

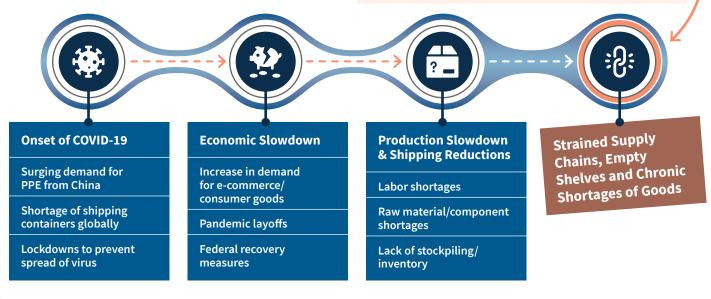
GLOBAL SUPPLY CHAIN BREAKDOWN

Missouri's multimodal freight network plays a pivotal role in national supply chains, as the state's central location, major interstates, access to Class I and shortline rail carriers, and proximity to the Mississippi and Missouri Rivers connects businesses and consumers to domestic and global markets.

In 2018, more than 985 million tons of freight moved throughout Missouri across railways, highways, pipelines, air cargo facilities, and ports and waterways. Freight transportation and freight-generating industries in Missouri generate \$26 billion in income annually across 482,000 jobs. These industries contribute \$42 million to Missouri's Gross State Product and \$7 million in Federal, state, and

local taxes. The freight network in Missouri delivers the raw materials, machinery, fuels, and foods that allow industry and people to thrive.

Every element of a supply chain – in both Missouri and throughout the nation and world – is linked and highly interconnected, beginning with raw materials production, processing, packaging, transportation, warehousing, distribution, and everything in between. As evidenced by the persistent delays and shortages experienced since the onset of the COVID-19 pandemic, when any element of the supply chain is broken or not functioning well, the entire system suffers.





One example of a shortage that has dramatically impacted some Missouri-based manufacturing companies is the shortage of semiconductor chips, which are used in **smartphones**, **computers**, **consumer electronics**, **and cars**, among other modern technologies. With three-quarters of all semiconductors manufactured in China and East Asia, the shortage has demonstrated significant vulnerabilities in the global chip industry and has hampered production for manufacturers across the globe, resulting in calls for diversification of where these chips are manufactured.

GOAL OF THE TASK FORCE

In response to this increasingly urgent situation, Governor Parson issued Executive Order 21-13 to define the issues, investigate the causes, and develop solutions to mitigate and minimize these systemic supply chain issues to limit the impact to Missouri's businesses and consumers now and in the future. In addition, the Executive Order seeks to evaluate the impact of policy proposals to position Missouri ahead of accelerating dynamics of global and national supply chains.

The goal of the Missouri Supply Chain Task Force is to identify specific supply chain issues facing Missouri businesses and citizens and develop recommended solutions for implementation by public and private sectors within Missouri to minimize and mitigate those challenges.

The Executive Order defines a supply chain as a system of many modes of transportation, businesses, and industries collaborating to provide efficient transportation and delivery of goods and services.



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>> WHAT CAN MISSOURI DO?

Today's freight and supply chain issues are impacting every state in the nation, including Missouri. Future freight projections, trends and potential disrupters to supply chain activities have the potential to put further pressure on Missouri's freight transportation network and associated workforce in the state's supply chain sectors.

These realities make it imperative that the Missouri Supply Chain Task Force develop broad-reaching, comprehensive, and targeted strategies to improve all of the most critical and vulnerable aspects of supply chain activities in the state. These recommendations will help Missouri meet the challenges of today and deliver the state's businesses and consumers a secure, efficient and cost-effective supply chain network for the future.

