



LRTMP

Long-Range
Transportation
Plan

Demographics, Socioeconomics and Travel
Trends

DRAFT

Introduction



The state of Missouri’s transportation system is a critical resource that:

- **Supports the state’s economy, communities and quality of life.**
- **Provides residents with access to jobs, schools, healthcare and essential services while connecting businesses to suppliers and customers.**
- **Helps visitors reach destinations across the state, reinforcing the state’s role as both a regional hub and a national connector.**

A central step in developing the Long-Range Transportation Plan (LRTP) is understanding the demographic and socioeconomic forces that influence transportation needs. Where people live, work and carry out daily activities shapes the demand placed on the system.

This chapter examines existing and

emerging trends including changes in population, employment, income, education and household characteristics to provide a foundation for forecasting future conditions and planning transportation investments.

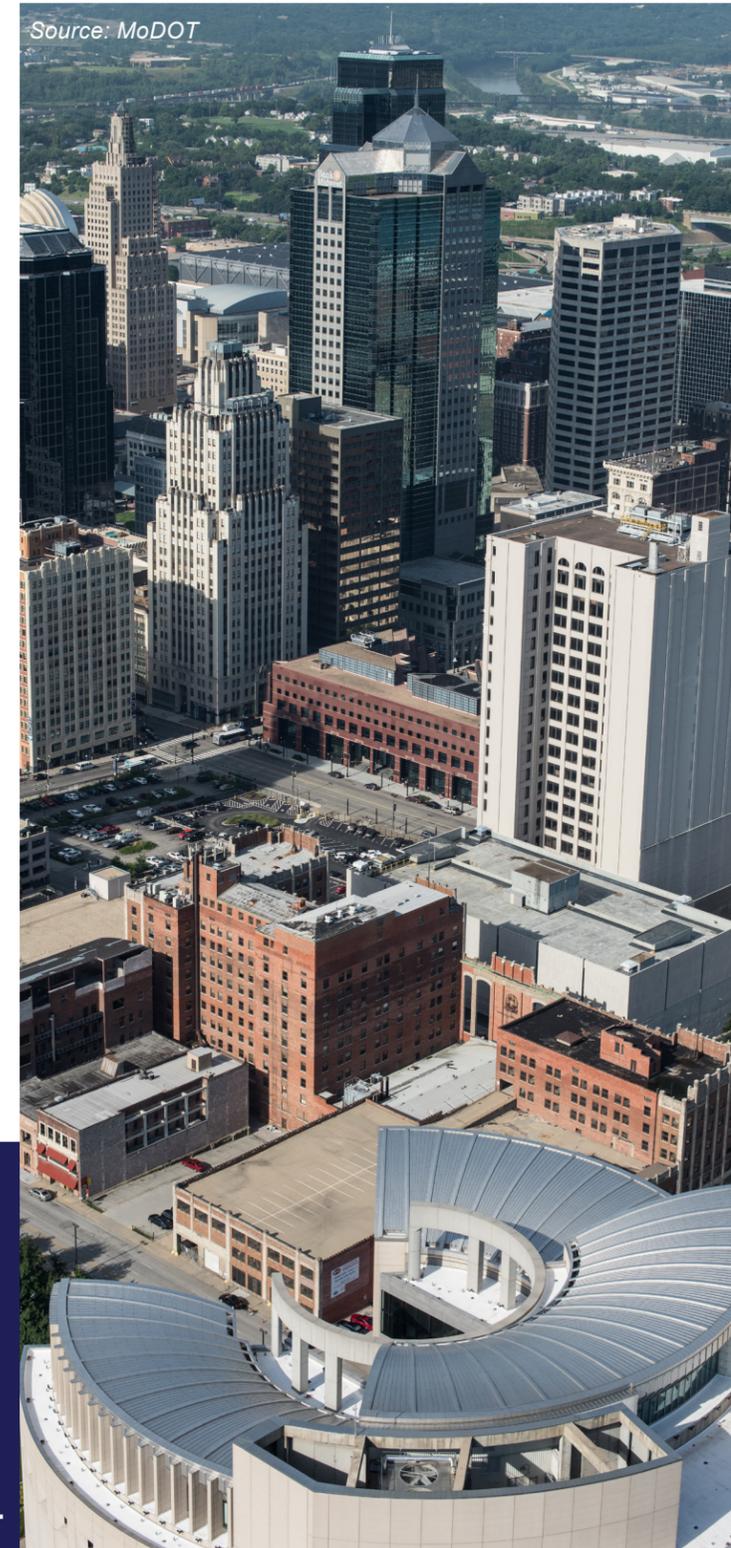
The state’s population is expected to continue growing, surpassing 6.7 million residents by 2050. Growth will not be uniform: urban and suburban areas around Kansas City, St. Louis, Springfield, Columbia and Cape Girardeau are projected to see the largest increases, while many rural regions will experience population decline.

At the same time, the state’s age profile is shifting. The number of residents over 65 will rise sharply through 2030, creating greater demand for mobility options beyond personal vehicles. Meanwhile, the proportion of young people is projected to decline, altering long-term patterns of school-related and household travel.

Economic activity also plays a defining role. The state’s gross state product (GSP) has grown steadily in recent years, led by industries such as real estate, manufacturing and healthcare. These sectors rely heavily on efficient freight movement and workforce commuting. Employment trends highlight continued growth in healthcare and professional services, while cross-border commuting in the Kansas City and St. Louis metropolitan areas underscores the need for regional coordination in transportation planning. Personal income levels, poverty rates and educational attainment vary across the state, shaping both access to transportation and reliance on it.

Changing travel patterns add another layer of complexity. Vehicle miles traveled (VMT) are projected to rise through 2050, intensifying concerns about congestion, safety and system maintenance. While most Missourians still commute by personal vehicle, remote work has increased significantly and alternative modes such as cycling are growing modestly. Shifts toward fuel-efficient and electric vehicles promise benefits but also create challenges for transportation funding, which has traditionally relied on motor fuel taxes.

By analyzing these interconnected demographic and socioeconomic dynamics, this chapter provides a clearer picture of the opportunities and constraints facing the state’s transportation system. These insights are essential to promoting future policies and investments to support a safe, reliable and resilient network capable of meeting the needs of a changing population and economy.



Demographics

People rely on and use the state's transportation system every day. The way people utilize transportation changes as their characteristics, needs and preferences evolve.

