TRANSPORTATION2030

Making Missouri A Leading Logistics Hub

MISSOURI CHAMBER FOUNDATION

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ABOUT THE AUTHORS

This report was authored by Ted Abernathy and Greg Payne, with contributions by Missouri Chamber of Commerce and Industry staff.

Ted Abernathy is the Managing Partner of Economic Leadership LLC, a Raleigh NC-based company that helps businesses, and places, increase their competitiveness. Ted has 38 years of experience directing economic development and workforce development programs. From 2008-2013, Ted was the Executive Director of the Southern Growth Policies Board, a 42-year old public policy think tank that provided research to states and communities across the South. Before Southern Growth, Ted was a practicing economic developer for 28 years, including 8 years as Executive Vice President/COO for the Research Triangle Regional Partnership. His latest research has focused on re-imagining workforce development, making manufacturing more competitive, and analyzing 25 years of rural economic development policy. Ted received his bachelor's degree from the University of North Carolina at Chapel Hill and his master's from Johns Hopkins University. He is a graduate of the Economic Development Institute and is an Eisenhower Fellow for global economics.

Greg Payne joined Economic Leadership as Vice President following lengthy experience in commercial real estate, economic development, and land use planning. He worked for more than 13 years as a commercial and investment real estate broker in the Research Triangle region of North Carolina. Prior to that he assisted local governments in North Carolina with economic and business development efforts and did land-use planning in the Shenandoah Valley of Virginia. At Economic Leadership, Greg has led efforts to develop economic strategies for county comprehensive plans, created regional workforce assessments, and analyzed national best practices in both economic development and workforce development.

Greg received his bachelor's degree from Duke University, and his master's in Urban and Environmental Planning from the University of Virginia. He is also a Certified Commercial Investment Member and graduate of the Economic Development Institute.

TRANSPORTATION2030

I. Introduction

Missouri's central location has long been a major logistics advantage. Being within a day's reach of half of U.S. households, manufacturing establishments and the agricultural heartland has motivated investment from a wide range of companies[i]. But natural and long-held advantages can evaporate in the face of regional, national and global competition, especially if critical ongoing and new investments aren't made.

Making Missouri a Leading Logistics Hub was commissioned by the Missouri Chamber Foundation, in partnership with the Missouri REALTORS Association, to identify the challenges that Missouri must overcome — and the assets our state can leverage — to meet our full potential and establish our state as one of the nation's top logistics centers. The study is part of the Missouri Chamber's over-arching Missouri 2030 strategic initiative to reposition our state as a global leader.

A Gallup survey of 1,000 Missouri CEOs and business leaders revealed that basic infrastructure is a prevalent concern of employers, especially industries that depend on roads and airports for moving goods. Gallup concluded that leveraging Missouri's location through strategic policymaking and investment would be a smart move for the state.

This report is designed to analyze Missouri's transportation infrastructure assets individually and collectively, and to provide a state blueprint to increase our logistics competitiveness. It highlights individual infrastructure assets' strengths and weaknesses. It reveals how Missouri stacks up against neighboring states and nationally.

Development of this report included research and stakeholder input from site selectors, logistics professionals, commercial real estate experts and other executives knowledgeable about their region of the state. Polling results from Missouri CEOs and business leaders and voters at large were used in the report. The report relies heavily on data provided by the Missouri Department of Transportation and the Missouri Freight Plan. The report also draws upon the comprehensive work of the 21st Century Missouri Transportation System Task Force.

II. Executive Summary

As it always has been, having a competitive infrastructure advantage is vital to Missouri's economic future. The state's history is filled with stories of infrastructure firsts that have positioned the state for growth — and lost opportunities that have ceded advantages to others.

Missouri has many strengths. Missouri occupies a naturally strategic location in the center of the United States. The state has a robust logistics workforce supported by strong higher education programs focused on supply chain management and logistics. Missouri has competitive costs in many aspects of logistics — in labor, building space, and energy costs to name a few. Missouri has strong assets in the four primary freight transportation modes — roads, rail, waterways, and air — and has made past investments to position the state as an important logistics hub.

However, Missouri, like many states, is challenged by rapidly aging infrastructure and limited resources to address the problem. Much has been written about the mounting crisis beneath our declining highways and bridges. The issue of Missouri's under utilized airports and waterways has not been as widely discussed, but these assets are a valuable resource waiting to be fully tapped. Missouri's rail strength is unrivaled and provides our state a competitive advantage no other state can match, and with the right investment it could be an even greater asset.

Missouri currently stands out in the logistics industry among Midwestern rivals and nationally. But could infrastructure shortcomings damage the state's logistics momentum? How do we convince voters that more investment in our logistics infrastructure is needed to move our state forward economically? In today's fast-moving economy, if a state is not making intentional moves forward, it will be left behind. That is especially true in the booming logistics arena.

Making Missouri a Leading Logistics Hub ends with 22 recommendations for strategies, policies and investments to strengthen Missouri's competitive position in infrastructure and logistics.

The recommendations address:

- The elephant in the room: funding levels and funding reliability. Current funding mechanisms are antiquated and barely adequate to maintain the existing system, much less support infrastructure enhancements.
- The individual pieces that make up the state's multi-modal network — highways, ports and rivers, rail, and air — as well as other types of infrastructure.
- Broader issues of cooperation and collaboration.
- Critical logistics-related topics such as workforce availability and training and site redevelopment.
- Outside-the-box initiatives like a St. Louis to Kansas City hyperloop, use of predictive analytics, non-physical infrastructure assets, and the concept of 'asset recycling' to redeploy and reinvest the state's resources to address the greatest infrastructure needs.

II. COVID-19 Related Impacts on Logistics and Infrastructure

by Daniel P. Mehan, Missouri Chamber of Commerce and Industry and Jonh Sebree, Missouri Realtors Association

While the COVID-19 pandemic has had disastrous short-term effects on most of the U.S. economy, and many sectors will suffer for an extended period, the outlook for the logistics sector is considerably brighter. Indeed, for logistics there are probably more positive impacts than negative.

THE LOGISTICS REAL ESTATE MARKET

At the end of the first quarter, U.S. vacancy for industrial, warehouse, and distribution space was at a low 10 percent, and new construction starts in 2020 were down moderately from the prior year. There was no glut of new space on the market when the COVID-19 crisis hit. As a result, commercial real estate experts predict only a slight increase in vacancy this year, with vacancy rates declining again in 2021 and 2022. Industrial properties continue to be a preferred asset among real estate investors.

DEMAND FOR LOGISTICS SPACE

The already-booming trend of e-commerce got a major boost from stay-at-home orders. Some observers believe that the e-commerce revolution will create demand for an additional 500 million square feet of logistics space in America over the next two to three years. Also, the likelihood of inventories changing from just-in-time levels to provide more of a safety cushion might increase space demand by 5 to 7 percent. Another potential demand creator for warehouse and distribution space is the continuing desire for local, fresh, and organically-produced foods and beverages, with the accompanying need for more cold storage facilities.

SUPPLY CHAIN SHIFTS

In a recent survey, a large majority of businesses plan major shifts in their supply chain and procurement strategies, including: expanding the base of suppliers and sources; reducing the extent of globalization; and increasing inventories. Most analysts foresee supply chains becoming more diverse and thus less fragile, with an emphasis on sourcing and production that is closer to the end user (especially close to large, affluent markets). This could mean that suppliers will be more dispersed across low-cost Asian countries other than China (like Vietnam and Malaysia), in other large emerging markets like Brazil, and near major consumer markets in North America. Mexico and the United States could both benefit. The Midwest Cargo Hub Commission's attempt to create a dual customs clearance facility with Mexico at St. Louis Lambert International Airport could take on added importance.

RESHORING AND FOREIGN DIRECT INVESTMENT

According to an April 2020 survey, most North America-based manufacturing and industrial companies intend to bring some sourcing and production back to North America. Mexico might benefit the most due to significant cost advantages. Still, 55 percent of site selection professionals expect a general resumption of U.S. project activity by the fourth quarter of 2020, and 45 percent sometime in 2021. For reshoring projects and new direct investment by foreign companies,

the hottest sectors are likely to be in logistics and advanced manufacturing. Biotech, pharmaceuticals, and medical products should see the greatest demand for manufacturing facilities. Most analysts do not foresee a "dynamic resurgence" of U.S. manufacturing at home, but any significant production increase in the U.S. or Mexico is likely to enhance prospects for the logistics sector in America.

INFRASTRUCTURE INVESTMENT

There is no denying that shrinking investment in infrastructure assets is the biggest obstacle to growth. COVID-19 has made matters worse, especially in states, like Missouri, that rely heavily on fuel taxes. During the height of the crisis, some states reported mileage dropping below 60 percent of normal levels.

The potential passage of an infrastructure bill in Congress would provide a major boost to the logistics industry in terms of road, bridge, and other needed improvements. In July, the House of Representatives passed the $1.5 trillion Moving Forward Act, which includes $500 billion for surface transportation improvements, but it is unlikely to be passed by the Senate. Meanwhile, the White House has not released specifics but is calling for at least $1 trillion in infrastructure spending, including some funds targeted at relieving harmful freight bottlenecks across America. The two sides in Washington are in general agreement about the need for infrastructure funding as well as economic stimulus, but a deal could still be derailed by funding difficulties.

CONCLUSION

Overall, the warehouse and distribution sector appears likely to weather the COVID-19 storm in good health and with increased demand likely for the near future. The key drivers of: 1) booming e-commerce demand; 2) supply chains that are more resilient and closer to large, affluent markets; and 3) the need for cold storage near those affluent consumers should brighten the outlook for the logistics sector across the United States and in Missouri. Will Missouri be able to take advantage of this opportunity?

IV. How Missouri Stacks Up

	MO National Ranking
Total Length of Public Roads:	6th [ii]
Annual Vehicle Miles Per Capita:	9th [iii]
Kansas City Rail Hub:	2nd [iv]
St. Louis Rail Hub:	3rd [v]
Total Water Traffic (Short Tons):	22nd [vi]
Kansas City International (MCI) Air Cargo:	45th [vii]
St. Louis Lambert International (STL) Air Cargo:	71st [viii]
Transportation Sector Employment as a Share of Total Employment:	26th [ix] (tied)

The data rankings to the left show that Missouri has a logistics infrastructure network that is among the nation's largest and most robust, particularly in terms of roads and rail. It also has strength in all four major freight shipment modes – roads, rail, water, and air. Combined with a strategic, central location, this network makes Missouri one of the nation's most active logistics markets.

However, the evaluation tables on the next page demonstrate that the state's infrastructure is stressed and underfunded. Mediocre evaluation scores result from a large system (especially in the number of aging bridges and crumbling roads) with funding levels that are barely sufficient to maintain it, let alone expand and improve it.

National Infrastructure Evaluations – Missouri and Its Neighbors

American Society of Civil Engineers (ASCE) Infrastructure Report Card, 2017

State	Grade
Iowa	C
Kansas	C
Tennessee	C
Illinois	C-
Kentucky	C-
Missouri	**C-**
Oklahoma	C-
Arkansas	D+
Nebraska	*(not graded)*

U.S. News & World Report Best States for Infrastructure, 2019

State	Ranking
Kansas	8
Nebraska	32
Tennessee	10
Iowa	48
Illinois	33
Missouri	**21**
Kentucky	16
Oklahoma	35
Arkansas	20

Center for Business and Economic Research, 2019

State	Logistics Industry Health Grade
Illinois	A
Kentucky	A
Iowa	B
Nebraska	B
Oklahoma	B-
Kansas	C+
Tennessee	C+
Missouri	**C**
Arkansas	C

CNBC, 2019

State	Top States for Business Infrastructure Ranking
Kentucky	2
Kansas	3
Tennessee	5
Missouri	**7**
Oklahoma	17
Arkansas	20
Nebraska	22
Iowa	32

USA Today, 2019

State	24/7 Wall Street Infrastructure Ranking
Kansas	8
Tennessee	10
Kentucky	16
Arkansas	20
Missouri	**21**
Nebraska	32
Illinois	33
Oklahoma	35
Iowa	48

Note: ASCE does its national infrastructure report card every 4 years, with some individual state reports coming out after that. The 2017 report should be replaced in 2021, with a state-specific report on Missouri likely in 2022.