The Task Force has identified 32 recommendations under three main categories:



Targeted Freight Investments

- First and Last Mile Rail Investment
- Container and Chassis Manufacturing
- Container on Vessel/Container on Barge Services
- Economic Development Grant Opportunities

Opportunities to Support Workforce Needs

- Workforce Readiness
- Childcare Resources
- Secure and Affordable Housing
- Expanded Transportation Services





Regulatory and Programming Opportunities

- Truck Driver Attraction and Retention
- Truck Driver Work Environment
- Emergency Response
- Reduced Costs for Port Investment

→ Targeted Freight Investments



There are many opportunities to invest in new and existing freight transportation infrastructure across all modes. The 2022 Missouri State Freight Plan identifies capital improvement projects on Missouri's multimodal freight system that could be funded by National Highway Freight Program funds distributed to Missouri. The Missouri Freight Investment Plan consists of nearly 600 fully-funded projects totaling \$2.5 billion in project costs. In addition, the SFRP identifies unmet freight

needs, which 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.

First and Last Mile Rail Investment

Rail spurs, intermodal facilities and short line railroads provide crucial first-mile/last-mile links that connect to the Class I railroads that form the backbone of the U.S. freight rail network. Freight businesses rely on these first-mile/last-mile connections and factor access to these connections into their site selection process. However, it is a significant challenge, particularly in rural Missouri, to pay for the first and last mile of rail connectivity to these businesses.

Many of Missouri's neighboring states respond to these challenges by providing dedicated multi-million dollar grant programs for constructing and maintaining these rail facilities. Kansas allocates \$10 million annually for transportation investments, \$5 million annually for loans and grants to short line railroads, and \$100 million for economic development grants. Missouri, by contrast, is limited to the \$1 million annually for the Freight Enhancement Program. These comparative investment decisions place Missouri at a disadvantage in attracting and retaining manufacturing facilities, since \$1 million often fails to cover the cost of one first-mile/last-mile project.



RECOMMENDATION 1

Establish state general revenue funds for railroads and rail access.

Missouri should align its funding for railroads and rail access to industrial sites with similar levels to its peer states to improve access to freight rail service throughout the state.

RECOMMENDATION 2

Implement a short line infrastructure tax credit in Missouri to support investment in rail.

Providing programs to assist railroads in increasing or accelerating infrastructure investment increases the efficiency of goods movement, including transload opportunities. Similar programs can also reduce congestion on interstate highways and transload bottlenecks, creating critical jobs and improving connectivity to rural communities and economies.



Container and Chassis Manufacturing

One of the many impacts of the COVID-19 pandemic was the slowdown in production and shipment of newly-manufactured shipping containers. Because inventories were low, prices increased significantly, and have continued to rise due to ongoing scarcity. The constrained inventory and high prices of shipping containers led to significant delays in shipping and increased costs throughout the supply chain. Shippers and carriers had little choice in sourcing since most manufacturing takes place in China. Missouri was made more vulnerable by the concentration of sourcing since it is located in the middle of the country - many port facilities on both coasts were able to get first access to containers as they became available at the first ports of call. Missouri had to contend with dwindling supplies that made it to the middle of the country.

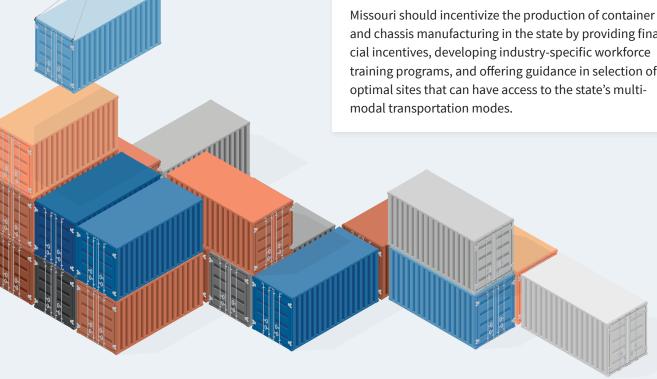


This demonstrates the risks associated with concentrating critical supply chain components - namely, the containers that allow goods to move so fluidly across different modes - in one geographic area, and highlights the need to diversify sourcing in order to build resiliency into supply chains.

RECOMMENDATION 3

Support the manufacturing of container and chassis equipment in Missouri.

and chassis manufacturing in the state by providing finantraining programs, and offering guidance in selection of



Container on Vessel/Container on Barge Services

The expansion of COV/COB services at the state's public ports represents a significant opportunities for shippers and port facilities to improve the productivity of the freight network not only in Missouri, but the United States as a whole. Underutilized capacity along the Missouri and Mississippi Rivers would modernize operations, expanding freight movement capacity throughout the Upper Mississippi River inland waterway. This investment would transport containerized freight on vessels and barges along the inland waterway system and to Gulf Coast ports, transforming underutilized waterways and maximizing the utility of Missouri's public river ports.