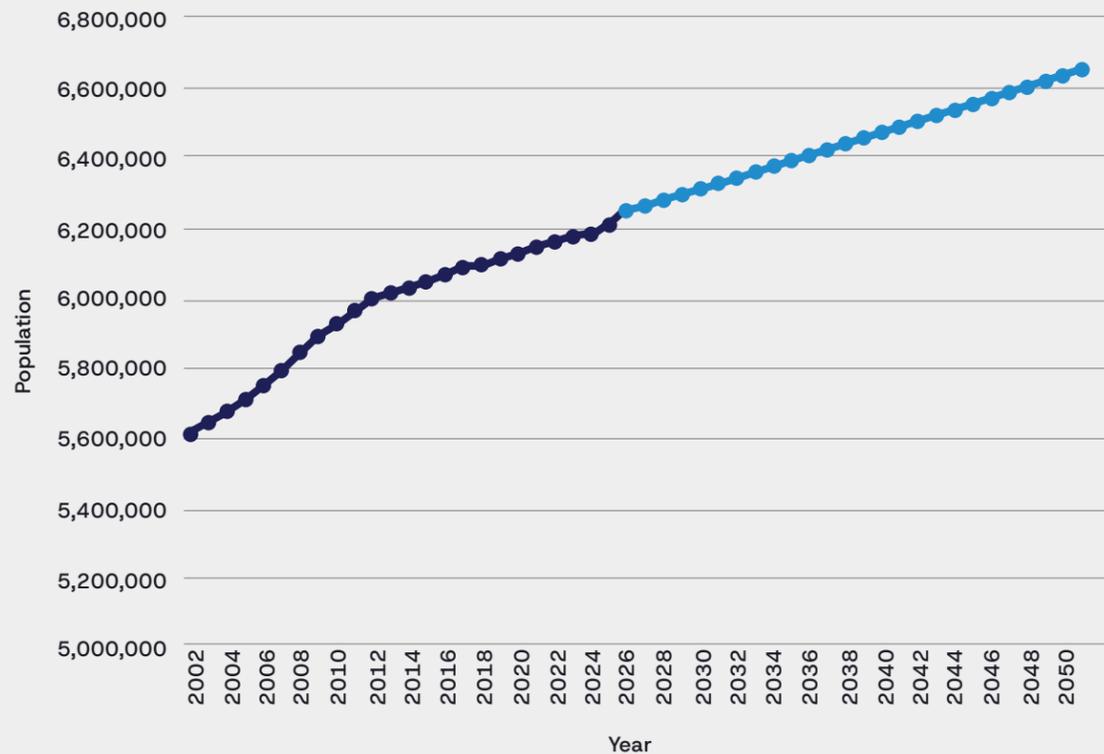
Transportation demand increases or decreases based on changes in demographics, like the age and size of the population.

Being able to forecast population size and age, among other characteristics, allows for improved ability to anticipate potential impacts on the transportation system and how the transportation system would need to adapt to address these changes.

Population Trends and Projections Through 2050

As shown in **Figure 1**, the state is projected to continue growing during the next 30 years, with a total population approaching 6.7 million people by 2050, compared to 6.1 million in 2024. The state is projected to surpass 6.4 million people by 2034. The projected growth rate remains positive and the state's net population increase will be primarily attributable to natural increases (births minus deaths) with slight gains in net migration. The state's projected population growth will continue to increase VMT throughout the state. With an increasing population and VMT, congestion, safety and maintenance will continue to be primary transportation concerns.

Figure 1 – Historic Population and Projected Growth in Missouri, 2002–2050



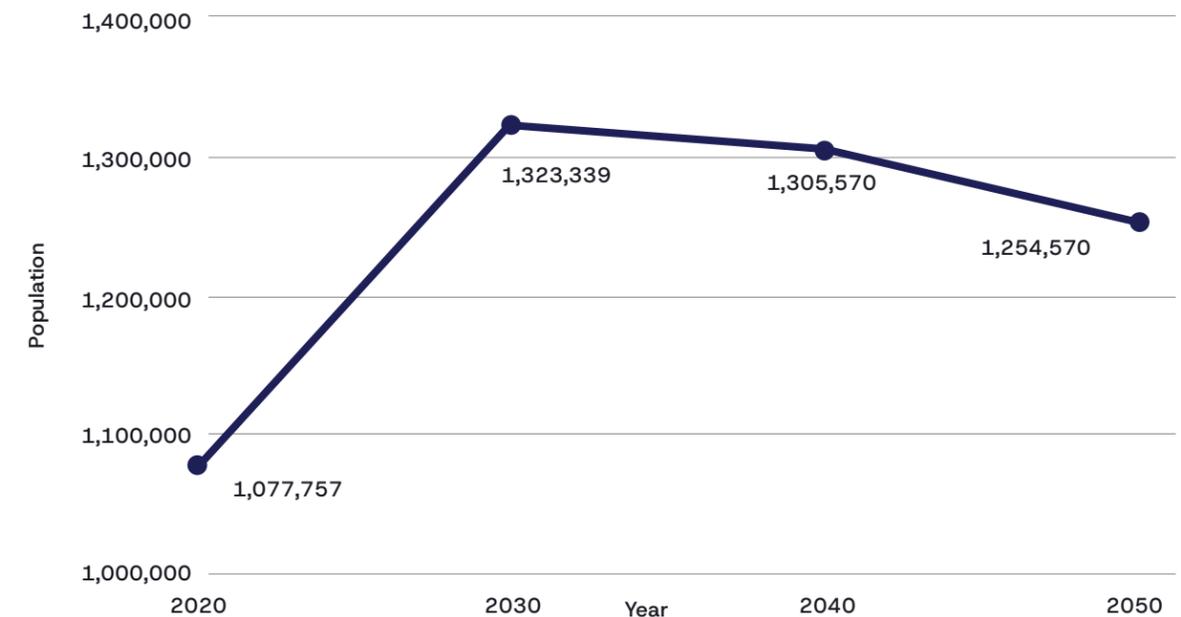
Source: Missouri Census Data Center (MCDC), State/County Annual Population Change, 2025.

Population Trend One – An Aging Population

The United States (U.S.) population of persons aged 65 and over is one of the fastest growing segments. Populations 65 and over reached 55.8 million, or 16.8% of the U.S. population, in 2020.¹ The state mirrors the national trend of an increasing population for this age group. In 2023, the state's 65 and over population was 17.4% of the state's total population.² It is estimated that by 2030 this group will represent more than one-fifth of Missourians (21%).³ However, it is projected the population of persons aged 65 and over will peak by 2030 with projections for 2040 and 2050 being lower, as shown in **Figure 2**.

Changes in the state's over 65 population will likely have the greatest impact on the state's travel demand of any changes seen among the various age groupings through 2030 with less impact between 2030 and 2050. This population is more likely to want or need to use transportation options other than single occupancy vehicles. In the near-term, as this age group increases, the state will need to explore how to best provide mobility options for the needs of those who decide to stop or reduce their driving. The added number of older drivers encourages investments in highway maintenance and makes safety paramount for the transportation system.

Figure 2 – Missouri's Projected Older Population, 2020–2050



Source: University of Virginia, Weldon Cooper Center for Public Service, National Population Projections, 2025.

¹ U.S. Census Bureau, "U.S. older Population Grew from 2010 to 2020 at Fastest Rate Since 1880 to 1890," May 25, 2023, <https://www.census.gov/library/stories/2023/05/2020-census-united-states-older-population-grew.html>.

² U.S. Census Bureau, "Demographic and Housing Estimates," American Community Survey (ACS), ACS 5-Year Estimates Data Profiles, Table DP05, 2023, <https://data.census.gov/table/ACSDP5Y2023.DP05?q=Missouri+population&q=040XX00US29>.

³ Missouri Office of Administration, Division of Budget and Planning, "Population Trends," accessed June 5, 2025, <https://budplan.oa.mo.gov/demographic-information/population-trends>.

