeholders to access federal and state funding support – Missouri's rail network is 100% privately owned and operated. As such, it is important for the railroad industry and MoDOT to work together to identify priorities and strategize on how to access federal and state funding support.

3.0 Fiscally-Constrained Freight Investment Plan

The federal Fixing America's Surface Transportation Act established the National Highway Freight Program funds, which are available for obligation for up to four years. NHFP obligations are reimbursed from the Highway Account of the Highway Trust Fund – they come with contract authority and are subject to the annual obligation limitation imposed on the Federal-aid Highway Program. The federal share for NHFP funds is generally 80% but certain types of improvements (predominately safety improvements) may have a federal share of up to 100%.

Projects must be identified in the Statewide Transportation Improvement Program and be consistent with Long Range Plans in order to be in the Freight Investment Plan. With the passage of the Bipartisan Infrastructure Law in November 2021, state freight plans must now provide an eight-year fiscally constrained Freight Investment Plan that describes how the funds would be invested. Eligible projects, which must contribute to the efficient movement of freight on the National Highway Freight Network, include elements such as planning, construction, intelligent transportation systems and bridges.

The fiscally constrained FIP includes the proposed use of National Highway Freight Program funds distributed to Missouri. These projects are included in the STIP as approved by MHTC. This list will be updated annually, at a minimum, new projects are selected for inclusion in the STIP and approved by MHTC. It should be noted that MoDOT does not fully program years 3, 4 and 5 of the STIP to retain flexibility to address emerging needs. Missouri's apportionment of the NHFP funds for the period spanning 2022-2026 is $176.2 million.

The FIP includes projects on the Missouri Multimodal Freight System. All freight projects were selected from the pool of projects identified for funding in the 2022-2026 STIP. MoDOT's STIP includes both highway and multimodal projects, which is reflected in this FIP.

3.1 Overview of Project Identification Process

The project prioritization process was a data-driven, stakeholder informed process. It both involved stakeholders from across the State and leveraged the Missouri Freight Analysis System (known as MoFAS) tool, which used a multivariate scoring process to rank projects according to MoDOT's priorities. Freight needs in Missouri were identified based on MoDOT's priorities in six needs categories including: safety, technology, asset preservation, truck parking, mobility & reliability, and freight design. Each needs category is comprised of multiple metrics and data sources that when calculated, generates a score for that category (as well as all categories combined). Using MoFAS enables MoDOT to conduct this analysis for any specific region(s) of the state. The FIP process generally follows the following steps:

1. Needs Assessment: Gather stakeholder input and conduct data analysis of existing and future freight conditions and demand.

2. Project Identification: Map projects to the freight network, compare existing projects to needs, and develop strategic projects.

3. Prioritization: Develop evaluation criteria then screen and evaluate projects.

3.2 Programmed Projects Overview

Figure 3.1 shows the percentage of federal freight funds programmed for freight highway projects by state fiscal year. MoDOT leaves room in future years to be able to fund projects that may become a higher priority.