RECOMMENDATION 4

State investment in and marketing of COV/COB infrastructure.

The state should partner with inland and coastal ports to launch new COV/COB options, provide public support through short-term tax incentives, and develop intermodal connectors and other critical infrastructure to augment private investment.

RECOMMENDATION 5

Federal and state investment in inland waterways to provide consistent navigable channels.

Reliable navigability of the Missouri and Mississippi Rivers represents a significant obstacle for COV/COB service in Missouri and the rest of the Upper Mississippi River inland waterway due to aging lock and dam infrastructure and recurring flooding. The state should augment U.S. Army Corps investment in dredging and critical lock and dam infrastructure to provide a consistently navigable channel for COV/COB service, as well as other barges and vessels.

RECOMMENDATION 6

Consider developing secondary distribution sites with direct access by truck or rail to reduce congestion at port sites.

Increased container traffic from COV/COB service at the ports will require sufficient chassis for trucks and efficient ingress/egress from the congested port facilities. Developing secondary distribution sites near key Missouri ports could better accommodate the influx of containerized freight volumes while also continuing to support legacy bulk, breakbulk, and liquid cargoes.









Economic Development Grant Opportunities

There is a clear link between transportation and economic development. A 2021 analysis of federal transportation infrastructure investment found that investment in all forms of transportation produces an output multiplier of 3.4, meaning every \$1 spent stimulates an additional \$2.4 in economic activity. These multiplier effects can be seen at the state level as well.

RECOMMENDATION 7

Establish an economic development infrastructure grant program for multimodal projects.

A multimodal transportation-focused, economic development infrastructure grant program could support efforts that expand multimodal connectivity and better facilitate freight mobility for Missouri-based businesses.

\$2.40 economic activity

\$1.00 spent

Opportunities to Support Workforce Needs



The state's supply chain challenges are exacerbated by challenges with the availability of a skilled workforce. Transportation, warehousing, and manufacturing are labor-intensive fields that rely on a supply of skilled, capable workers to maintain responsive, flexible operations. As of March 2022, Missouri had nearly 9,000 job openings in these fields – positions that employers were ready and eager to fill in order to keep up with demand.

Keeping state and national supply chains moving requires having workers who know how to perform their tasks and who are able to reliably and consistently show up for work. Yet many workers in Missouri face substantial barriers to

Workforce Readiness

The transportation, warehousing, and manufacturing sectors offer many well-paying career pathways that do not rely on degrees from four-year colleges or universities. However, many positions require training or certification for employees to be workforce-ready, even at the entry level. While the required training or certification can often be obtained in a short amount of time, obtaining these credentials create a "chicken-and-egg" challenge for workers and employers alike. An employer wants to know that labor is available when they are ready to open or expand operations, but workers want to ensure that their certification will be valuable to employers. Job seekers may struggle to know which credentials are valuable, what options they have available to obtain these credentials, and what resources can support them with their job search.

This challenge demonstrates the need for a workforce development pipeline: a network of resources that align needed skillsets with employment opportunities on a timeline that aligns with employment needs. Public sector and non-profit entities can help build the network of programs for training, education and outreach, and financial assistance targeted to geographies and industries based on need and opportunity.

work that prevent them from taking these jobs or maintaining steady employment. Improving the resiliency and responsiveness of the supply chain requires understanding the workforce issues that Missouri faces. MoDOT and other state agencies can play a crucial role in providing resources and support to businesses and workers alike in order to build and maintain the skilled workforce for the supply chain sectors.



RECOMMENDATION 8

Increase awareness of and promote access to work-based learning, industry-specific training, and apprenticeship programs.

Many public and private sector entities maintain workforce development programs, but these programs may be difficult to learn about. The state should encourage and promote increased awareness of and access to training and employment pathways in the transportation, warehousing, and manufacturing sectors to high school students who want to quickly launch careers in skilled trades after high school graduation as well as adults continuing their education for new employment opportunities.