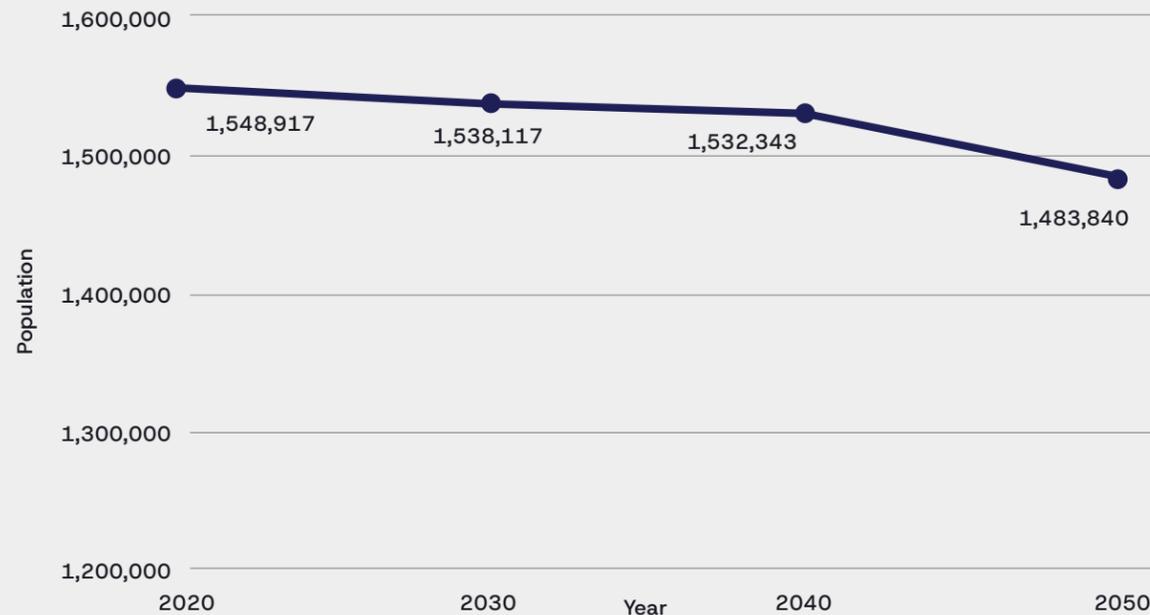
Population Trend Two – A Decreasing Younger Population

As shown in **Figure 3**, from 2020 to 2050 the state’s younger population, those ages 0 to 19, is projected to decrease at an average rate of 1.41%, with the biggest decrease occurring between 2040 and 2050. In the mid-2040s, the state’s younger population is projected to fall to under 1.5 million people. In 2023, the state’s population of people ages 0 to 19 was 25.1% of the state’s total population.⁴ It is estimated that by 2030 this group will drop to 24.5% of the state’s total population, still representing approximately

one-quarter of Missourians. Overall, the younger population is projected to decrease by approximately 65,000 by 2050.⁵

This projected decrease in the state’s younger population contrasts with the projected increase in the younger population nationally. Nationally, the younger population is expected to increase from 2020 to 2050, approaching close to 90 million people in 2050.

Figure 3 – Missouri’s Projected Younger Population, 2020–2050



Source: University of Virginia, Weldon Cooper Center for Public Service, National Population Projections, 2025.

⁴ U.S. Census Bureau, “ACS Demographic and Housing Estimates,” American Community Survey, ACS 5-Year Estimates Data Profiles, Table DP05, 2023, <https://data.census.gov/table/ACSDP5Y2023.DP05?q=Missouri+population&g=040XX00US29>.

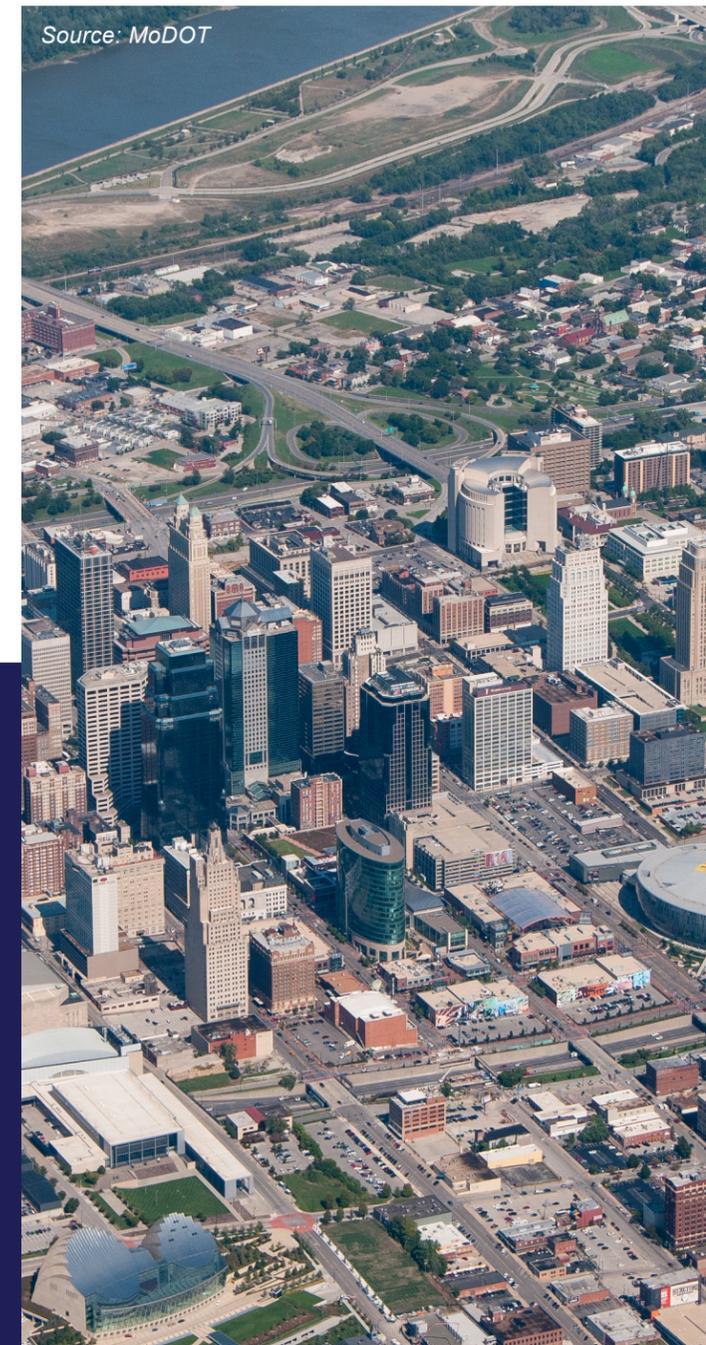
⁵ University of Virginia, Weldon Cooper Center for Public Service, “National and 50-State Population Projections,” 2024, <https://coopercenter.org/national-population-projections>.

Population Trend Three – Concentration of Population and County Trends

Since 2010, the population living in the state’s urban areas has increased to 65% of the state’s total population.⁶ The southeastern portion of the state experienced the greatest population decline. All population projections expect to see a continued migration of people moving from rural regions to urbanized areas, as shown in **Figure 4**.