Figure 3.1 Programmed Federal Freight Funds by State Fiscal Year

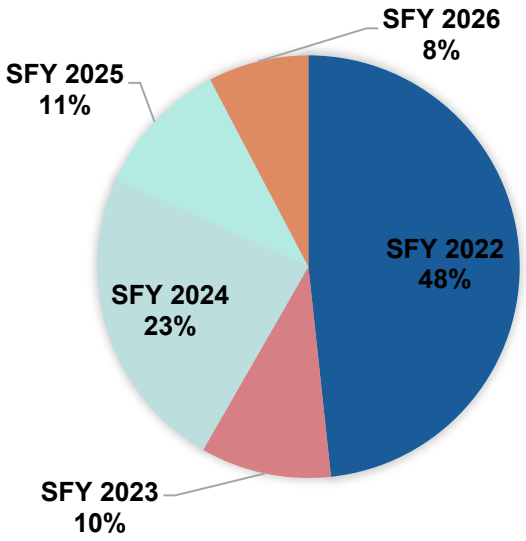
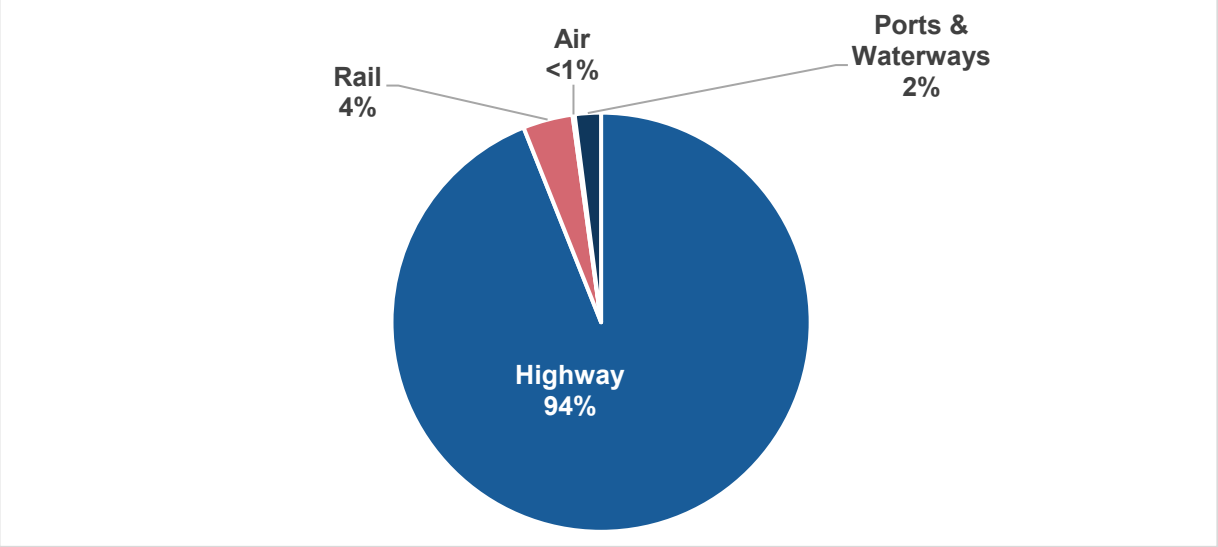


Figure 3.1 summarizes the 2022-2026 Missouri Freight Investment Plan by year for highway, rail, air cargo and ports and waterways freight modes. MoDOT does not commit all NHFP funds to retain flexibility to address emerging freight needs. A list of projects included in the FIP is provided in Appendix A, which is updated annually in conjunction with the STIP as freight needs continue to evolve on an annual basis. The majority (94%) of this funding is allocated towards highway projects, while rail projects comprise 4%, ports and waterways projects comprise 2% and air projects comprise less than 1% (Figure 3.2).

Table 3.1 2022-2026 Missouri Freight Investment Plan

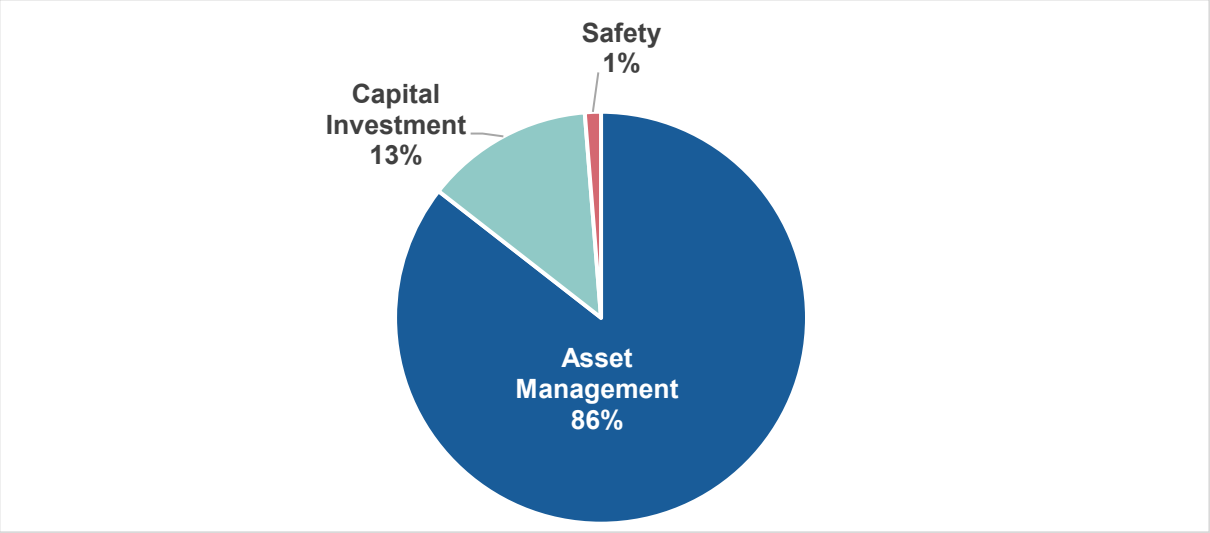
State Fiscal Year	Total Cost	Committed NHFP Funds	Other Federal Funds	State & Local Funds
2022	$932,823	$85,074	$829,205	$24,233
2023	$635,920	$17,632	$604,225	$29,777
2024	$658,709	$41,272	$589,769	$17,774
2025	$117,120	$18,635	$85,297	$15,504
2026	$140,204	$13,550	$125,997	$1,596
2027	$0	$0	$0	$0
2028	$0	$0	$0	$0
2029	$0	$0	$0	$0