Workforce Readiness, continued

RECOMMENDATION 9

Establish and expand virtual credentialing programs.

Virtual programs offer students greater flexibility and access and reduce travel requirements. Technical schools, community colleges, training providers and workforce development organizations should coordinate to establish and expand online programs for workforce training certification.

RECOMMENDATION 10

Establish accelerated credential-to-employment programs and pipelines.

Trade associations and workforce development organizations should establish programs that enable job seekers to reduce the time needed for certification or credentialing under specific conditions and standards. Such a program may allow current employment, apprenticeship hours, or prior military service to count towards required training hours.

RECOMMENDATION 11

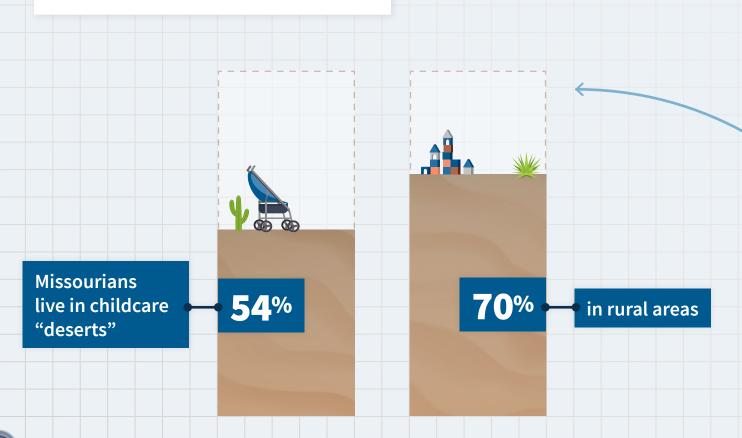
Promote statewide standards for credentials.

The Missouri Office of Workforce Development should convene a working group with representatives from private, non-profit, and public sector entities to promote its Missouri Industry Recognized Credentials Program. Promoting the program will help local and regional agencies determine which training programs to recommend to job seekers.

RECOMMENDATION 12

Establish a tax credit for apprenticeship and job training programs for high-demand positions.

Missouri should expand incentives for businesses to build workforce development pipelines by offering tax credits for on-the-job training programs targeted to high-demand positions that reduce the business costs of managing these programs directly.







Childcare Resources

Workers with children are frequently confronted with a challenge: earn the money necessary to care for their children while securing the childcare necessary to be away from their children for several hours per day. Securing childcare means having access to childcare facilities that are affordable, proximate to their home and workplace, and offer services at times of day that align with the workers' workday.

This can become a matter of cost and access. In Missouri, the average infant childcare costs in more than 20 rural and urban counties exceed the affordability standard of 10% of median income set by the U.S. Department of Health and Human Services. Additionally, 54% of

Missourians live in childcare "deserts" with few or no licensed childcare providers. This percentage rises to 70% of residents in rural areas, where many manufacturing and warehousing facilities are located.

These issues are all the more challenging for workers at a company with operations that run 24 hours a day, 7 days a week, when the majority of childcare and transportation services more commonly operate along standard business hours and a five-day workweek.

RECOMMENDATION 13

Expand childcare subsidies for employees.

Missouri offers a Child Care Subsidy Program that provide resources for families to find and access childcare. Families earning up to 138% of the Federal poverty level are eligible, but Missouri expanded the income eligibility cap to 215% through 2020. Missouri could permanently extend this eligibility cap and increase the maximum subsidy amount to improve access to childcare for families.

RECOMMENDATION 14

Expand childcare subsidies for employers.

Missouri could establish a tax credit for state corporate income taxes to incentivize businesses to assist their employees with childcare costs or operate their own childcare facilities.

RECOMMENDATION 15

Offer incentives for on-site childcare provision.

Some businesses have established on-site childcare facilities for their employees to use. The Missouri Department of Social Services and Missouri Department of Economic Development should establish standards and guidance for on-site childcare provision and assist businesses with identifying resources to support these programs.