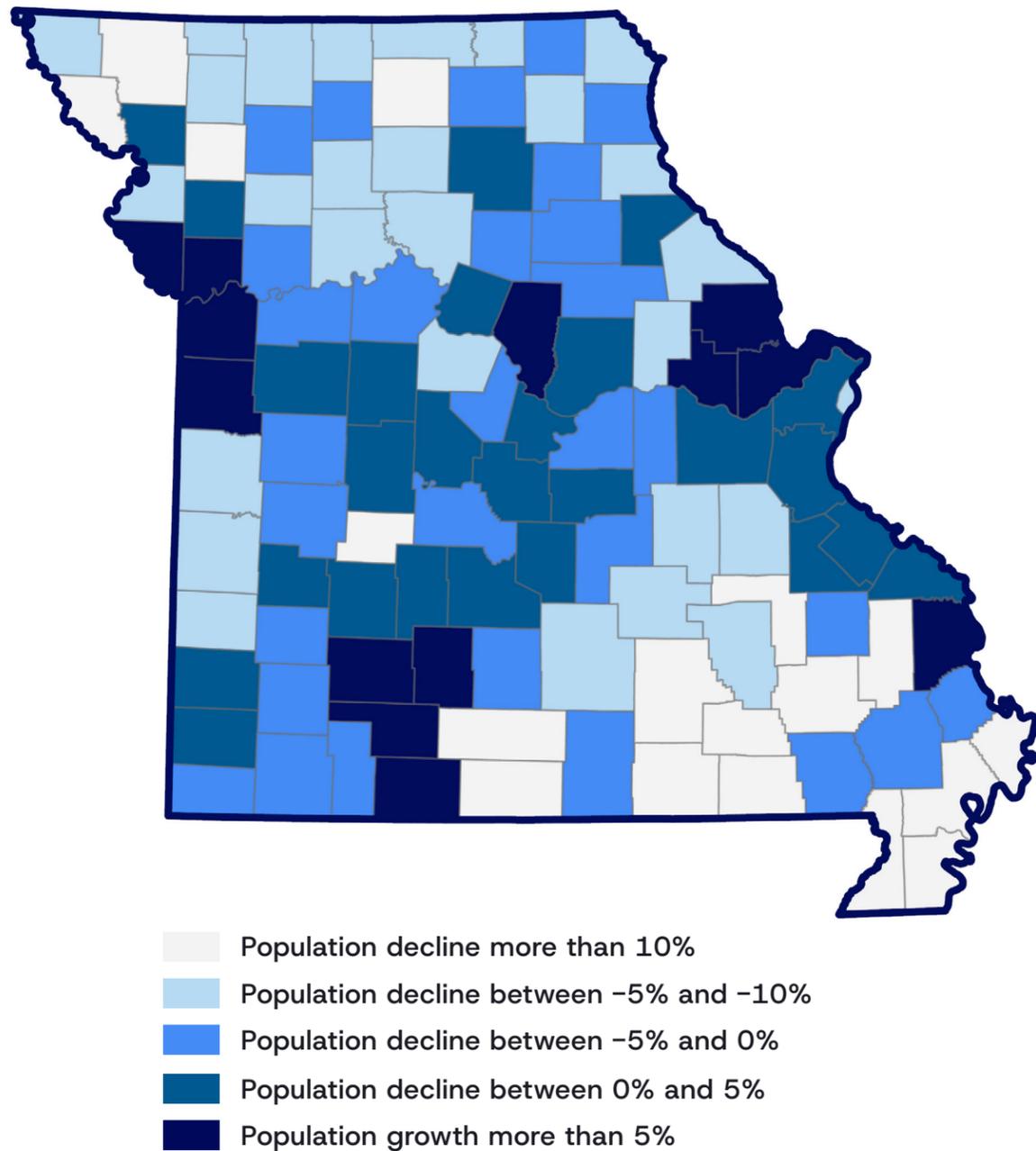
The suburbs and the counties surrounding the state’s major urban areas of Kansas City, Springfield and St. Louis, are the locations projected to have the highest population gains. Migration trends indicate a continuing decrease in population will occur in the rural areas located in the northern and southeastern portions of the state.

Census projections show the state’s 10 fastest growing counties are those within the Metropolitan Planning Areas of Cape Girardeau, Columbia, Kansas City, Springfield and St. Louis. Current growth patterns indicate the primary locations of population increases will be suburban and adjacent rural areas in those counties. The metropolitan planning organizations (MPOs) in Kansas City and St. Louis continue to adopt strategies prioritizing transportation system improvements that support their increasing populations. Travel in urbanized areas is expected to increase in tandem with an increase in statewide VMT, which will prolong periods of congestion and increased traffic during peak travel times.



⁶ MCDC, “Population Trends, 2010 to 2020,” accessed June 5, 2025, <https://mcdc.missouri.edu/applications/population/trends/report.php?y=2010-2020&g=29all&d=total>.

Figure 4 – Population Change by County, 2010–2020

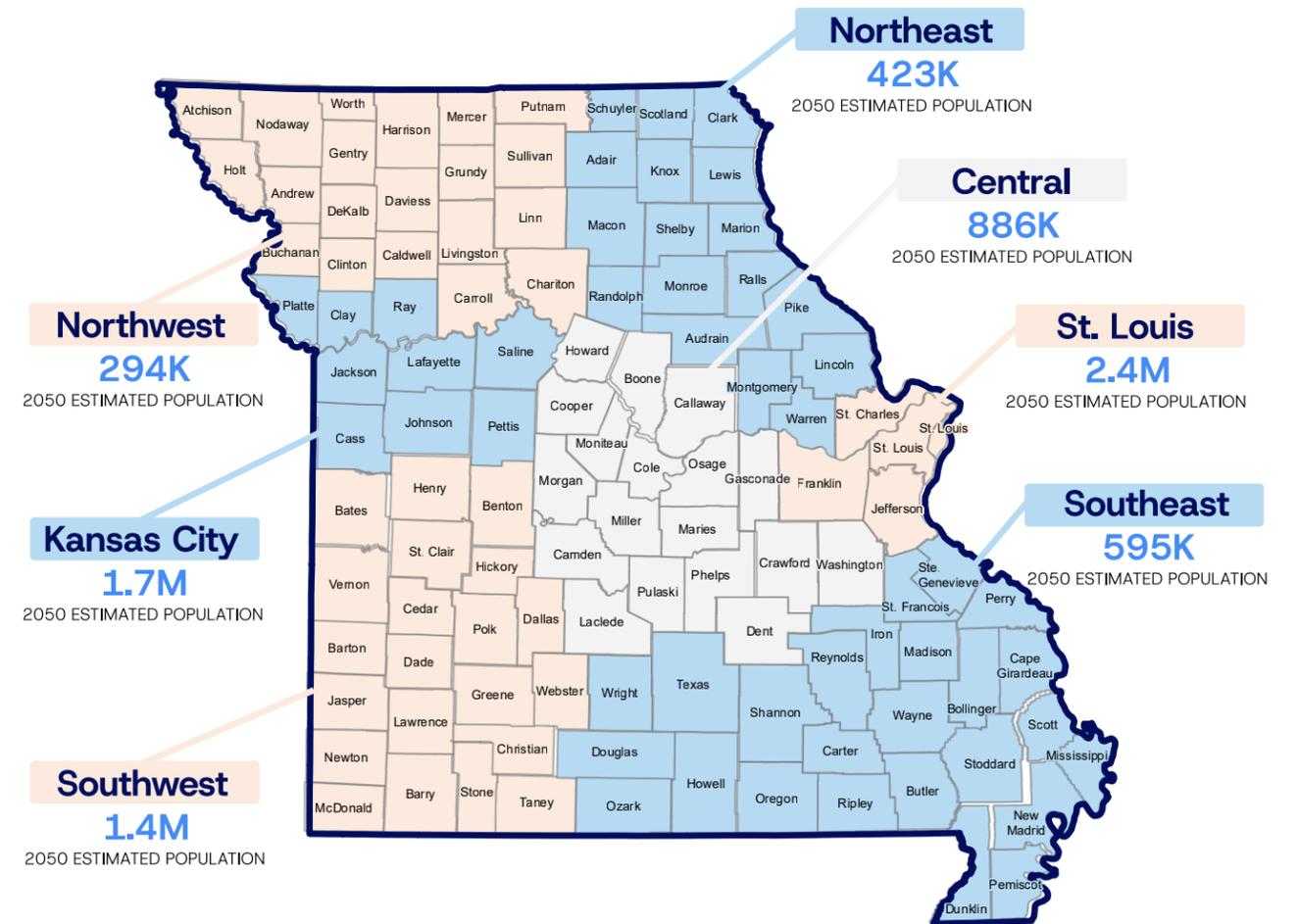


Source: HG Consult Inc. analysis of MCDC, State/County Annual Population Change, 2025.