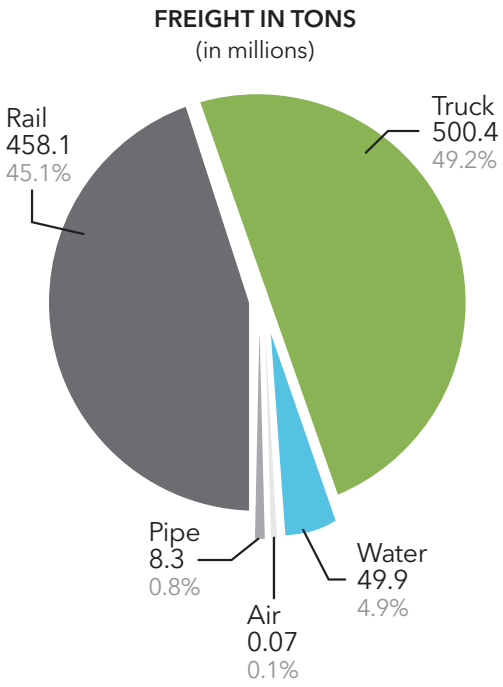
V. The State of Missouri's Freight

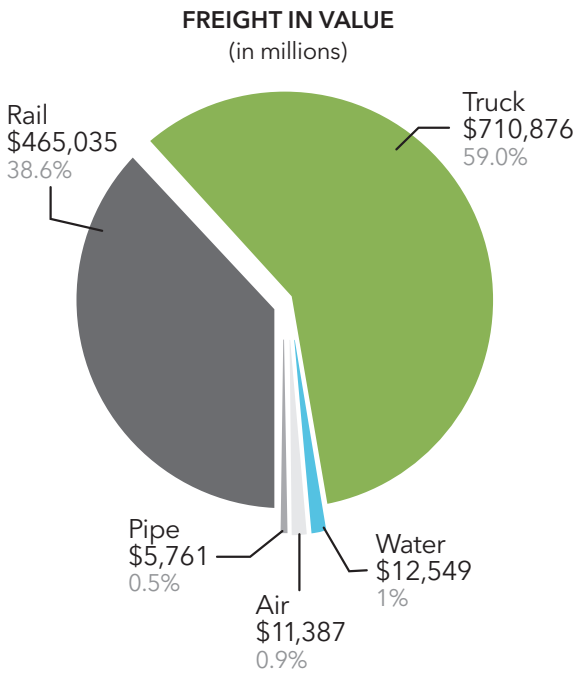
Freight movement is a critical part of Missouri's economy. Missouri's freight system is a complex network of highway, rail, air and water systems, owned by both private and public entities. According to the Missouri State Freight Plan, more than half of Missouri's economy is affected through the direct movement of freight or the use of freight systems. Approximately 83,500 people are employed in Missouri's transportation and warehousing sector, and many others work in related industries.

A. PROJECTED GROWTH

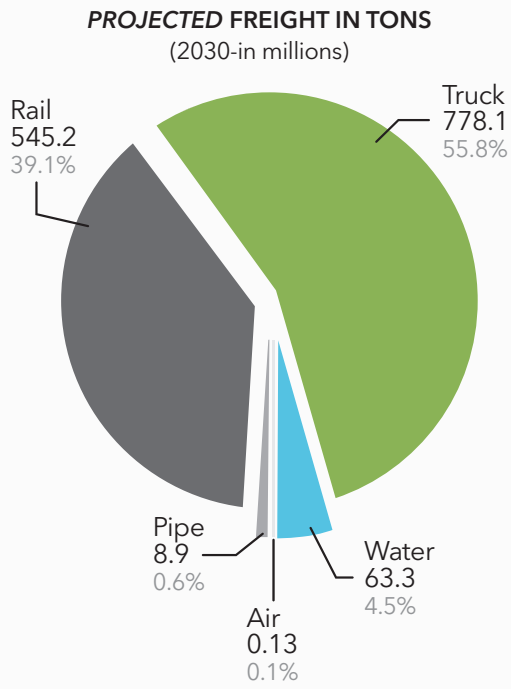
National projections show a surge of growth in U.S. freight movement. Missouri is on track to take advantage of that growth. Trucking and trains will continue to dominate Missouri's freight movement, and these modes will lead the way in driving our state's freight growth. Rail commodity value is forecast to increase from $465 billion in 2011 to $790 billion in 2030, an increase of 70 percent. Truck commodity value is forecast to increase from $710 billion in 2011 to $1.2 trillion in 2030, also an increase of 70 percent. Although making up a significantly smaller part of Missouri's overall freight totals, air freight is expected to experience the most growth, increasing by 142 percent to $27 billion in value by 2030. Freight moved through inland waterways is forecast to increase by 23 percent to $15 billion.

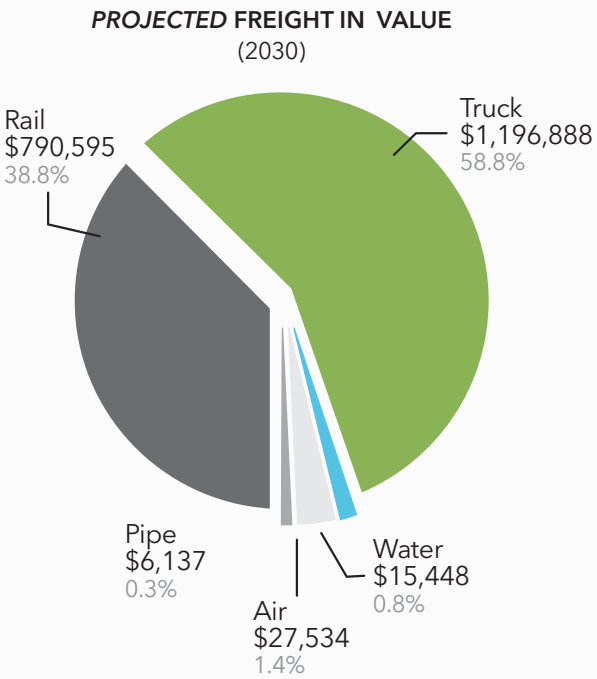
Actual Freight Movement by Tonnage and Value Per Mode (2011)





Projected Freight Movement by Tonnage and Value Per Mode (2030)





Source: Prepared by CDM Smith, based on TRANSEARCH® data for 2011

B. MISSOURI'S LOGISTICS WORKFORCE

Interviewees across the state consistently mentioned Missouri's logistics workforce as a strength, in terms of overall supply, skills, and work ethic. Missouri's total workforce is the 2nd largest among neighboring states, and its transportation and warehousing workforce is the 4th largest. Median hourly wages in related occupations are lower in Missouri than in 32 states.[x]

For education and training of the logistics workforce, Missouri can point to the 12 colleges and universities that offer courses or programs in logistics and supply chain management. In addition, the state's high school graduation rate ranks among the top 10 in the United States. [xi]

C. MISSOURI'S WAREHOUSE AND DISTRIBUTION MARKETS

Industrial space markets across the United States — and particularly warehouse and distribution space for logistics — have been the shining star of commercial real estate for several years, and Missouri has been increasingly competitive in this arena.

A new report in *Commercial Investment Real Estate* states that logistics real estate "has been riding a significant tailwind from e-commerce." One commercial real estate executive notes that "customers are waiting for new supply to come online due to the limited availability of standing inventory in nearly all U.S. cities."[xii] Shortly before the COVID-19 crisis, industrial space availability was at its lowest level since 2000.[xiii]

The report cites 2019 data indicating that industrial/warehouse vacancy nationally is around 7 percent, far below the 20-year average of more than 10 percent. Real estate firm CBRE puts vacancy within the warehouse/distribution submarket at only 4.4 percent nationwide. Since 2015, warehouse demand has exceeded new space completions by 169 million square feet, and rents have increased by 19 percent over that period.[xiv]

Logistics Market Evaluations for Kansas City and St. Louis:

Kansas City and St. Louis are the only Missouri logistics markets large enough to figure in regional or national rankings. Overall, Kansas City is generally viewed as an upper-tier logistics hub within the Midwest and maybe the United States. St. Louis is generally regarded as a mid-tier hub. But they may be rising in some eyes.

A report by Site Selection Group in 2018 put both St. Louis and Kansas City within the nation's top 30 metro markets for distribution centers. Based on population within a one-day drive, St. Louis ranked 16th (within a one-day drive from 127.6 million people) and Kansas City ranked 21st (within one day of 103.4 million people). Other factors included population growth within that one-day drive time and a significant concentration of distribution workers.

An *Area Development* evaluation of logistics hubs in 2015 put Kansas City within the **top eight** in America, alongside major players like Chicago, Indianapolis and Memphis. St. Louis was listed among the **next-tier** grouping of 13 hubs, along with Louisville, Nashville and others.[xv]

In 2016, Jones Lang LaSalle highlighted second-tier logistics markets that are gaining in importance. Using the analogy of a golf course, the "front nine" first-tier markets include usual suspects like New York, Chicago and Los Angeles. But the "back nine" markets are becoming more prominent from "on-line shopping and demand for faster and cheaper delivery" that will require companies to look more to the "back nine" markets for the answer."[xvi] Jones Lang LaSalle combines Kansas City and St. Louis into a rising "back nine" market it calls The Heartland. As strengths it cites Kansas City's industrial base and role in cross-border activity with Mexico and Canada. St. Louis' strengths include a location offering easy access to Midwest consumers, affordable land and reasonable lease rates.[xvii]

Missouri's highest rankings come from Houston-based logistics solutions company Freight Cowboy. Its 2018 rankings put both Kansas City **(No. 5)** and St. Louis **(No. 6)** within the top 10, sandwiched between Dallas and Chicago. Kansas City is praised for its location near the geographic center of the U.S., "diverse and efficient transportation options" and "prime access" to the nation's freight rail system," which is termed "an anchor of the intermodal network." St. Louis gets credit for "four modes of transportation," a central location and "robust infrastructure" that results in "some of the lowest shipping costs in the country."[xviii]

In a 2015 ranking of the top 20 markets for warehouse construction, Kansas City ranked **11th** (3.7 million square feet) and St. Louis **12th** (3.1 million square feet). The top five markets, each with over 10 million square feet under construction, were California's Inland Empire, Philadelphia, Atlanta, Dallas-Fort Worth and Houston.[xix] In a June 2019 listing of the top 10, neither Kansas City nor St. Louis made the ranking, and the top five new construction markets were virtually identical.[xx]

Opportunities:

Kansas City has experienced "unprecedented" growth in industrial and warehouse development. Many U.S. metros have seen robust growth in these markets, but Kansas City's might be enough to propel it firmly into the first tier of U.S. logistics hubs. The area's absorption of space in 2017 ranked within the top 10 nationally, and the amount of new space completed since 2015 is the highest in the Midwest outside of Chicago.[xxi] Aggressive property tax abatement programs in the metro area — often offering 50 percent to 100 percent abatement for 10 years — are credited with driving some speculative construction.

Kansas City has an industrial/warehouse market with about 280 million square feet of leasable space. Pre-COVID vacancy rates were very, very low, at around 5 percent. Real estate firm Jones Lang LaSalle calls Kansas City "an up-and-comer in the industrial sector," crediting its "solid occupancy, modest but measurable rent growth and stable economy."[xxii] Rival firm CBRE notes that employment in Kansas City's Transportation & Warehouse sector grew 27 percent from 2013 to 2018, the second-highest rate in the Midwest.[xxiii] CBRE writes that the region has "rapidly transitioned from a secondary market into a strategic market with fundamentals that rival some of the top markets in the nation."[xxiv]

A January 2019 article suggests that 2017 and 2018 might have been the "best of times" for Kansas City's industrial market.[xxv] CBRE agrees that the recent boom was probably a "short-term phenomenon" as the region "jumped on the scene nationally" but does not see any major slowdown or bubble looming. Instead, it sees steadier growth "at a more sustainable level."[xxvi] The multiple drivers of the economy, including third-party logistics, automotive and e-commerce, are expected to buoy the logistics market for the foreseeable future.

Even if industrial construction in Kansas City is leveling off, market fundamentals remain very strong. In 2019, the metro area had the nation's lowest vacancy rate for newly-completed industrial space, at less than 8 percent.

In addition to the advantages of location and four-mode transportation options, Kansas City's strengths include workforce training initiatives and regional cooperation.