Secure and Affordable Housing

Although Missouri ranks as one of the more affordable states in the country when it comes to housing costs, many counties in urban areas are approaching the affordability threshold for costs as a share of median income. Many lower-income households in these counties are cost-burdened, spending 30% or more of income on housing.

A significant factor in the growing issue of housing affordability is the shortage of affordable housing. The National Low-Income Housing Coalition estimates that as of 2022, Missouri has a shortage of nearly 120,000 housing units for more than 207,000 extremely-low income renters, 36% of whom are currently employed. This lack of affordable housing is therefore a workforce housing crisis: workers have limited options to find homes that are close to work, childcare, and other services. Employers will struggle to attract and retain employees if workers struggle to live affordably and reliably.

The shortage of workforce housing can be partially attributed to supply constraints in housing development and affordable housing. A combination of zoning regulations and market preference often limits housing construction in rural areas where transportation, warehousing, and manufacturing facilities are located in higher concentrations. What affordable housing stock does exist is often older and in poorer condition, exposing residents to health risks from mold, poor ventilation, and lead. These health risks can impact worker productivity and stability.

RECOMMENDATION 16

Expand housing subsidies.

During the COVID-19 recovery process, Missouri established the State Assistance for Housing Relief for Renters, a rental assistance program for renters financially impacted by COVID-19. This program serves as a model that could be adapted to provide rental assistance for low-income employees struggling to find affordable housing in areas with housing shortages.

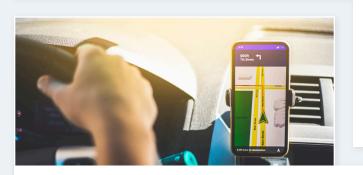


Secure and Affordable Housing, continued

RECOMMENDATION 17

Establish affordable housing incentives for new developments.

The Missouri Housing Development Commission's Affordable Housing Assistance Program and Low-Income Housing Tax Credit program provide incentives in the form of on-time tax credits for businesses and individuals to develop affordable housing. These credits could be expanded in value or duration or the State could partner with economic development agencies and chambers to commerce to market these programs to high-need sectors and locations.



RECOMMENDATION 18

Provide incentives to municipalities to enact zoning reform.

Missouri can offer incentives for municipalities to adopt zoning regulations that support housing development, such as making eligibility for state grants contingent on municipalities allowing for increased residential density or multifamily housing. Missouri can also offer technical assistance for comprehensive land use planning to help municipalities accommodate growth and expand their housing supply.

Expanded Transportation Services

Transportation, warehousing, and manufacturing jobs are often located in areas far away from housing, childcare, and other services. Geographic dispersal means that workers have to travel long distances and incur high travel costs. Low-income households are less likely to have access to a vehicle and spend more of their income on transportation than higher-income households. Public transit plays an important role providing transportation for people who do not have access to a private vehicle in the state.

Despite its critical role as workforce transportation, geographic separation between housing and employment in the rural areas where the supply chain activities are concentrated limits the effectiveness of public transit. Long distances between pick-up and drop-off locations limit the number of access points for workers and limit service frequency. This creates long wait times for passengers and raises the risk of a missed trip.

Many transit agencies also struggle to provide service spans that meet the needs of the 24/7 industrial workforce. These agencies are often unable to provide late-evening or overnight transit service for workers who work second-shifts or third-shifts. This misalignment limits the ability of traditional transit service to serve as workforce transportation for many workers in the supply chain sectors.

RECOMMENDATION 19

Establish dedicated microtransit programs for employment centers.

Microtransit services are accessible, flexible, and responsive to rider needs. MoDOT should work with the Missouri Public Transit Association to provide technical assistance and planning support to transit service providers for microtransit planning.





Expanded Transportation Services, continued

RECOMMENDATION 20

Establish funding agreements with employers.

Funding agreements between employers and transit service providers establish cost-sharing commitments, define service routes and schedules, establish service quality standards, and define accessibility needs. MoDOT should work with the Missouri Public Transit Association to create guidance and recommended standards for transit agencies to establish funding agreements with employers in areas not served or underserved by transit.

RECOMMENDATION 21

Establish partnerships with rideshare companies to subsidize rides.