Population Trends by MoDOT District

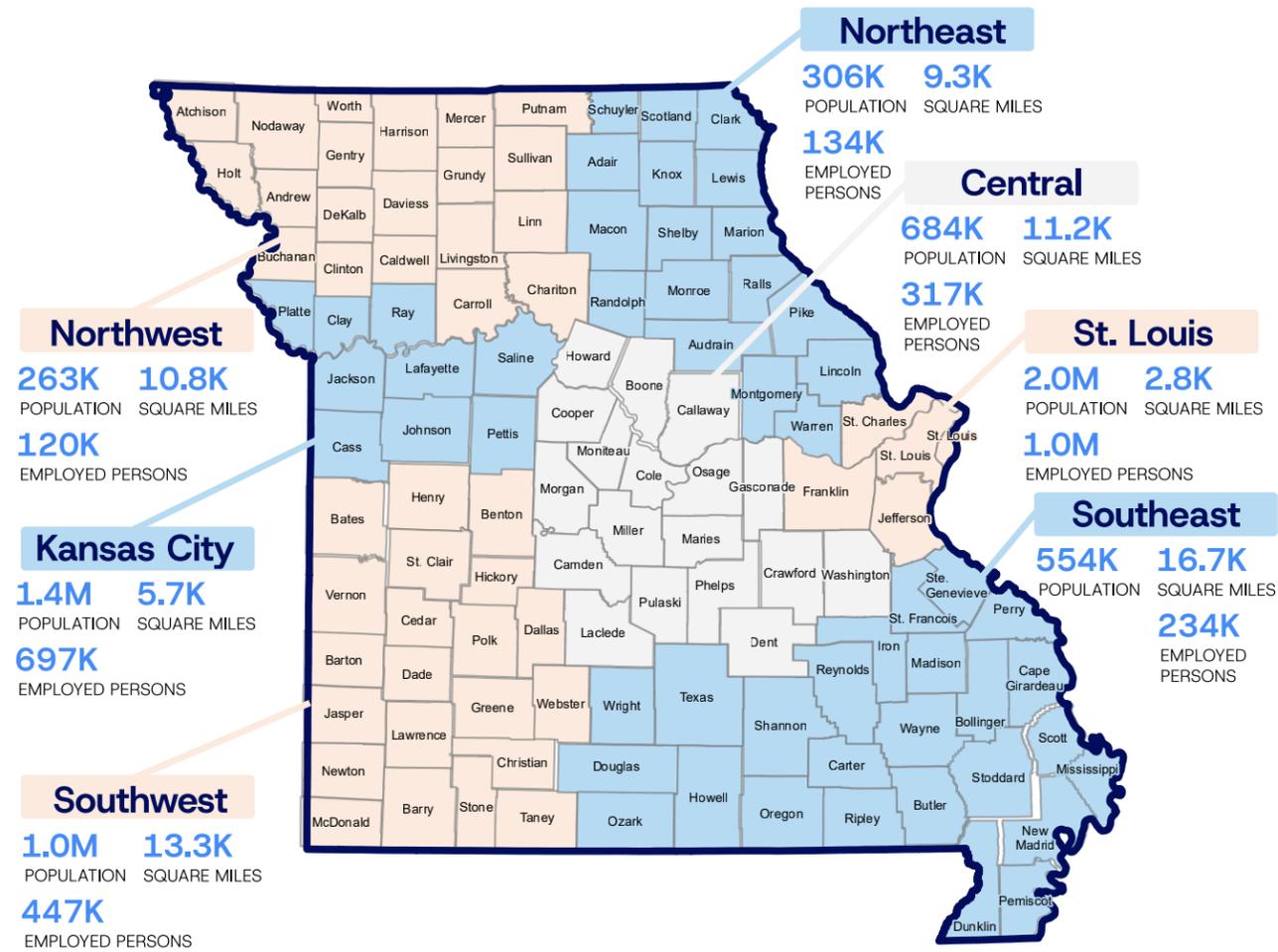
Figure 5 presents Missouri Department of Transportation (MoDOT) District population estimates through 2050. As shown in Figure 6, which is based on U.S. Census County population totals from 2020 to 2024, the Central, Kansas City, St. Louis, Southwest and Southeast Districts are projected to experience population growth, while the Northwest District is expected to see a decline in its population share.

Figure 5 – MoDOT District Population Estimates, 2050



Source: Missouri Office of Administration, Division of Budget and Planning.

Figure 6 – MoDOT District Population, Square Miles and Employment



Source: U.S. Census Bureau 2020–2024 Estimates.

⁷ U.S. Census Bureau, "County Population Totals and Components of Change: 2020-2024," March 2025, <https://www.census.gov/data/tables/time-series/demo/popest/2020s-counties-total.html>.

Economics and Employment

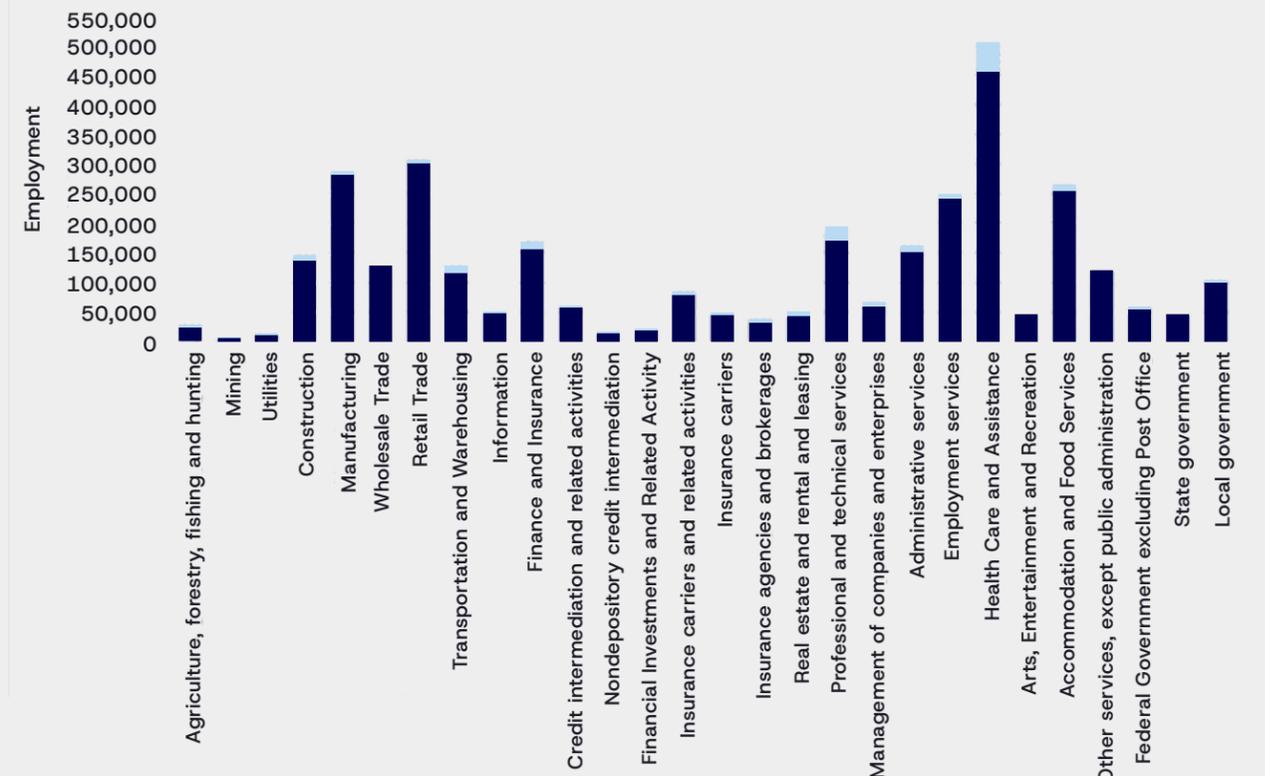
Economic activity and employment levels are critical drivers of transportation system performance. GSP, as an indicator of overall business activity, is closely linked to travel demand. Periods of economic slowdown or elevated unemployment, such as those experienced from 2020 through 2025, often correlate with reduced VMT, reflecting decreased commuting, freight movement and overall travel. **Figure 7** highlights industry employment projections between 2022 and 2032.