With labor supply and quality a concern everywhere in the U.S., Kansas City metro organizations are stressing a three-pronged approach to workforce improvement:

- RideshareKC's vanpool transportation program to help workers access jobs
- Updating or transferring of adult worker skills
- Heightened awareness of logistics and industrial careers starting in middle school

For regional cooperation, a 2017 study of the KC SmartPort noted that the organization includes 18 counties, 50 cities, two states, multiple economic development organizations, several rail terminals, logistics zones and free-trade zones. The cooperative governance model is termed a "coopetitive" structure where the players "agree upon strategies that promote common interests while … effectively competing in daily operations." Kansas City also pioneered the use of distributed foreign trade zones (FTZ) with a dispersed set of 14 individual sites or sub-zones comprising a total of 10,000 acres.[xxvii]

The **St. Louis** industrial and warehouse/distribution market is one that "epitomizes the growth in secondary industrial markets because of e-commerce."[xxviii] In addition to enviable rail and highway networks, direct access to low-cost barge shipping on the Mississippi River provides another option for logistics businesses.

St. Louis has an industrial and logistics market of nearly 270 million square feet, enjoying record-low vacancies of less than 5 percent pre-COVID.[xxix] Net absorption of space has been positive for 21 consecutive quarters.[xxx] Local market experts believe that new construction will continue "at a controlled pace" with a mix of build-to-suit and speculative space.[xxxi] Employment growth in manufacturing, financial services and construction is helping to drive the metro economy.[xxxii]

The outlook is generally positive for St. Louis in the coming years. Commercial real estate firm Colliers International writes, "The market has seen many e-commerce companies take large blocks of space. As the need to get products to consumers increases … St. Louis is one of the best situated industrial markets to take advantage."[xxxiii] As in the rest of Missouri, however, there is concern about the ability to maintain and expand the area's infrastructure. In 2018, Procter & Gamble's St. Louis logistics manager stated, "The labor workforce, freight availability and cost of living are good, but seeing improvements to key road infrastructure will be a big win for us."[xxxiv]

The **Columbia** area has a market size of about 10 million square feet. Unlike the bigger metros, it sees very little speculative development of new space. With the amount of interest in new, larger warehouses (over 400,000 square feet), a local real estate expert is concerned that Columbia will miss out on opportunities now and in the future. The very low unemployment rate (recently 2.5 percent) and the ability to find labor is another concern.

Springfield's location on Interstate 44 has helped it become a major trucking center, home to carriers such as Prime. Logistics firms here serve both regional and national markets. A logistics expert states that the strength of the logistics industry here helps to bring in other companies, once they see how robust the trucking sector is. New interchanges and infrastructure are needed to open up additional industrial development sites, especially to rail-served sites.

The small **Jefferson City** logistics market, serving local and regional needs, is near 100 percent occupancy with virtually no new construction and no speculative development anticipated. A local expert believes that the two biggest weaknesses for logistics in the Jefferson City area are 1) the lack of an interstate highway and 2) the small employee base. They also noted that a river port could boost the economy and prospects for logistics.

In **Cape Girardeau**, logistics, employment and population growth thrived while freight was dominated by rail, but logistics activity has waned since 1980 with the increasing popularity of trucking via interstate highways. A new, national east-west interstate corridor, promoted as the TransAmerica Corridor or Interstate 66, could bring new activity and growth to Southern Missouri. The proposal made it into a federal highway bill and was designated as a high priority corridor, but there has been no progress toward construction.

D. MISSOURI'S INTERMODAL FACILITIES

The availability of intermodal facilities is another strength of Missouri and is a key asset cited in the Missouri State Freight Plan. According to the National Transportation Atlas Data/Bureau of Transportation, Missouri is home to 115 intermodal facilities. These provide a variety of intermodal connections. The majority of Missouri's intermodal facilities (71 percent) accommodate connections between rail and trucks. The majority of intermodal activity occurs in Kansas City and St. Louis, with the Kansas City area having 47 intermodal facilities and St. Louis having 30. Springfield has six intermodal facilities, St. Joseph four, and the remaining 28 are scattered across other regions of the state. According to the Missouri State Freight Plan, the availability of intermodal facilities can greatly affect the overall cost of logistics, increase efficiency, reduce congestion and increase the returns on public and private infrastructure investments.

E. MISSOURI'S MULTI-MODAL STRENGTHS

Not all markets can offer all four major shipping modes — road, rail, river and air — like Missouri. Missouri's strength in each mode is a competitive advantage. Even though trucking and rail freight are the dominant modes, river transport occupies a key niche as often the lowest-cost option, and air cargo has room to grow for lighter, high-dollar goods. *Following is an in-depth analysis of each mode.*

Missouri's Roads and Bridges

Missouri's highway system carries the largest load of Missouri's freight. Approximately 75 percent of the nearly $500 billion in commodities shipped to and from sites in Missouri is moved by truck. Missouri's highway network is the backbone of the state's logistics system.

Missouri's 34,000-mile highway network is the seventh largest in the United States. Missouri has 10,394 bridges. Only five other states have more bridges than Missouri.

Missouri raises the $2.5 billion it takes to annually support our highway system primarily through state and federal user fees, fuel taxes, vehicle registration and driver licensing fees, and motor vehicle sales taxes. The state covers two-thirds of the cost, and federal funding covers the remaining third. Missouri's primary revenue source is a 17-cent motor fuel tax on each gallon of gasoline and diesel purchased in Missouri. The motor fuel tax is a flat amount added to each gallon. It is not affected by rising or falling fuel costs, and the tax is not indexed for inflation.

Missouri's transportation revenues can no longer sustain the system, and this funding crisis is the biggest roadblock preventing the state from reaching our logistics potential.

The Missouri Department of Transportation reports it is short $825 million for high-priority needs alone, and though 90 percent of its major highways and interstates are in good condition, it has little money to start expansion projects or improve public safety.

Over the last 20 years, inflation has eroded the purchasing power of the 17-cent-per-gallon tax to only eight cents today. This means that current fuel taxes can purchase only 47 percent of the materials and labor that it purchased in 1996, the last time the fuel tax was raised. Increased fuel economy vehicles and the use of alternative fuels and electric vehicles has also put pressure on fuel tax revenues. In addition, federal funding is declining, and inaction in our nation's Capital has added to the uncertainty. The future of federal funding is anyone's guess, but the general consensus is that states will have to put up more matching dollars than they have had to in the past to secure federal dollars.

Missouri is not the only state struggling to find a way to increase and diversify its transportation revenue sources. However, Missouri is lagging behind most states in finding ways to address the problem. More than half of the states have raised their gas taxes since 2013, and according to the National Association of Governors, 13 states raised their gas taxes in 2019.

Voters from both red and blue states, in both statewide and local elections, are supporting ballot initiatives to increase transportation funding. In the most recent election in November 2019, voters in 19 states approved almost 90 percent of 305 state and local transportation ballot measures.

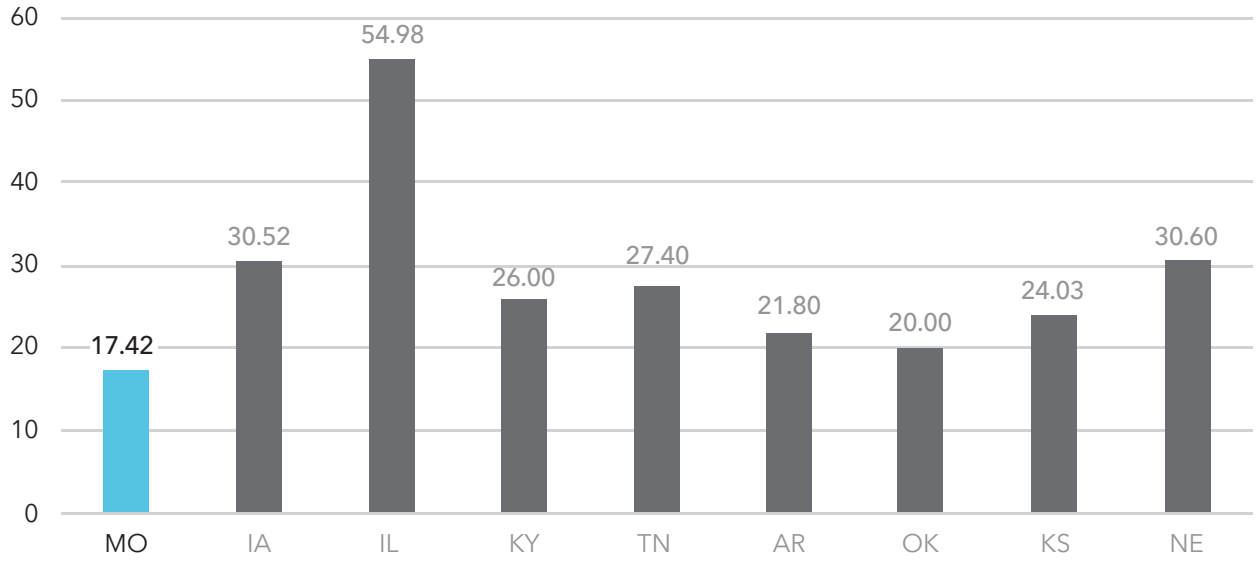
In total, the 270 approved initiatives are expected to generate more than $9.6 billion in one-time and recurring revenue, according to the analysis conducted by the American Road & Transportation Builders Association's Transportation Investment Advocacy Center™ (ARTBA-TIAC).

This continues a decade-long trend of voters supporting investments to maintain and improve their state or local transportation networks. Since 2010, voters have approved 81 percent of nearly 2,000 transportation investment ballot measures tracked by ARTBA-TIAC. States are also taking measures to diversify funding sources and establish policies that leverage private-sector resources to fund and deliver transportation projects.

Missouri is lagging behind, with funds available for road operations and maintenance per state-controlled mile at just 43 percent of the national average.

Total State Taxes & Fees on Gasoline

July 2019, Cents Per Gallon by the Tax Foundation



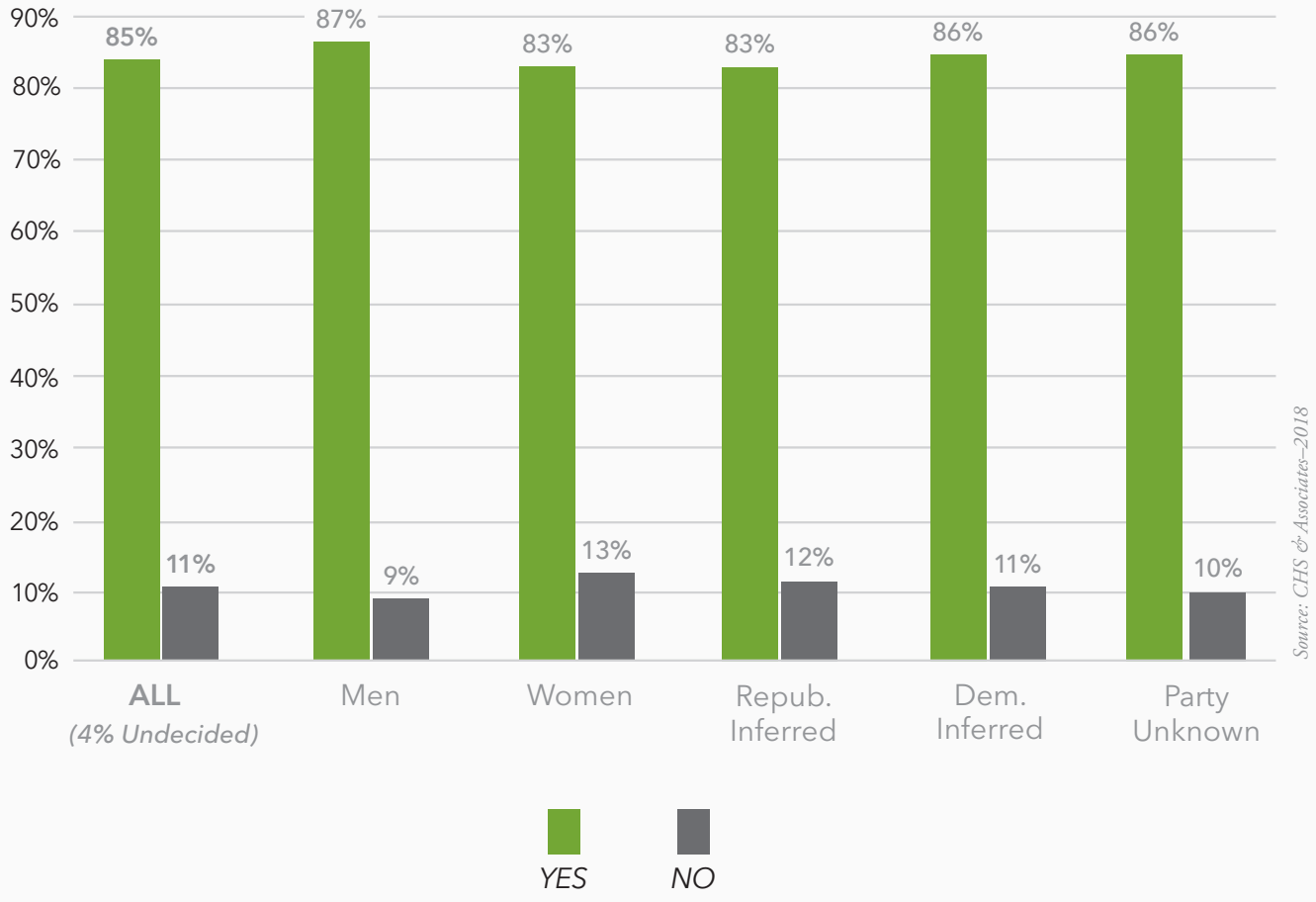
One reason Missouri has not kept up with transportation investment is Missouri's Hancock Amendment, which restricts the amount of new revenue the state can raise without going to a vote of the people. Attempts to pass a statewide transportation investment package have not successfully convinced Missouri's conservative-leaning, voters. In August 2014, the legislature placed on the ballot Amendment 7, a temporary 0.75 percent increase on the state sales and use tax to fund transportation projects. The measure was rejected by 59 percent of Missouri voters. The most recent attempt to raise transportation funding was Proposition D, put before voters in November 2018. The measure would have raised the gas tax by 2.5 cents annually for four years. The ballot language, which covered funding for state law enforcement, funding for roads and bridges and a tax exemption for Special Olympics prizes, was confusing — and the measure was defeated with 54 percent of voters casting a "no" vote.