Figure 3.2 Multimodal Freight Investment Plan Spending by Mode



The SRFP has a variety of goal areas, which multimodal projects in the FIP aim to address. Of these programmed funds for highway projects, 86% is aimed at asset management needs (Figure 3.3). While projects are programmed to meet a primary need, it should be noted that the benefits of a project often address other needs and goals.

Figure 3.3 Highway Project Funding by Category



Looking at projects by MoDOT region gives a snapshot of where programmed federal funds are focused by state fiscal year. In SFY 2022, the biggest percentage of funding will go to the St Louis District. In SFY 2023 and 2024, that shifts to the Kansas City District. The St Louis District would see the bulk of funding for SFY 2025 and the Central District funding would be greatest in SFY 2026. However, in these later years, funding allocations could shift since MoDOT does not fully designate funds this far in advance in case project priorities change. This allows some flexibility in project funding.

Figure 3.4 SFY 2022 Spending Programmed by MoDOT District

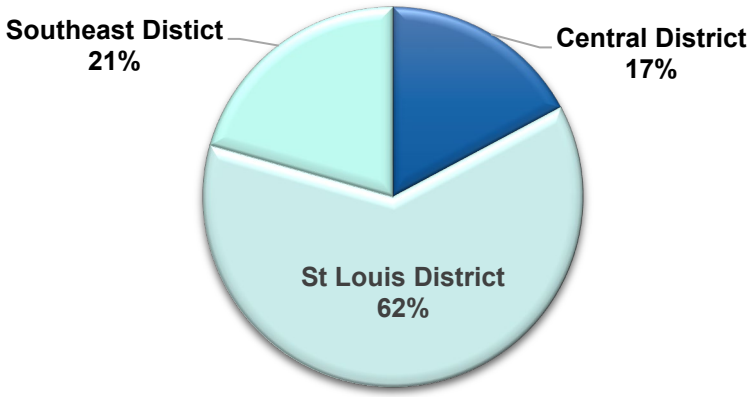


Figure 3.5 SFY 2023 Spending Programmed by MoDOT District

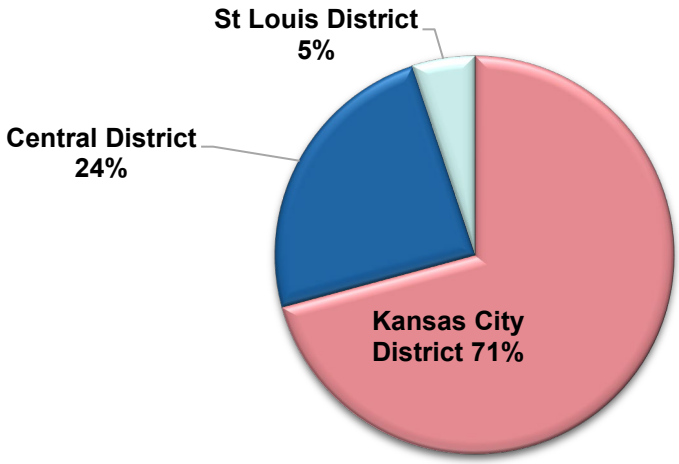


Figure 3.6 SFY 2024 Spending Programmed by MoDOT District

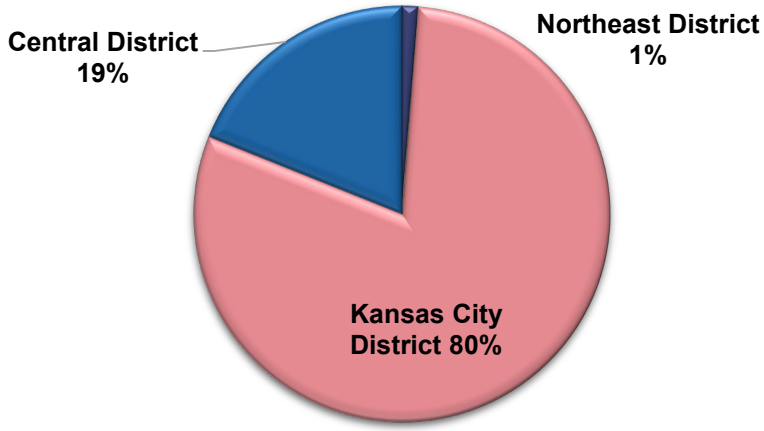


Figure 3.7 SFY 2025 Spending Programmed by MoDOT District

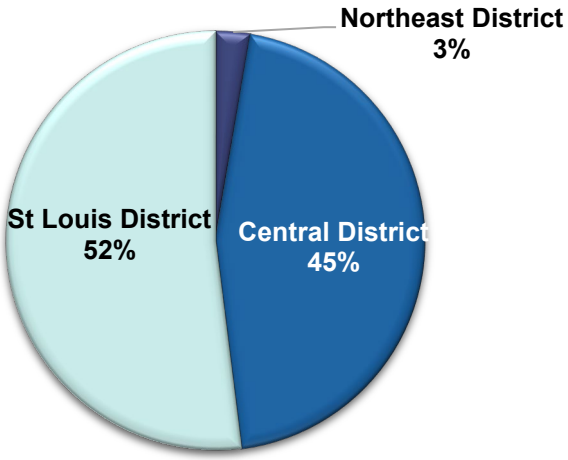
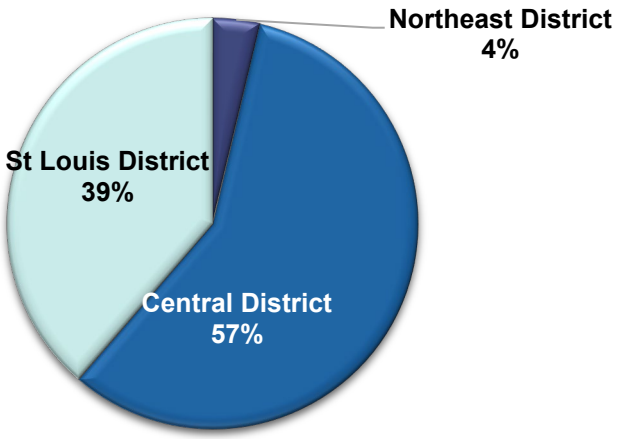


Figure 3.8 SFY 2026 Spending Programmed by MoDOT District



In addition to the projects that will receive federal freight funds, MoDOT has identified a number of other freight-related projects in its STIP. The majority of STIP projects by number and value are highway projects, followed by rail crossing projects. The STIP lists three air cargo-related projects (two in St. Louis and one in Kansas City) and four ports and waterway projects with the value of the ports projects significantly higher than the air projects. For all mode categories, funds are programmed for SFY 2022 with more leeway in future years to allow for changing priorities and needs as time goes on. See Appendix A for details on these projects.