A distinctive aspect of the state's transportation story is the presence of two major bi-state metropolitan areas, St. Louis and Kansas City, as well as several smaller bi-state regions. As a result, many individuals who work in the state reside in neighboring states. To a lesser extent, Missourians also

commute out of state for work. This daily "import" of workers has important implications for the state's transportation system.

The high volume of cross-border commuting increases demand on the state's highways, bridges and transit systems, particularly during peak travel times. It also contributes to wear and tear on infrastructure without necessarily generating corresponding tax revenue, since many commuters do not pay income or property taxes in the state. Additionally, coordinating transit services, traffic management and infrastructure investments with neighboring states becomes more complex. These dynamics underscore the importance of regional planning, interstate collaboration and targeted investment in corridors that serve bi-state travel patterns.

Figure 7 – Industry Employment Projections in Missouri 2022 and 2032

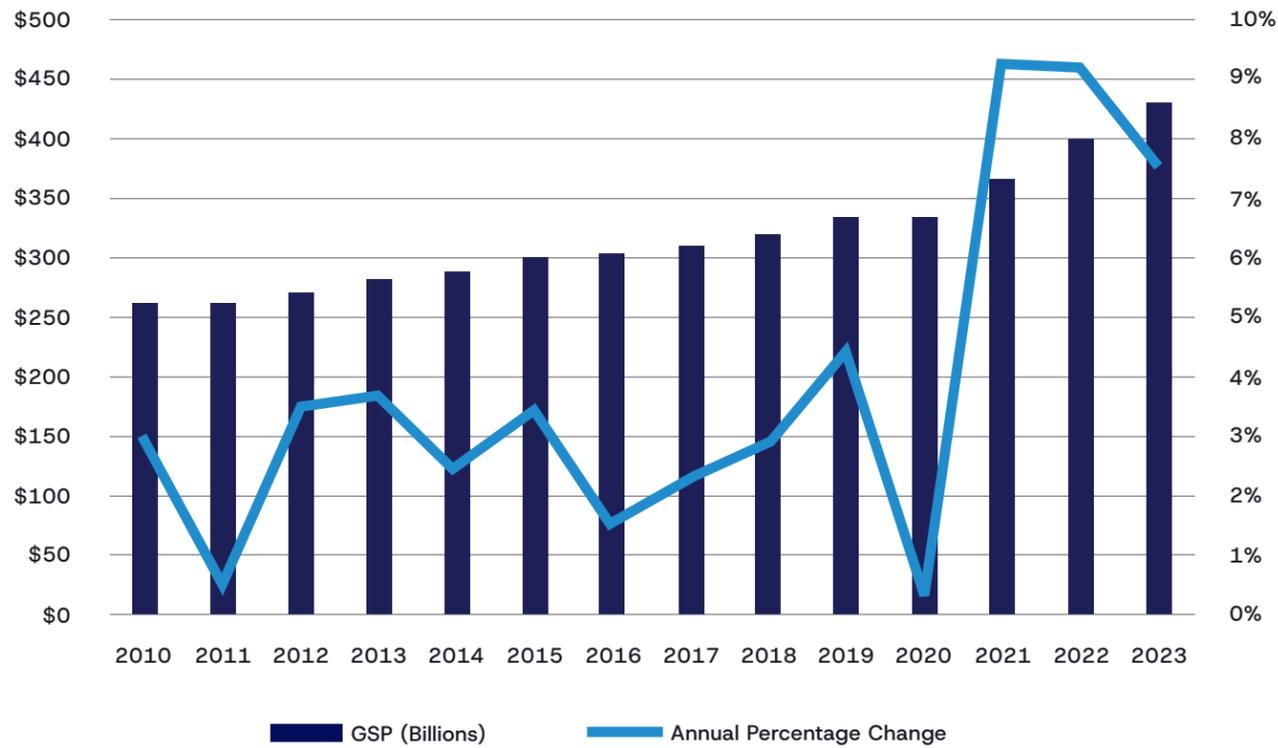


Source: Missouri Economic Research and Information Center (MERIC), Industry Employment Projections, 2025.

Gross State Product Trends

GSP represents the total economic output of the state’s economy and serves as a primary indicator of overall economic health and business activity within the state. As shown in **Figure 8**, the state’s GSP has had a nominal growth rate of 6.1 % over the past five years (2019 to 2023). Adjusted for inflation, the growth rate averaged 2.1% over the same period. Disregarding the 2020 values as an outlier data point due to the COVID-19 pandemic, the growth percentages are 7.6% (nominal) and 3.1% (inflation adjusted) respectively.