Polling of Missouri business leaders and voters at large further emphasizes the difficult road Missouri faces in securing increased investment in transportation infrastructure.

Voters overwhelmingly support putting more state money toward transportation infrastructure but struggle to find a method they would support to do so.

In 2018 the Missouri Chamber Foundation commissioned CHS & Associates to conduct a poll of 600 registered voters in Missouri. According to the poll 85 percent believed Missouri needs more transportation infrastructure funding. Support was consistent across all demographics — whether old or young, urban or rural, Democrat or Republican.

Does Missouri Need More Infastructure Funding?

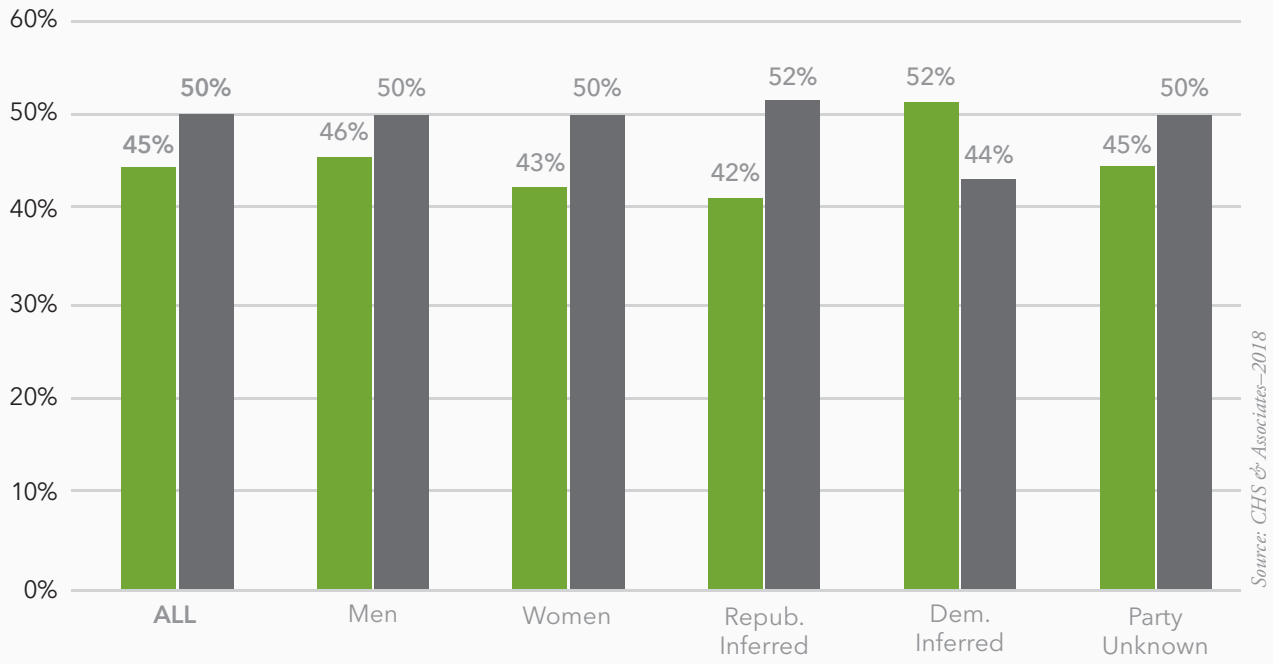


Source: CHS & Associates–2018

But when asked more specifically how to increase funding, voters were far less unified. Support for increasing transportation funding by raising the gasoline tax fell to 45 percent.

Support Increasing Gas Tax by 10 cents per Gallon?

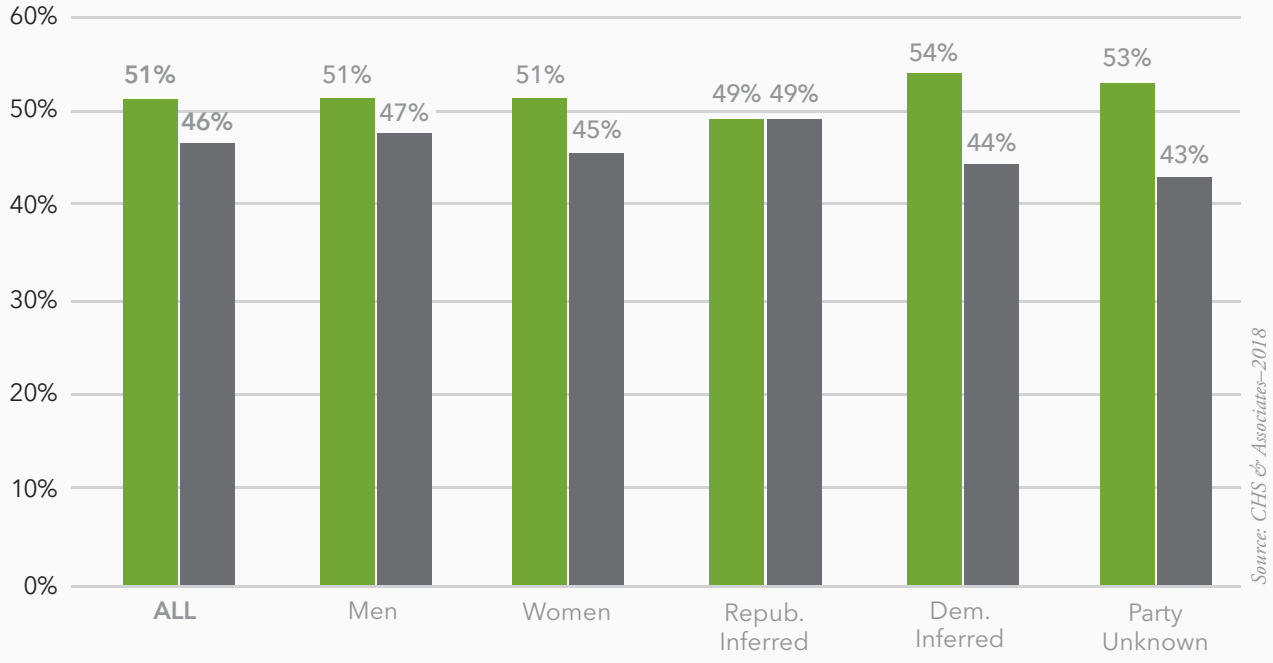
(25% Definitely Support; 20% Probably Support; 14% Probably Oppose; 36% Definitely Oppose; 5% undecided)



When told the gas tax would only cost the average driver $5 a month, a narrow majority of voters, 51 percent, would support the measure. However, a strong number, 36 percent, still say they would definitely oppose.

Support Gas Tax $5 Monthly Cost to Drivers?

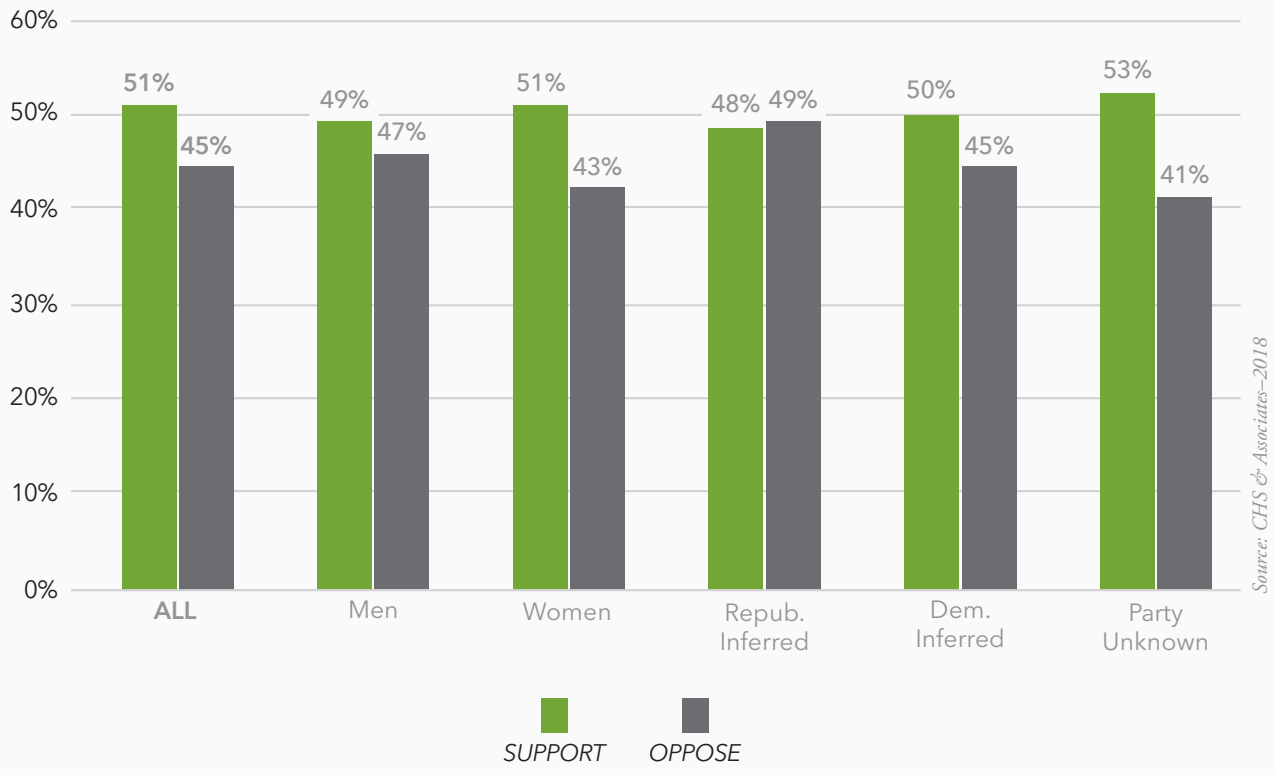
(32% Definitely Support; 20% Probably Support; 10% Probably Oppose; 36% Definitely Oppose; 3% undecided)



Telling voters that the last time the gas tax was raised in Missouri was 1996 also secured majority support, with 50 percent of voters saying they would support a gas tax increase.

Support of Fuel Taxes the same as 1996?