Many transit agencies have established rideshare partnerships as a replacement service when transit service is no longer running. MoDOT should work with the Missouri Public Transit Association to coordinate on outreach to transit agencies and encourage them to study and evaluate TNC partnerships as workforce transportation solutions in their communities.

RECOMMENDATION 22

Expand transit service brokerage and coordination services.

Transit service brokerage services arrange trips for customers across multiple transit providers. This model connects customers with specialized transportation services under certain eligibility conditions, reducing administrative costs for providers and expanding geographic coverage of transit service for riders. MoDOT should coordinate with the Missouri Department of Social Services, Area Agencies on Aging, MO Rides, and the Missouri Independent Living Council to conduct a joint study to identify opportunities to establish transit brokers or expand existing programs.



Regulatory and Programming Opportunities



While our current supply chain crisis was caused by unique shocks to global supply chains, the effects of the crises also revealed underlying issues and challenges within supply chains that had existed before COVID-19 and its economic aftershocks, such as regulatory environments that hinder entry into the workforce, create unsafe conditions for workers, or limit investment in freight infrastructure. Seeing the impacts of these regulatory and programmatic barriers creates an opportunity for Missouri and its partners to address these challenges and enact regulatory reform that can streamline

Truck Driver Attraction and Retention

The American Trucking Association in 2021 estimated that the industry will be short 80,000 drivers, a historic high. This shortage is anticipated to continue increasing beyond the current 80,000 drivers. The industry has struggled with early retirement of seasoned drivers as well as attraction and retention of new drivers. The American Trucking Association has estimated an 89% turnover rate among truck drivers as of March 2021, compared to an average rate of 12 to 15% across all industries.

While the turnover rate captures churn within the industry in addition to workers leaving the industry, managing turnover and finding replacement employees creates business costs in recruitment and training. At the same time, finding, replacing, and retraining workers can create slowdowns in operational efficiency as new employees – even ones who may have prior experience – get up to speed on the processes and operations of a new work environment.

RECOMMENDATION 23

Leverage and expand access to commercial driver training programs in rural areas of the state.

Expanding access to commercial driver training programs for independent drivers would build the pipeline for new drivers and streamline processes for incumbent drivers who need to renew or upgrade licensee requirements.



RECOMMENDATION 24

Promote standards for companies to hire dockworkers and pay while training to become driver.

It is often not feasible for potential drivers to forego pay during the training period. By starting as a dockworker, the employee is gaining knowledge of the business, performing critical work for the employer and receiving pay while training.

RECOMMENDATION 25

Promote stackable credentials for CDL and dockworker certifications that follow employees throughout their career.

Allowing workers to build credentials that are transferrable to different companies and industries enables employee flexibility to take advantage of better job opportunities without jeopardizing their career progression.





Truck Driver Attraction and Retention, continued

RECOMMENDATION 26

Provide resources for drug rehabilitation facilities to reduce number of drivers leaving the field.

The state should provide information on existing resources and additional resources for drug rehabilitation facilities where gaps exist to support drivers in their recovery. Trucking companies should provide support for drivers that wish to return to their driving jobs after completing rehabilitation.

RECOMMENDATION 27

Align Missouri's CDL requirements with other states.

Expanding access to CDLs in Missouri will make it easier for potential drivers to acquire a CDL and operate within the state. Missouri should align its CDL requirements with other states' best practices.

Truck Driver Work Environment

Long-haul trucking is well-known for its challenging and demanding work environment that requires drivers to meet very high standards of performance. Many DOT Safety Offices have called attention to the increasing frequency of reports of trucks parking on highway on-ramps and off-ramps or along the shoulder of roads. These areas are not designated for parking and can contribute to accelerated wear-and-tear of these areas or create safety hazards for the truck drivers and other vehicle operators. However, hours of service regulations limit drivers to a maximum of 11 hours of driving in a 24-hour period, and a lack of available truck parking will often force drivers to stop in non-designated areas in order to avoid violating these regulations.