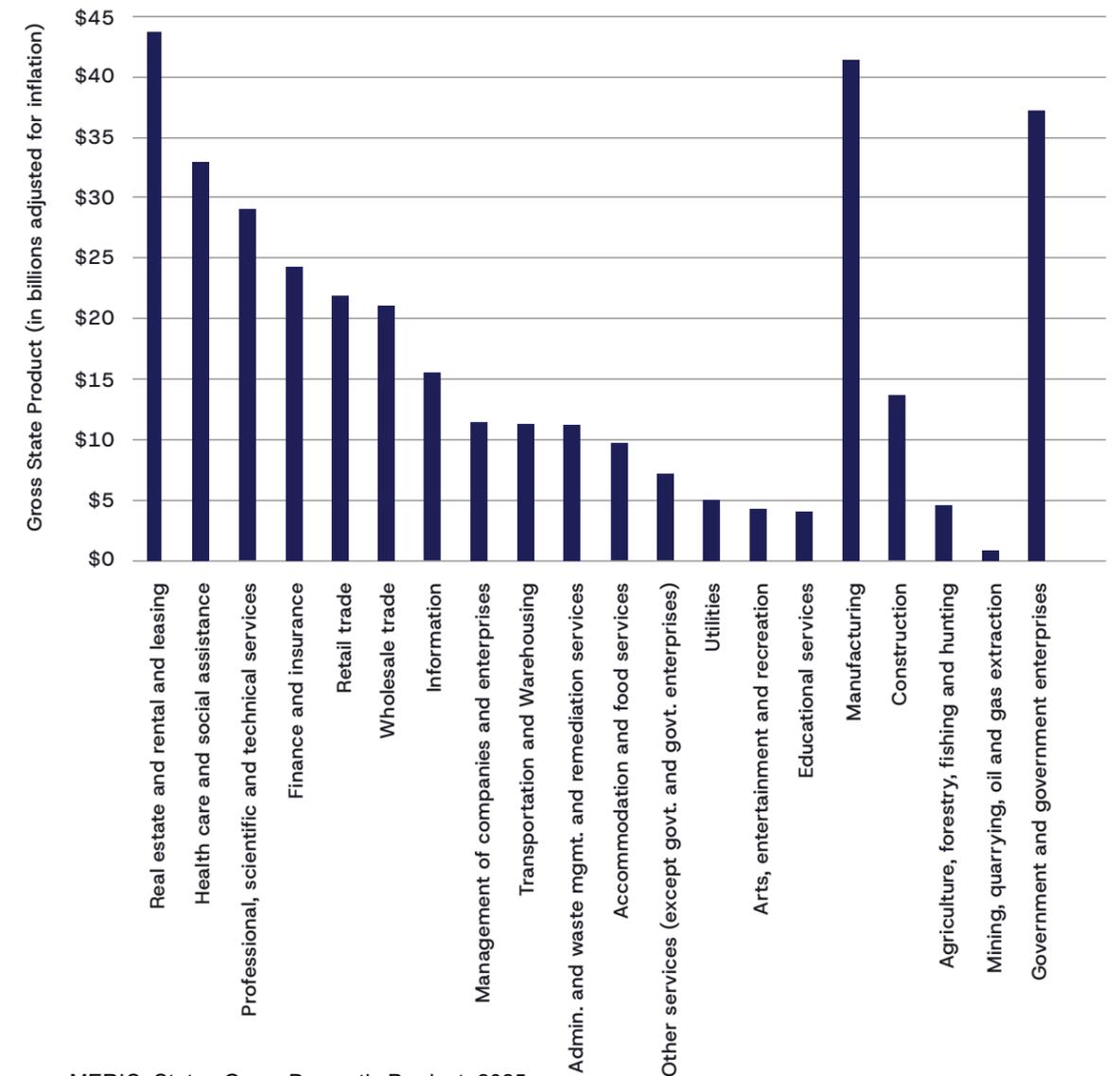
Figure 8 – Missouri Gross State Product, 2010–2023



Source: MERIC, States Gross Domestic Product, 2025.

The state’s GSP by industry type is shown in **Figure 9**. The largest industry contributors to the state are real estate/rentals, manufacturing and healthcare social services when excluding government enterprises. When analyzing these largest industries in the state, there is a direct relationship between manufacturing and the need for transportation corridors to move these physical goods from their points of origin to their destination.

Figure 9 – Missouri Gross State Product by Industry, 2023



Source: MERIC, States Gross Domestic Product, 2025.

Fuel Price Trends

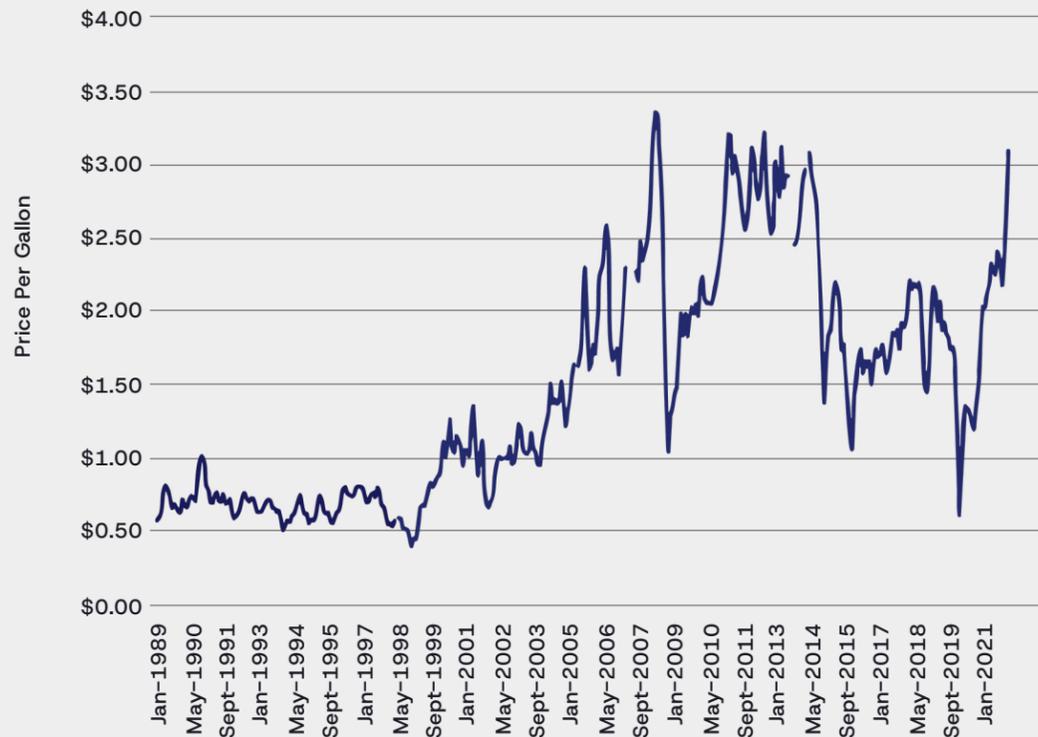
The state’s fuel price trends displayed in **Figure 10** show gas prices from 1989 to 2021. Over this period, gas prices have shown significant fluctuations, shaped by a range of economic, geopolitical and market factors. From 1989 through the late 1990s, gas prices in the state remained relatively stable, generally fluctuating between \$0.70 and \$1.20 per gallon. A sharp upward trend began in the early 2000s, driven by increasing global demand, geopolitical tensions and rising crude oil prices. By mid-2008, gas prices peaked at over \$3.70 per gallon, representing the highest level observed during the period.

The sharp drop in prices during late 2008 reflects the global financial crisis, which led to a significant decline in demand. Prices

recovered and remained volatile throughout the 2010s, with another peak approaching \$3.50 per gallon around 2012 to 2013, followed by a decline beginning in 2014 due to increased oil production and a softening global economy. The most dramatic decline occurred in early 2020 during the onset of the COVID-19 pandemic, when prices briefly fell below \$1.00 per gallon due to plummeting demand and an oversupply of oil. However, prices quickly rebounded in 2021 and surged into 2022, surpassing \$3.00 per gallon, driven by global supply chain disruptions, recovering demand and geopolitical instability.

Overall, the graph reflects the strong influence of macroeconomic events, energy markets and global crises on fuel costs, with direct implications for consumer behavior and transportation system performance in the state.

Figure 10 – Missouri’s Fuel Prices, 1989–2021



Source: Adapted from U.S. Energy Information Administration (EIA), Missouri Gasoline Midgrade Wholesale/Resale Price by Refiners, 1989-2021.