(31% Definitely Support; 20% Probably Support; 9% Probably Oppose; 36% Definitely Oppose; 5% undecided)

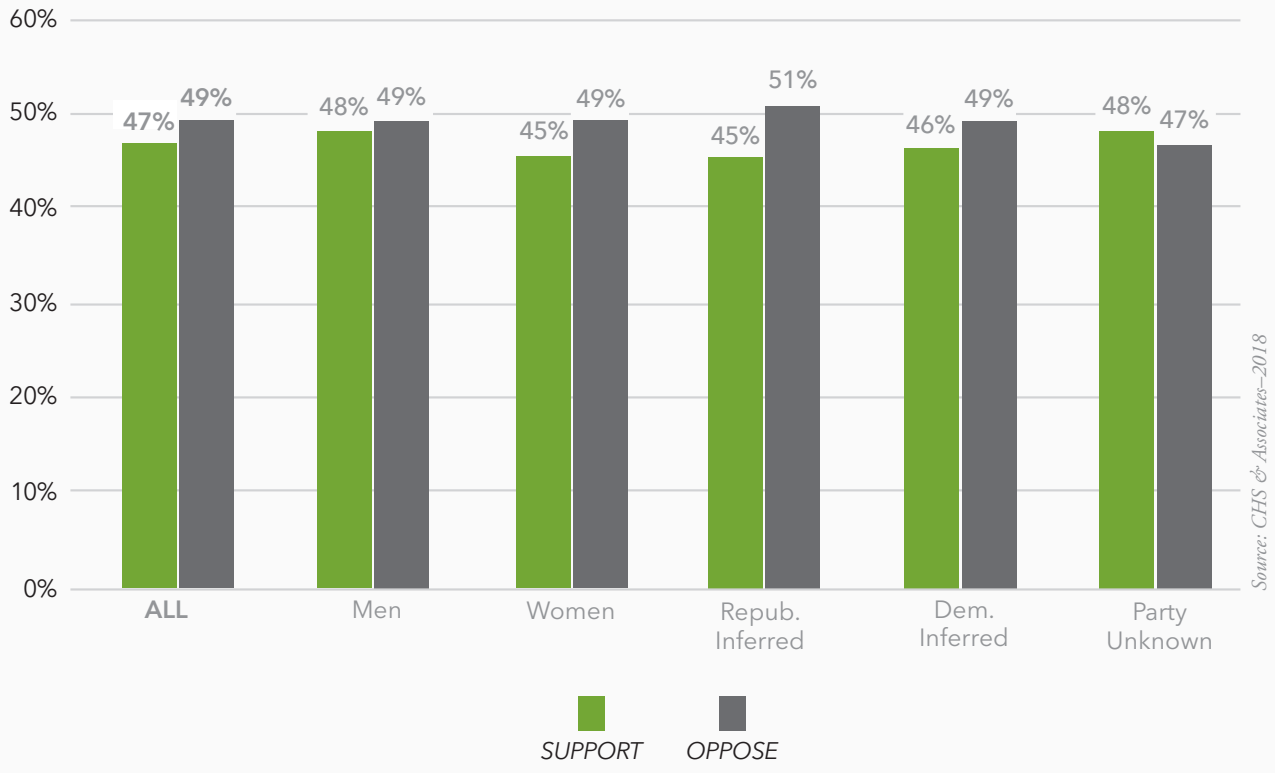


Source: CHS & Associates–2018

Increases in vehicle registration fees are less popular than motor fuel taxes even though the last increase was in 1980. Just 47 percent of voters supported an increase in user fees compared to 49 percent who opposed an increase.

Effect of Vehicle Registration the same as 1980?

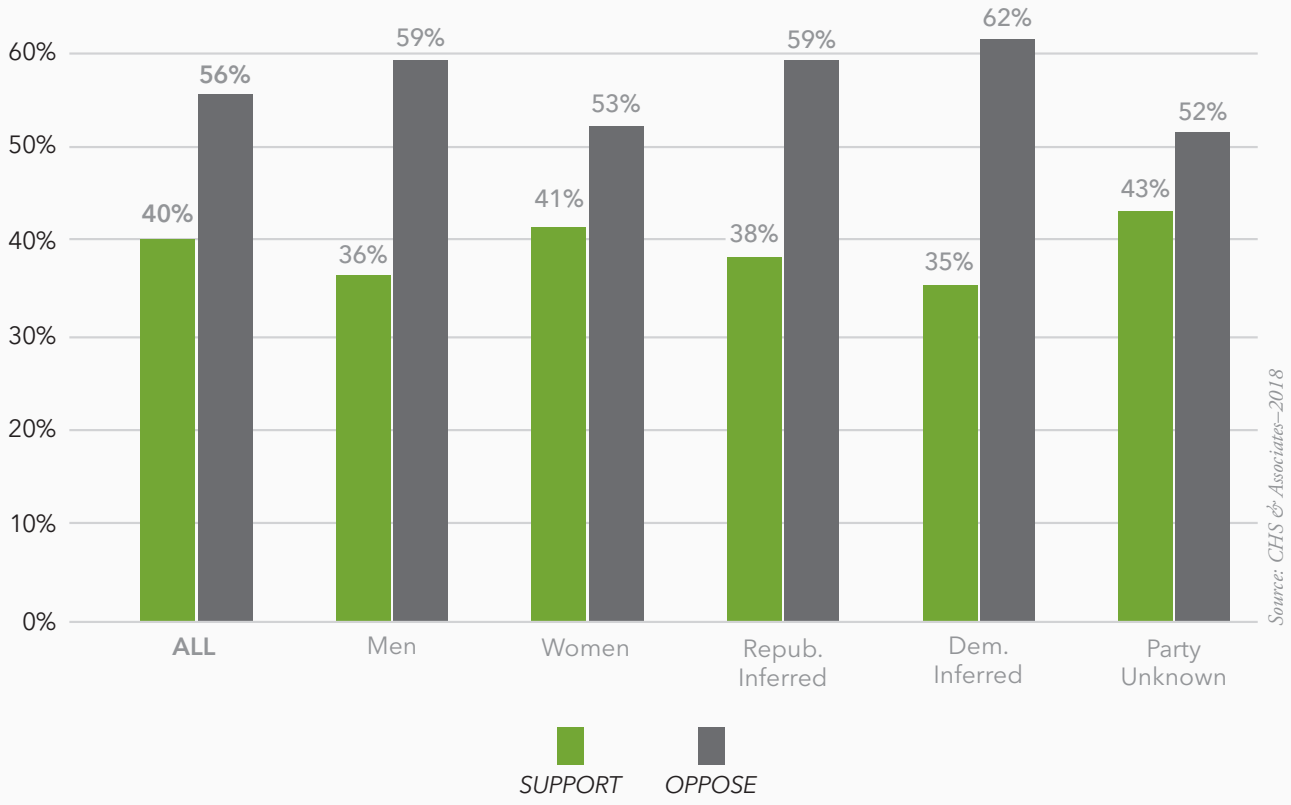
(31% Definitely Support; 20% Probably Support; 9% Probably Oppose; 36% Definitely Oppose; 5% undecided)



Tolling of Missouri interstates would take a herculean effort to pass. Only 21 percent of Missouri voters say they definitely support tolling, and 46 percent say they definitely oppose.

Support Tolling on Interstate?

(21% Definitely Support; 18% Probably Support; 10% Probably Oppose; 46% Definitely Oppose; 5% undecided)

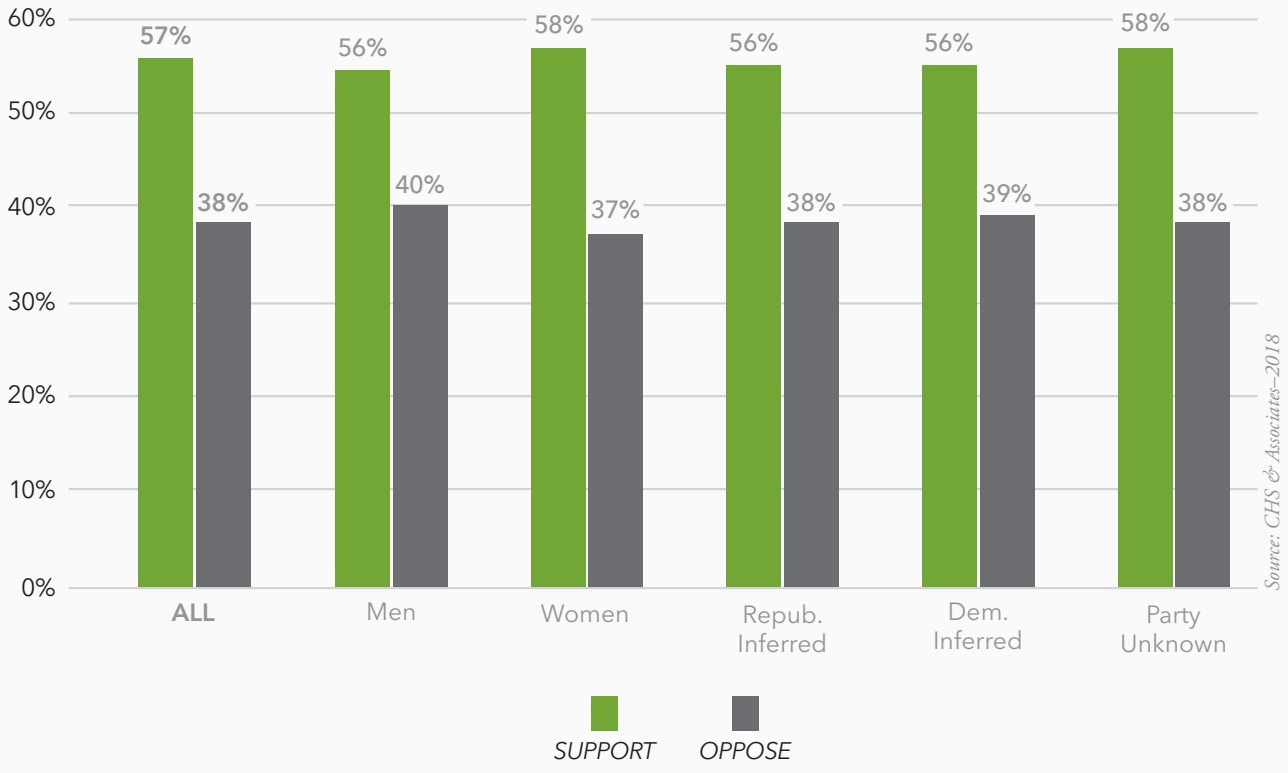


Source: CHS & Associates–2018

Conversely, express lanes, while similar in concept to tolling, are embraced. Express lanes are supported by 57 percent of voters and opposed by 38 percent. There was little partisan difference in support of this measure.

Support Installation of Express Lanes?

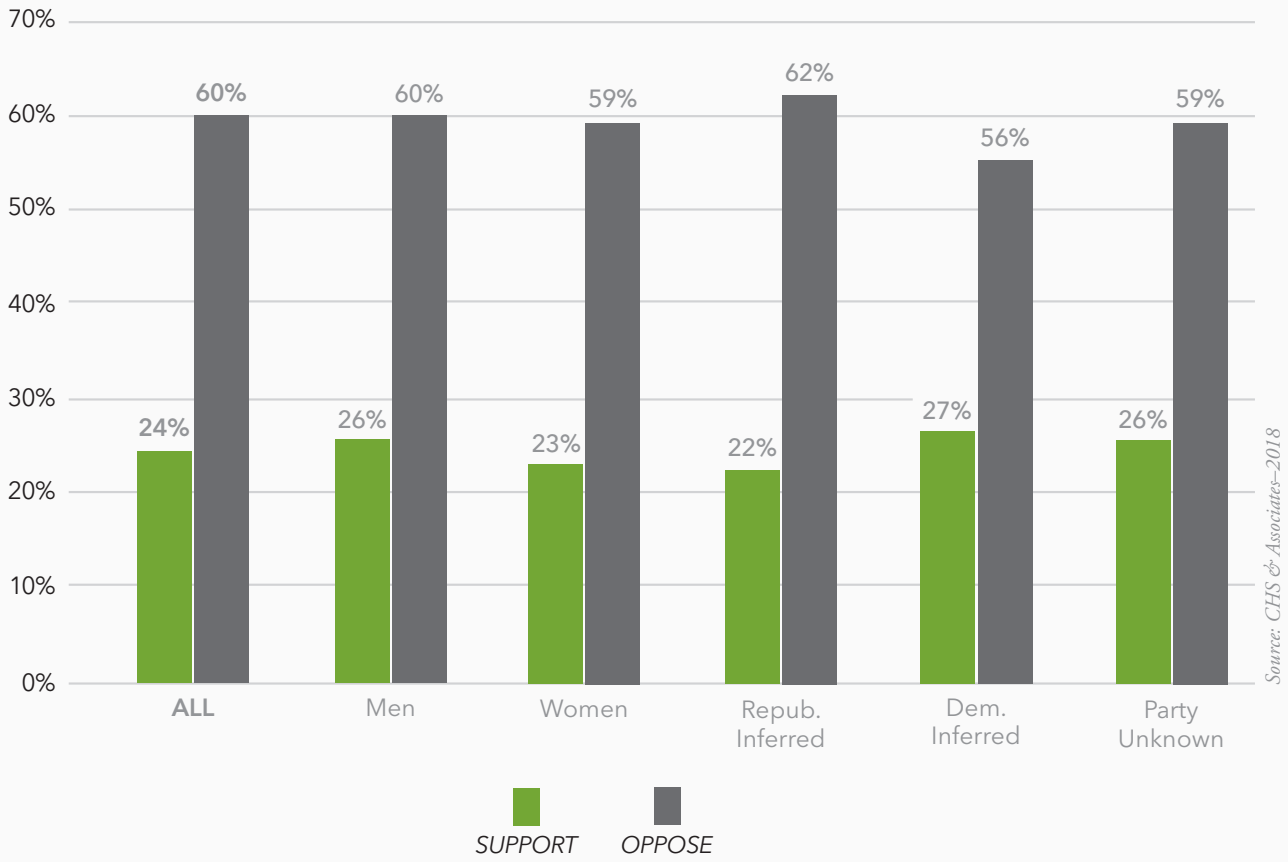
(33% Definitely Support; 24% Probably Support; 8% Probably Oppose; 30% Definitely Oppose; 5% undecided)



While Congress and some states have begun looking at implementing a mileage-based vehicle fee, polling shows that Missouri is a long way from supporting this concept. It was opposed by 60 percent of voters, and only 24 percent supported the idea. Those definitely supporting the idea, 9 percent, were quadrupled by those definitely opposing it, 42 percent.