4.0 Unmet Freight Needs

Beyond the projects identified in the FIP, the 2022 SFRP identifies projects, needs and areas of Missouri's multimodal freight network that do not currently have full funding in place. The identified unmet freight needs capture longer range investment in Missouri's multimodal freight network, including private sector rail and port projects identified by MoDOT's partners and projects proposed by stakeholders that are not yet in any MoDOT plans. A summary of these unmet needs includes:

Highways: 739 unique segments covering nearly 1,400 miles, with 10% classified as high need.

Freight Rail: 29 identified projects with an estimated construction cost of between $548M and $582M.

Ports & Waterways: 100 identified projects with a total funding request of $92M, representing just 37% of the total project cost, with the remaining 63% covered by local and private sources.

Air Cargo: 12 identified needs and projects, half of which are estimated to cost $78.5M, while the cost of remaining needs has not been estimated.

Appendix A of the Missouri State Freight and Rail Plan contains a complete list of unmet freight needs by mode.

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. Additional federal resources, increased state investment and other financing strategies will be needed to close the gap between the freight infrastructure and facility needs and the supply of funds.

The shortage of funds is a critical problem. MoDOT will review the list of priority projects with its partner organizations, agencies and freight stakeholders to identify funding for these projects. Initial funding for planning and preliminary engineering should be identified so that strategic projects can be positioned and ready for development if funding is identified. The lack of funding available today represents the most significant obstacle to the implementation of the SFRP.