In Missouri, 87 out of 141 truck parking locations exceeded 100% utilization for the peak time of 2 am to 3 am. Beyond designated truck parking facilities, many drivers do not have access to basic amenities like bathrooms or food vending at customer facilities. Addressing these issues may help reduce the driver shortage and improve retention by improving the quality of the work environment for drivers.

RECOMMENDATION 28

Develop a uniform rating system for preferred facilities.

Truck drivers often struggle with long wait times and lack of access to critical amenities such as bathrooms or food/drink vending while at customer facilities. The Missouri Trucking Association, Owner-Operator Independent Drivers Association, and other trucking advocacy groups should collectively develop a uniform rating system to identify and promote preferred facilities for truck drivers.

Amenities to be considered in the certification evaluation could include:

- · Access to bathroom
- · Access to breakroom/vending
- Access to on-site overnight parking
- Appointment system for drop-off and pick-up
- Guaranteed two-hour turnaround for loading or unloading
- Clear signage and wayfinding to/from freight facilities and on-site
- Clear and comprehensive safety standards to protect drivers accessing the site



Truck Driver Work Environment, continued

RECOMMENDATION 29

Safe technology communication method for inside the truck and on changeable message boards to alert drivers to hazards and available truck parking.

It is challenging to communicate important information, such as roadway hazards or available truck driving, to truck drivers that are on the road. It is important to develop communication methods that can relay critical information inside the truck without creating distracted driving or other safety risks for the driver or other motorists.

RECOMMENDATION 30

Increase truck parking availability at public and private sites.

Lack of truck parking throughout the state poses significant safety issues for drivers and other motorists. MoDOT and private operators of truck parking sites should invest in increasing availability in areas of high demand and insufficient capacity, on both interstate and non-interstate roads. Local communities can also encourage the development of safe and secure truck parking by modifying zoning and permitting rules to require on-site truck parking at large freight-centric businesses.



Emergency Response

Congestion is a growing problem in Missouri. 60% of all congestion on Missouri's roadways is related to incidents and 20% of all collisions are "secondary" collisions from earlier incidents. In these conditions, responders are at risk on high-speed, high-volume roadways. It is essential to restore normal traffic flow quickly and efficiently, ideally within 90 minutes, in order to avoid secondary crashes and congestion.

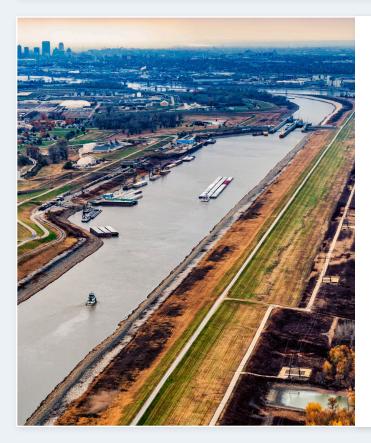
To assist in this goal, towing companies are called to a crash scene by an emergency responder. The trucking and towing companies may not have established a negotiated rate. This can lead to high bills from towing companies, which increase the costs of doing business in Missouri. However, towing companies deserve to be compensated fairly in these situations to ensure that roads can be cleared quick-ly. Establishing a quicker, lower cost, informed dispute resolution forum will help ensure the safety of Missouri roadways while recognizing that unexpected costs can put additional burden on carriers operating in Missouri.



RECOMMENDATION 31

Encourage the development of a forum for determining fair market rates for truck towing emergency response situations.

The Missouri Trucking Association and Owner-Operator Independent Drivers Association should lead on developing a forum for trucking companies and tow companies in Missouri to negotiate fair market rates for emergency response truck towing and to facilitate dispute resolution when billing disputes arrive.



Reduced Costs for Port Investment

For the last eight years, Missouri has included an annual appropriation for capital improvements at public port authorities. However, construction at Missouri River ports generally occurs during April to October, while Missouri's annual appropriates expire in July. The misalignment between funding cycles and construction seasons leads to challenges with completing construction projects as planned and can increase project costs, hindering cost-effective investment in Missouri's water freight network.

RECOMMENDATION 32

Develop a waterways trust fund to allow multi-fiscal year construction with appropriated revenue.

The state should establish a waterways trust fund that can be leveraged at any time and over a multi-year period.