Support Mileage-Based Vehicle Fee?

(9% Definitely Support; 15% Probably Support; 18% Probably Oppose; 42% Definitely Oppose; 16% undecided)



Source: CHS & Associates–2018

More and more policymakers across the nation are considering state authorization for fuel taxes to be implemented at the regional or local levels to address transportation funding in areas where it is needed most. Voters tend to trust local governments over state or federal governments. Counties in the Chicago metropolitan area have the authority to implement their own fuel tax. Some counties there currently raise several million dollars annually for road improvements, and other jurisdictions can enact a fuel tax if they desire. In an era of declining federal highway funding and uncertain state-level action to raise sufficient revenues, regional fuel taxing authority may be desirable. Metropolitan areas in Missouri could choose to raise additional funds to address the most-stressed parts of Missouri's road network.

Opportunities:

- **Public-Private Partnerships** — Increased use of public-private partnerships for road improvement and expansion projects, as well as design-build contracts, can improve the speed and cost effectiveness of road work.
- **Voter Education** — Outreach to voters should stress the crucial importance of Missouri's road and network to the economy and jobs. Eventually, another attempt at a fuel tax increase must be made.
- **Funding Diversification** — In addition to a fuel tax increase, over the long term Missouri's road funding stream needs to become more diverse. There should be a larger contribution from vehicle and road fees, tolls, taxes (and perhaps new sources such as internet sales taxes), and they should be indexed for inflation.

Stakeholder Comments on Missouri's Roads and Bridges:

Private and public sector interviewees widely understand Missouri's current situation, calling the "extensive statewide network" of roads a big asset but expensive to maintain. In addition to the 34,000 mile state road system, the local road network totals 97,000 miles and is particularly valuable for supporting agriculture. Missouri has numerous major bridges over 1,000 feet long, and many are 60 to 90 years old. Many stakeholders believe that the current funding system is not sustainable, but rather more of a "band-aid." New revenue sources are necessary to maintain the current infrastructure and to make any competitive improvements.

Descriptions regarding the quality and convenience of Missouri's highways vary depending on location. Logistics and real estate experts in St. Louis call the metro highway system "incredible" and the best that they've experienced. Main arteries are described as "very good," with logistics clients reporting little trouble moving around the region. Multiple interviewees stress the importance of Interstate 70 as a "primary east-west logistics corridor" for the United States.

Similarly, those in Kansas City praise the relatively low congestion and ease of movement in a region with the most freeway lane miles per capita of any metro in America. The extensive system is termed a "big selling point." One commercial real estate executive says that they might hear complaints about the roads from the general public, "but not from our business clients."

The situation is viewed differently outside of the two major metropolitan areas. Small city stakeholders believe that roads and bridges are in poor condition and potentially dangerous. New interstate spurs, improved interchanges and new funding options all are needed.

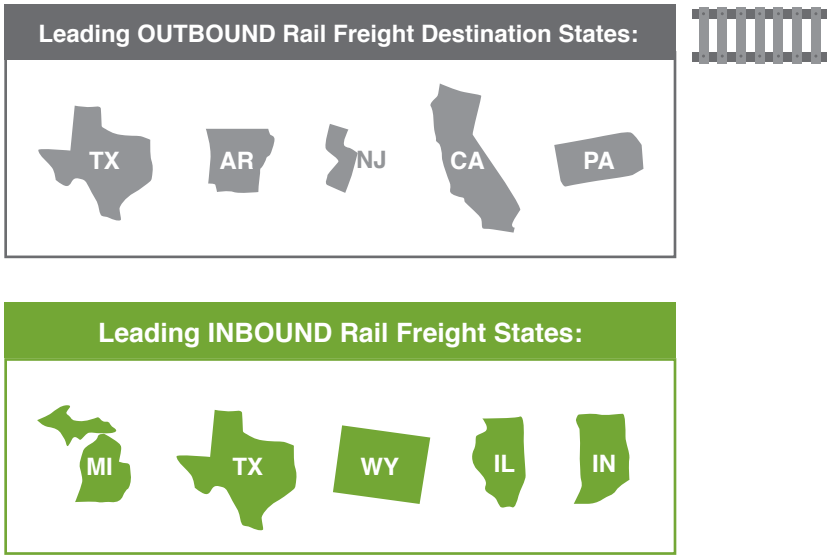
Missouri's Rail System

Few states have the rail power that runs through Missouri. Kansas City and St. Louis are ranked as the second- and third-largest rail hubs in America, based on number of freight trains daily.[xxxv] They rank first and second in terms of tonnage. Missouri's railways are important assets for freight movement and the logistics industry. The rail network is the 10th largest in America, with about 4,800 miles of track. Six of the nation's largest Class I freight rail operators are present in Missouri. (Illinois claims to be the only state with all seven Class I operators.)[xxxvi]

Missouri's Class I Rail Freight Operators:

- Burlington Northern Santa Fe Railway (BNSF)
- Canadian Pacific Railway (CP)
- CSX Corporation (CSX)
- Kansas City Southern Railway (KCS)
- Norfolk Southern Railway (NS)
- Union pacific Railroad (UP)

According to the 2017 update of the Missouri Freight Plan, rail freight generates $52 billion in direct economic output annually in Missouri. Motor vehicles, auto parts and cereal grains are the dominant products for rail freight from Missouri, making up 54 percent of the total value shipped. Leading outbound and inbound state trading partners are listed below.[xxxvii]



Much of the rail freight system is privately funded and maintained, and companies continue to invest in Missouri. ASCE reports that between 2016 and 2017, BNSF spent $140 million in Missouri on increasing operating efficiency, maintenance and safety, and Union Pacific spent $49 million.[xxxviii]

Public funds are at times used to make system improvements related to increased capacity, enhanced intermodal options and facilities, reduced congestion (rail siding construction), grade crossing improvements and other safety improvements.

ASCE's *Infrastructure Report Card* for Missouri (2018) lists a number of state funding programs for rail but indicates that many are "oversubscribed and unfunded."

It recommends that Missouri create a freight rail economic development grant program found in other competitor states. Finally, it suggests developing more public-private partnerships for rail projects and notes that Missouri has two suitable financing vehicles for these. MoDOT provides for partnerships via the establishment of Transportation Development Districts.

Competition for rail freight hubs in the Midwest is fierce, and it comes particularly from Chicago. Chicago is the nation's largest and busiest rail freight hub, seeing about 500 freight trains per day. It is also the third-largest intermodal container and trailer port in the world, behind only Singapore and Hong Kong.[xxxix] An Association of American Railroads article states that 25 percent of all U.S. rail freight traffic and 46 percent of all intermodal traffic begins, ends or passes through Chicago. [xl] A 2015 study estimated the value of goods in rail transit through Chicago annually at $935 billion.[xli]

Chicago's success has caused its own problems — as well as opportunities for competing rail and intermodal hubs. The largest rail freight hub in the nation is also "the largest U.S. rail chokepoint."[xlii] Another article calls it "an expensive and dangerous bottleneck."[xliii] Chicago is working to solve the bottlenecks that cause freight delays, particularly through the ambitious $4.4 billion CREATE (Chicago Region Environmental and Transportation Efficiency) program that began in 2003. CREATE is funded through multiple private and public sources.

Missouri's State Rail Plan dates from 2012. At the time, the state's total annual rail tonnage ranked fourth in the nation. Within the next 20 years, the State Rail Plan projected a 47 percent increase in outbound rail freight and a 40 percent increase in inbound freight. It suggests that the limited amount of state programs and funding for freight rail development are major challenges, and public-private partnerships are a significant opportunity.

Recommendations of the plan related to freight include the following:

- Expand the State Transportation Assistance Revolving Loan Fund
- Develop a State Freight Rail Economic Development Grant Program
- Encourage intermodal rail access at Missouri ports

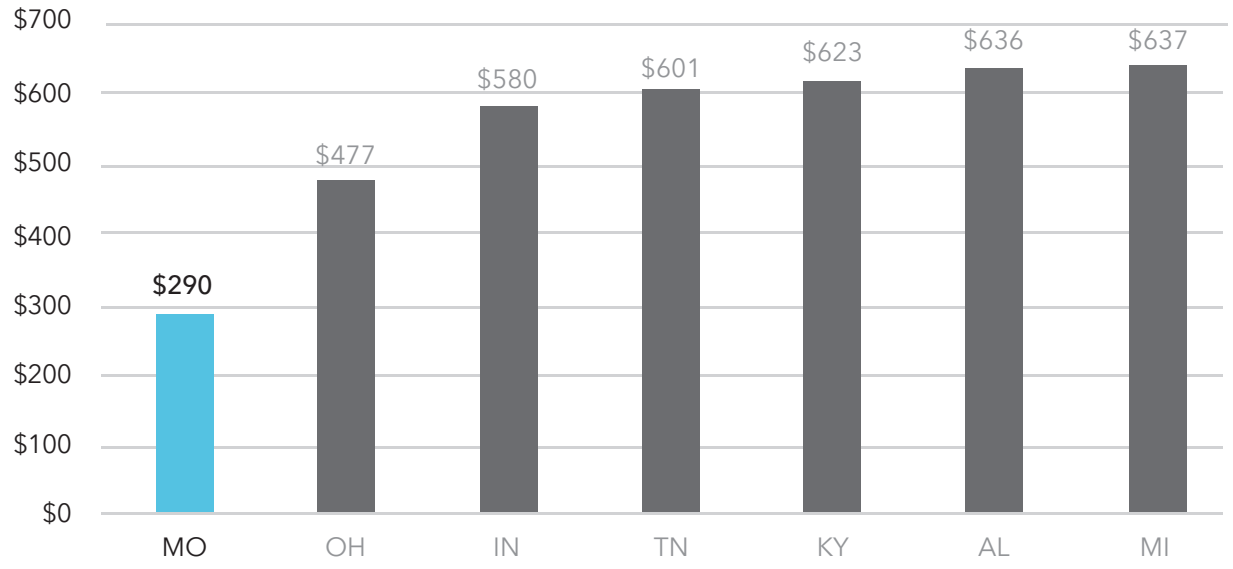
Opportunities:

- **Freight Rail Economic Development** — Missouri could borrow from existing incentive programs in Michigan and North Carolina that promote the creation of rail spurs and better industrial rail access.
- **Intermodal Facilities** — Development of the Container on Vessel (COV) waterways initiative could be complemented by more rail intermodal facilities at Missouri river ports.
- **Public-Private Partnerships** — Promote existing financing vehicles (Transportation Corporations and Transportation Development Districts) to generate better use of these innovative ways to finance and implement improvement projects.

Competitive Standing

Cost of Shipping One Motor Vehicle from Key States to Los Angeles

(Missouri State Freight Plan, Largely by Rail 2014)



Stakeholder Comments on Missouri's Rail System:

Numerous logistics real estate experts and other stakeholders mentioned the state's rail system — and specifically the hubs in Kansas City and St. Louis — as a top competitive strength, helping to support the logistics industry and attract new businesses to Missouri. Among less populous areas, some stakeholders worried that good industrial land sites are scarce, especially sites with rail access. An incentive program or public-private cost-sharing program could help bring rail spurs to more development sites.

Missouri's Ports and River Transportation

Although comprising a small amount of the overall volume of goods shipped throughout Missouri (4 percent), river barge traffic offers an important mode of freight movement to complement truck, rail and air freight. This can give Missouri a "strategic logistical advantage" for some shipping needs.[xliv] River transportation in Missouri is particularly well-suited to high-volume commodities such as coal, sand and gravel, scrap metal, soybeans, corn and fertilizer.[xlv] River freight is often the lowest-cost alternative.

The ASCE Infrastructure Report notes that there are over 1,050 miles of navigable waterways on the Mississippi and Missouri rivers, ranking Missouri 10th in the nation. It has a "good" port system of public ports and more than 200 private terminals, offering "connections to much of the state's expansive freight network."[xlvi] The port system supports over $100 billion in gross state product annually.[xlvii]

According to the U.S. Bureau of Transportation Statistics, using Army Corps of Engineers data for 2018, the Port of St. Louis ranks 19th nationally among all ports (coastal and inland) in tonnage of shipments. The Port of South Louisiana ranks first. Among other leading inland (river) ports, Cincinnati / Northern Kentucky ranks 18th.[xlviii]

MoDOT states that the Port of St. Louis is the third-largest inland (river) port by tonnage and the second largest by trip-ton-miles.[xlix]

Missouri's river freight system has many strengths. Most Missouri ports have capacity to grow, including available industrial development sites. Many ports have good intermodal connections to major highways and Class I railroads. Three ports have container on barge capabilities.

The Panama Canal expansion project, completed in 2016, increased demand for freight traffic on U.S. inland waterways. The project enabled more ships and larger ships to pass through the Canal, making access to Gulf Coast ports easier. Missouri Port traffic increased 78 percent — to about 4 million tons — from 2011 to 2016. Shipments in 2016 were valued at over $12 billion. Missouri ports have "sufficient" capacity for this and additional growth, and "adequate" intermodal access to highways, Class I railroads and major utility services.

However, funding for regular operations and maintenance as well as capital projects "continues to be a challenge." Federal projects for lock and dam repairs and important lock improvements have been scheduled but not been made a reality.[l] The "vast majority of the locks and dams located on the Mississippi River were constructed in the 1930s and are considered beyond their 50-year design life." Five locks have 600-foot chambers, which require many barge tows to break up in order to navigate the lock, thus causing significant delays. Modern 1,200-foot chambers eliminate these delays.[li]

Most smaller ports have little or no local funds with which to match potentially large and important federal grants.

On the Mississippi River, funding shortfalls for the U.S. Army Corps of Engineers to maintain the waterway are "common," and "Congressional appropriations are inconsistent."[lii]

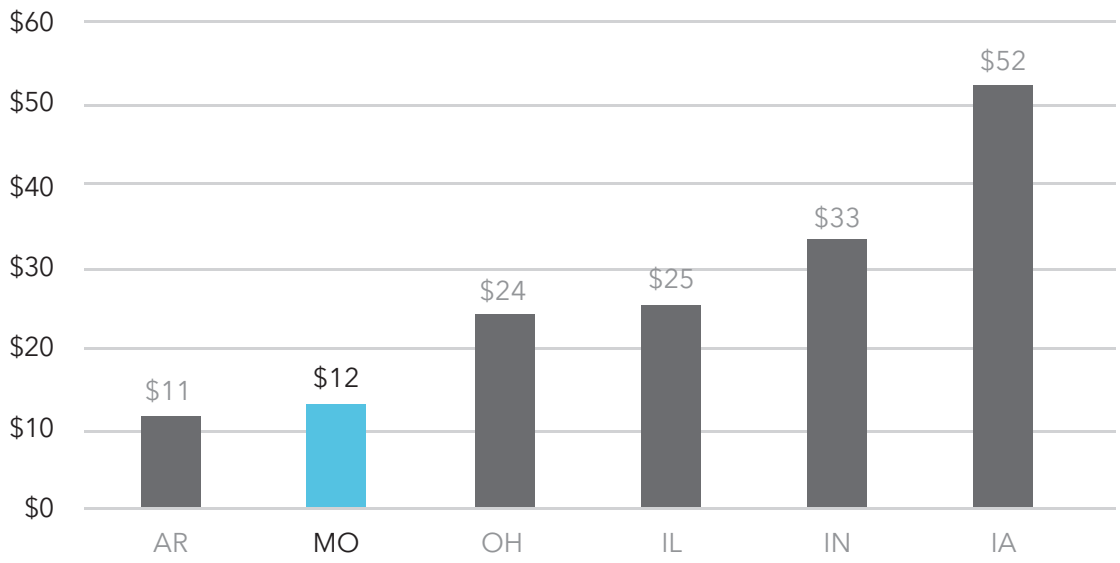
Among Missouri ports, the Port of St. Louis is responsible for 89 percent of the port systems total impact on gross state product. However, at the St. Louis Municipal River Terminal "it is hard to assemble suitable developable sites," and "there is not much vacant or developable land near to the facility, which limits additional storage for containerized needs."[liii]

The Missouri River is free-flowing without locks and dams with unreliable depths that can limit barge season from April to November. The Mississippi south

Competitive Standing

Cost of Shipping One Ton of Soybeans from Key States to New Orleans

(Missouri State Freight Plan, Largely by Barge 2014)



of St. Louis sees periods of low water and flooding that result in reduced cargo movements. Overall, the "river system has limited reliability as a result of many complex dynamics that come into play."[liii]

Competition is also growing. An increasing source of competition is a different kind of "inland port," the growing number of inland truck-rail intermodal facilities connected to a coastal port. A notable new example is the Appalachian Regional Port in northwest Georgia, offering a direct, 388-mile rail connection to the Port of Savannah.[liv]

Opportunities:

- **Container on Vessel** — To create even better economies of scale, groups are studying the creation of larger river vessels to transport containerized goods on the Mississippi to and from the Port of Plaquemines, Louisiana. This concept is termed Container on Vessel, or COV. Plaquemines is benefitting from the Panama Canal expansion allowing larger vessels to access Gulf Coast ports. A proposed vessel could carry up to 2,500 containers at speeds twice that of current barges. Delays at West Coast ports, truck driver shortages and driver work regulations make river traffic increasingly competitive.

A proposed COV river port hub in Herculaneum, Missouri, south of St. Louis would be served by spoke distribution routes in the Midwest.[lvi] Several Missouri ports have entered into a Memorandum of Understanding with

the Plaquemines port including a five-year commitment with joint marketing and exchange of data.[lvii] Larger and faster vessels could also offer more potential to move refrigerated goods. Shipping value-added food products that are refrigerated could grow Missouri's economy faster than movement of traditional bulk products.

- **Other Funding Sources** — Late in 2018, Southeast Missouri Port near Scott City won a $19.8 million BUILD grant from the U.S. Department of Transportation. The Southeast Missouri Port will use the funds to create a rail "double loop" configuration and new barge load-out system, which could lead to "increase(d) barge tonnage dramatically going out."[lviii]

Some Missouri ports are looking into applying for Advanced Industrial Manufacturing (AIM) Zone designation, by which they could capture 50 percent of state withholding taxes from new jobs created at a port and reinvest that revenue for improvement and expansion projects. AIM Zones were authorized by the Missouri legislature in 2016.

Stakeholder Comments on Missouri's Ports and River System:

Stakeholders in the St. Louis area noted the option of shipping via Mississippi River barges as a "real asset" and a low-cost option for suitable products. Being the northernmost ice-free port on the Mississippi is a competitive advantage. Elsewhere, logistics experts in the Jefferson City region believe that the market could benefit from locating a new Missouri River port there. The Heartland Port of central Missouri was approved in 2018 and in July 2020 the port authority was given 116 acres in Jefferson City on which to develop the new port.

One stakeholder noted that more consistent funding of water freight infrastructure overseas is allowing other countries to get ahead. For the global soybean trade, nations like Brazil are projected to increase market share from investments that better facilitate soybean exports.

Missouri's Air Freight System

Like most other states, air freight makes up the smallest piece of Missouri's overall freight puzzle — less than one percent of annual tonnage and value, according to the 2017 Missouri State Freight Plan. The 2018 Infrastructure Report Card from ASCE details an economic impact from Missouri's airports of $11.1 billion, or 4.3 percent of the gross state product.[lix]

Within Missouri's aviation system are 99 public use general aviation and 12 commercial airports. Kansas City International, Lambert–St. Louis International and Springfield–Branson National are Missouri's freight-significant airports.

According to 2019 data from the Federal Aviation Administration, Missouri's two largest commercial airports rank 45th and 71st in cargo shipments by weight. Kansas City International (MCI) ranks 45th with 576 million pounds shipped, an increase of 1.2% over the previous year. St. Louis Lambert International (STL) ranks 71st with 404 million pounds shipped, a 10.5 percent increase over the prior year. The Springfield-Branson National Airport ranks 112th. FedEx has a facility there.[lx]

Memphis International is the number one cargo airport in the U.S., shipping more than 40 times the volume of Kansas City International. The majority of Memphis cargo traffic is because of the FedEx World Hub operations located there. In 2020, millions of square feet of new warehouse space are being added at major Midwestern cargo hubs in Memphis, Cincinnati/ Northern Kentucky, and Fort Worth. The users driving these expansions include FedEx, Amazon, UPS, Nike, and Wayfair.

These Midwestern and Rocky Mountain airports rank among the top 50 air freight shippers in America:

2019 Cargo Shipment Rank by Weight

Rank	*Airport*	*Weight in billions of pounds*
1	Memphis International	24.3
3	Louisville Muhammed Ali	15.6
6	Cincinnati/Northern Kentucky	7.2
7	Chicago O'Hare	6.5
8	Indianapolis International	5.3
9	Dallas-Fort Worth International	4.7
18	Houston – George Bush	2.4
19	Chicago/Rockford International	2.3
22	Denver International	1.6
27	Columbus – Rickenbacker	1.2
29	Salt Lake City International	1.2
30	Minneapolis – St. Paul	1.1
33	Fort Worth Alliance	1.0
34	San Antonio International	0.92
36	Detroit Metropolitan Wayne	0.89
42	El Paso International	0.63
44	Milwaukee General Mitchell	0.60
# 45	**Kansas City International**	**0.58**
49	Pittsburgh International	0.56

Source: CY 2018 Final All-Cargo Landed Weights. Federal Aviation Administration.

Improvements to freight-significant airports are largely funded through the Aviation Trust Fund and from landing fees at the individual airports. As with other infrastructure categories, airport funding amounts fall short of funding needs. The ASCE report card states that MCI has a five-year funding request of $260 million, of which 75 percent — $195 million — is a request for federal funds. Most of the funds would be used for apron improvements associated with the new terminal project. "On average, MCI has been receiving approximately $15 million per year from the FAA, so there will be a large funding gap."[lxi]

St. Louis Lambert's five-year project needs are much closer to its annual level of funding from the FAA.

ASCE recommendation's for Missouri's airports include:

- Prevent State Aviation Trust Funds from being diverted to other uses to make up for statewide budget shortfalls.
- Increase the cap on FAA Passenger Facility Charges to fund improvements at the state's primary commercial airports.
- Federal and state aviation agencies should continue to provide funding to support runway and taxiway improvements.

Opportunities:

- **Expansion in Kansas City** — In 2019, Kansas City's MCI broke ground on a new, million square foot terminal to replace the three existing terminals that were built in 1972. The project is projected to be completed in early 2023. Airport media releases indicate that it is the largest infrastructure project in the city's history.[lxii] Commercial real estate firm Jones Lang LaSalle reports that the new terminal is "spurring collocated intermodal distribution development."[lxiii]
- **Air Cargo Expansion in St. Louis** — For STL airport, the biggest plan to improve air freight operations may be a private proposal to redevelop a historic, on-site Curtiss-Wright aircraft manufacturing complex into an air cargo facility. The $56 million first phase would add 1.1 million square feet of cargo space. Originally approved in 2015, the project stalled but may be back on track. A representative of the developer says he expects the facility to "put St. Louis on the map as an international logistics air hub," pointing especially to trade with Mexico.[lxiv]
- **The Midwest Cargo Hub Commission** — The Midwest Cargo Hub Commission, a coalition of air freight stakeholders, sees the future of air freight in taking advantage of the world's increasing focus on time-sensitive, high-value shipments. Established in 2008, the commission aims to increase international connections from STL airport for both air freight and passenger traffic. It believes that improved air connectivity will position St. Louis to increase international trade, attract more manufacturing and final assembly facilities, and lead to greater foreign direct investment in the region.

  The Midwest Cargo Hub Commission is currently working with Mexico to establish STL as the nation's second location for U.S. – Mexico dual customs clearance. The commission and St. Louis Lambert International have also worked together to create a new live animal penning system to promote livestock exports.

Stakeholder Opinion on Air Freight:

Some logistics experts note that air could grow as a viable mode, especially for lighter, high-dollar items due to a strategic Midwest location and lack of airport congestion.

F. MISSOURI'S TRANSPORTATION INNOVATION

Missouri's ability to act on technology and innovation trends will have as big an impact on the future of our transportation system as any factor. However, the 21st Century Missouri Transportation System Task Force warned that existing legislative statutes in some instances hampered the state's ability to act on transportation innovations. The Task Force recommended a review of all statutes and regulations to see if changes needed to allow autonomous vehicle use or driver-assist or connected-vehicle technologies. The Task Force also recommended the consideration of innovation-enabling legislation that would empower the private sector to develop market-based transportation solutions. To date, these recommendations have not been acted upon.

However, Missouri is not staying entirely on the technology sidelines. In 2019 a report was delivered by the Blue Ribbon Panel on Hyperloop, a bipartisan task force comprised of lawmakers, subject-matter experts and higher education and private sector representatives. The panel studied how to establish Missouri as a leader in tube-transport technology and identify potential funding and financing strategies for the innovative transportation system. The decision in the fall of 2020 to locate the hyperloop's first certification site and test track outside of Missouri is a setback, but does not rule out the potential for St. Louis-Columbia-Kansas City to become the nation's first commercial route.

In late 2019, the Missouri Department of Transportation and the University of Missouri System announced the formation of the Missouri Center for Transportation Innovation (MCTI). The vision for MCTI is to establish Missouri as a showcase and a clearinghouse for safe, accessible, sustainable and resilient transportation. It will increase Missouri's participation and influence in national research, perform practical research that can be implemented quickly, implement innovative technologies, produce future transportation engineers and create an atmosphere that develops faculty and staff at the university and at MoDOT. This collaboration holds a great deal of promise for Missouri.

VI. Recommendations

STRATEGIES, POLICIES, AND INVESTMENTS TO STRENGTHEN MISSOURI'S POSITION AS A LEADING LOGISTICS HUB

1. **Sustained and Dedicated Funding is Imperative for Future Competitiveness** — Current funding mechanisms and levels are outdated and not adequate to maintain the existing system and ensure safety. The current funding model is based on 1996 fuel tax levels and fees that were set in the 1970s. More robust funding is required to address the estimated $825 million in unfunded transportation priorities annually. No matter what the source, highway safety, maintenance and expansion call for dedicated funding at an increased level. A more diverse mix of sources – including driver license and vehicle registration fees, vehicle sales taxes, electric vehicle taxes, and perhaps internet sales taxes – would help make the funding stream more reliable. Taxes and fees should also be indexed for inflation to ensure that future needs are met.

2. **Support Study of State Authorization for Regional Fuel Taxing Authorities** — Study the merits of legislation that would allow voters to pass a local option fuel tax with a hold harmless provision that would protect existing state transportation revenue. Although critics warn it would hinder Missouri's ability to pass statewide initiatives in the future, some states and regions have successfully utilized this approach.

3. **Emphasize Multi-Modal Planning and Investment** — Not all markets can offer all four major shipping modes (road, rail, river, air), so Missouri must continue to invest in each as a competitive advantage.

   MoDOT's 2017 State Freight Plan uses an illustrative term, "*comprehensive freight corridors*," to describe its emphasis on multi-modal improvements. A strategic policy recommendation of that plan is to "cultivate a long-term focus to develop comprehensive freight corridors." MoDOT's 2020-2024 multi-modal funding program calls for $441.6 million in funding over five years. Of that, 64 percent is expected to come from federal sources and 36 percent from state funds. The biggest share is designated for projects in aviation and transit.

4. **Simplify and Promote Public-Private Partnerships** — The synergy created by public river ports and largely private cargo terminals is an example of joint investments to strengthen Missouri's logistics competitiveness. Other examples where even small incentive programs or matching funds could spur greater private sector investment include:

- The creation or improvement of access roads to connect industrial and logistics sites to public highways and interstates;
- Streamlining zoning, permitting, or other ways to incentivize new privately-funded cargo facilities at public airports;
- Incentives for new rail spurs to industrial sites, typically paid for by the private sector;
- State matching funds to help river ports obtain larger federal improvement grants;
- Government leadership and collaboration with innovative private sector initiatives like the hyperloop.

5. **Celebrate Collaboration** — As called for in the 2017 Missouri State Freight Plan, MoDOT should prioritize communication and collaboration with the state Department of Economic Development to "address specific freight transportation needs of targeted industries." MoDOT should also increase collaboration with regional economic development and logistics organizations such as KC SmartPort and the St. Louis Regional Freightway.

6. Collaborate with stakeholders to coordinate a **Statewide Voter Education Process about the importance of infrastructure** competitiveness for Missouri's economic and job prospects.

Recommendations for Highways:

7. **Prioritize Interstate Funding** — Invest in I-70 (and its urban loop connections) as one of America's most critical east-west freight corridors. I-44 is another critical interstate for Missouri. Keeping those interstates' condition and capacity as assets should be a top priority.

8. **Improve Interstate Interchanges and Spurs Across the State** — Several smaller metros noted inadequate existing interchanges, the need for new interchanges to encourage economic development, and the benefit of developing a new interstate spur to areas like Jefferson City. This would require significant funding and congressional approval.

9. **Create an Autonomous Vehicles Policy** — Colorado is an example of a state defining a policy for autonomous passenger vehicles and trucks, which increases certainty for logistics companies investing in the state. An alternative to developing state-level policy is for Missouri to lead the push for national policies on autonomous vehicles, eliminating a patchwork of state laws that can frustrate the shipping industry.

10. **Champion Innovative Approaches, such as the New TransAmerica Corridor** — Missouri, and the U.S., are in in need of a new transportation corridor to fit the needs of the 21st century. The Transamerica Corridor is the solution. It's not a traditional highway. It's a multi-faceted corridor that will set the new standard for how we transport people, freight, and even energy from coast to coast with minimal environmental impact. The corridor will provide jobs, modern transportation, and better infrastructure on both local and nationwide levels. Congressional funding for this has languished, however, the benefits of this project merit further analysis and engagement with our federal congressional delegation.

Recommendations for Ports and Rivers:

11. **Support the Proposed Container on Vessel (COV) Initiative** —Another public-private joint effort, and involving multiple states, the COV initiative could greatly strengthen the appeal of containerized river freight by reducing shipping times and adding economies of scale. It would likely increase the scope of goods for which river freight is the best alternative. Use of refrigerated shipping

vessels could increase Missouri's competitiveness in selling value-added products.

12. **Provide More Matching Funds for Federal Grants** — Even a modest program to help Missouri's ports (especially smaller ones) with the matching funds needed to apply for federal port grants could help ports capture much larger dollars for needed improvements and expansion.

Recommendations for Rail:

13. **Create a Freight Rail Economic Development Program** — As recommended by ASCE's Infrastructure Report Card, Missouri could increase participation in rail infrastructure improvements that are now largely made by the private sector. Two examples of freight rail economic development programs:

    - Michigan DOT's Freight Economic Development Program – Low-interest loans to businesses for rail infrastructure such as spur tracks. Loans have a 5-year repayment period but can be forgiven (converted to grants) if the company meets agreed-upon shipping levels each year.

    - North Carolina DOT's Rail Industrial Access Program – Grants to a new or expanding company of up to 50 percent of a project's cost and up to $200,000 per project. Grants are to help construct or refurbish rail spur tracks.

Recommendations for Air:

14. **Provide State Incentives to Increase High-Value Air Freight and Passenger Flights** — Some states have boosted air connectivity at their major airports (for both air cargo and passenger flights) by providing incentives for expanded service. Airports in Indianapolis, Memphis, and Pittsburgh have benefitted from legislative policies to support increased air service.

15. **Support Efforts to Increase International Air Cargo Connections and Trade Activity** — Establishing a Midwest Air Cargo Hub to improve direct air freight connections with major markets (such as Mexico) could improve the prospects for new and expanded industry as well as increased foreign direct investment (FDI).

    Publicizing data on air cargo shipped to and from MCI and STL by value, in addition to weight, will help demonstrate the potential for time-sensitive, high-value items to be shipped by air. Increased marketing of these airports' capacity, strategic locations, and the new terminal at MCI can help to elevate Missouri's position as a Midwestern air cargo hub.

Recommendation to Spur Site Redevelopment:

16. **Develop New Environmental Liability Policies to Promote Redevelopment** — With available land becoming scarce, and the increased focus on locating logistics facilities in the center of metro areas, there is more interest in redeveloping older industrial and commercial sites. Environmental liability concerns can be a major stumbling block to urban redevelopment. Programs such as Kansas' Certificate of Environmental Liability Release (CELR) and North Carolina's Brownfields Program release a buyer from liability for pre-existing site contamination that they did not cause.

    This increased certainty for site redevelopers can spur higher and better use of old industrial properties. Redevelopment of urban sites can positively address many issues: jobs, tax base, urban blight and crime, to name a few.

    Other policy initiatives to incentivize infill development could include urging local governments to pre-zone land for logistics facilities, particularly adjacent to STL and MCI airports and the Port of St. Louis.

Recommendations for the Infrastructure Workforce:

17. **Generate Multiple Approaches to Workforce Supply & Quality** — For logistics businesses, as well as manufacturers and many other industries, the availability and skills of the labor force are now

critical issues. Demographic trends in America suggest that a tight labor market might continue for years to come. Missouri has a reputation for a robust labor supply in logistics, one with good skills and work ethic. But it cannot take these strengths for granted. Kansas City community colleges and economic development partners are taking a three-pronged approach for improving worker availability and quality:

- Helping connect workers to jobs though transportation initiatives such as RideshareKC
- Helping existing workers to update their skills or transfer skills between occupations
- Improving student awareness of logistics and manufacturing careers, starting in middle school

The St. Louis region boasts more workers employed in the manufacturing sector than all peer cities in the Midwest. Accordingly, six area institutions offer 16 certificate and degree offerings in the manufacturing, transportation and logistics fields.[lxv] Fontbonne University and St. Louis University offer certificates in Supply Chain Management, and nearby Lewis & Clark Community College and East Central College offer Logistics Management certificates.

At Ranken Technical College, the new Manufacturing Incubator/ Training Center will train 80 to 100 students at a time in a work-atmosphere cell including logistics training. Partners in developing the new facility include the City of St. Louis and local industry. Workforce2030 emphasizes the need for regional sector strategies. Logistics is a vital sector to many regions of Missouri. Investment in specialized skills critical to logistics such as diesel mechanic, truck driving and quality control can strengthen the state's competitive position for years to come.

Recommendations for the Future:

18. **Continue to Explore New Technologies Such as St. Louis to Kansas City Hyperloop** — Although it is early in the development stage, the hyperloop concept would dramatically reduce travel times from St. Louis to Columbia and Kansas City, effectively combining them into one metropolitan area. This could offer great advantages for increasing labor availability, moving goods and people, reducing road congestion, and advancing tourism. In addition, a commitment to hyperloop development would place Missouri back in a leadership position for logistics infrastructure nationally and internationally. Missouri should focus on recruiting private funding and removing unecessary regulatory burdens to facilitate development.
19. **Lead the Nation in the Use of Predictive Analytics** — Using analytics to anticipate congestion and capacity constraints across shipping modes can improve system performance as well as safety. Analytics can also be used to research product origins and destinations, allowing Missouri to target investments to become more competitive in logistics, nationally and globally.
20. **Promote the State's Non-Physical Assets** — Missouri assets such as a AAA bond rating and a low tax structure are strengths that can be marketed as infrastructure to support a successful business environment and economy.
21. **Reuse Existing Assets and Re-Invest** — Missouri is studying Australia's concept of "asset recycling," where it evaluates existing assets and determines when their value should be unlocked and deployed elsewhere. For example, an older government office building or parking deck could be sold or leased to a private party, with the proceeds re-invested to address the greatest infrastructure needs.
22. **Foster a Culture of Innovation** — Missouri can leverage cutting-edge research and workforce development to advance our infrastructure needs through partnerships such as the one between MoDOT and the University of Missouri System to create the Missouri Center for Transportation Innovation.

VII Appendix

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