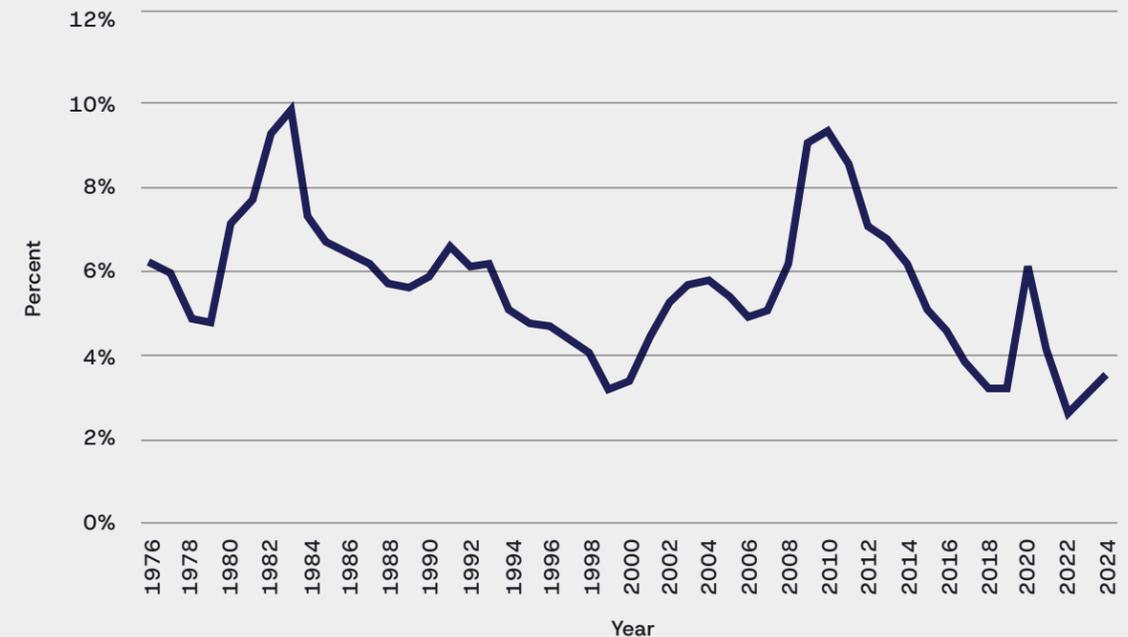
Employment and Socioeconomics Characteristics

The available workforce in the state exceeds 3.1 million people with nearly 3 million people employed in sectors other than farming. As shown in **Figure 11**, the unemployment rate has been steadily declining since peaking at 9.8% in the first quarter of 2010 to currently less than 4% statewide. This trend impacts MoDOT’s ability to recruit and retain its workforce. According to the American Community Survey (ACS), 19%, or one out of every five employed Missourians, work in the trade, transportation and utilities industries. Other industry sectors that have large contributions to the state’s employment base include education (18%), government (15%), professional and business services (12%), manufacturing (10%) and leisure and hospitality (10%).



Source: MoDOT

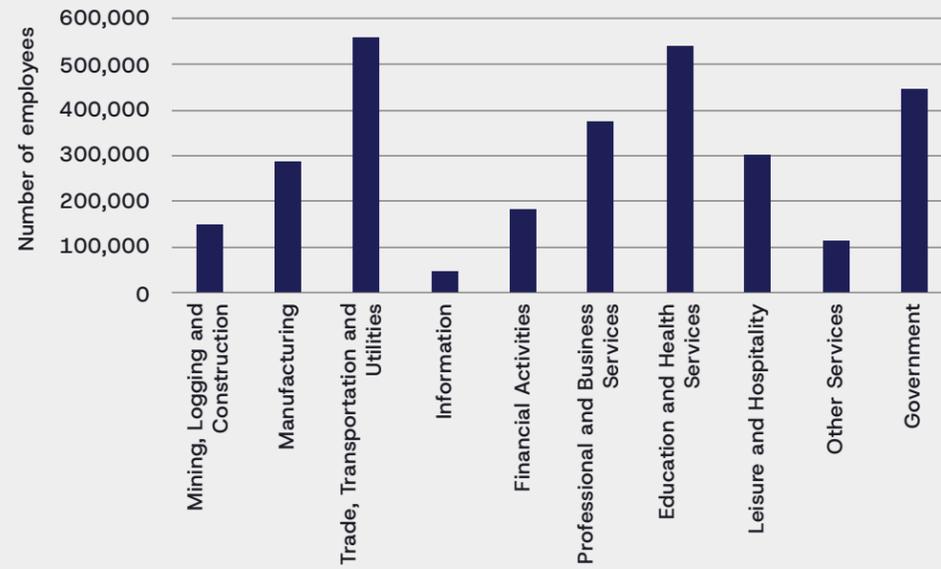
Figure 11 – Missouri Unemployment Rate, 1976–2024



Source: Bureau of Labor Statistics (BLS), Local Area Unemployment Statistics, 2025.

Figure 12 illustrates employment by industry in the state for the year 2025. National projections for employment across the nation show an increase in the need for health care and social assistance due mainly to aging population trends. The state is expected to follow this national trend over the coming years.

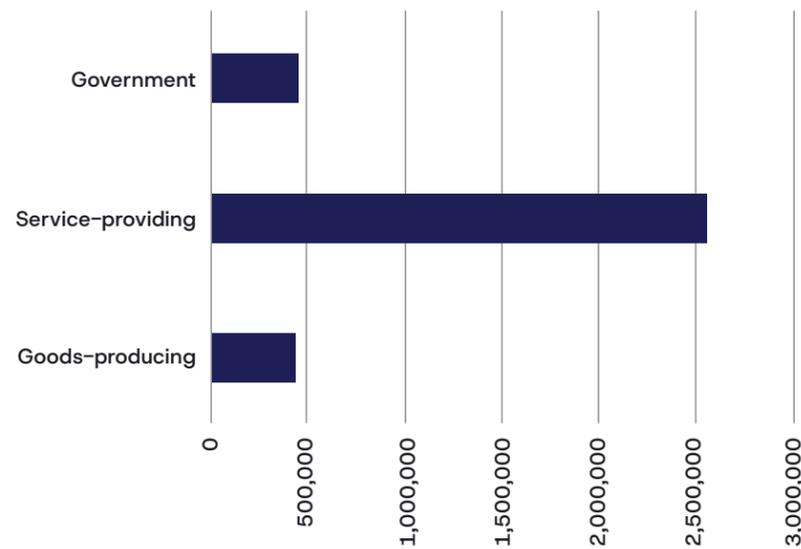
Figure 12 – Missouri Workers by Industry, 2025



Source: MERIC, Current Employment Statistics, 2025.

Figure 13 illustrates the largest employment sectors in the state in 2025. Goods-producing (12.9%) and service-providing (74.4%) sectors of the workforce are often related to the shipment of goods and provision of services that utilize the state's transportation system. Shipment of goods within and to destinations outside the state use the state highway system, water ports and airports to receive, transport and deliver raw, unfinished and finished goods. Service-sector employment is important to the state transportation system for a wide variety of reasons, ranging from employee commuting to for-hire transportation services, e-commerce delivery and other transport activities.

Figure 13 – Largest Employment Sectors in Missouri, 2025

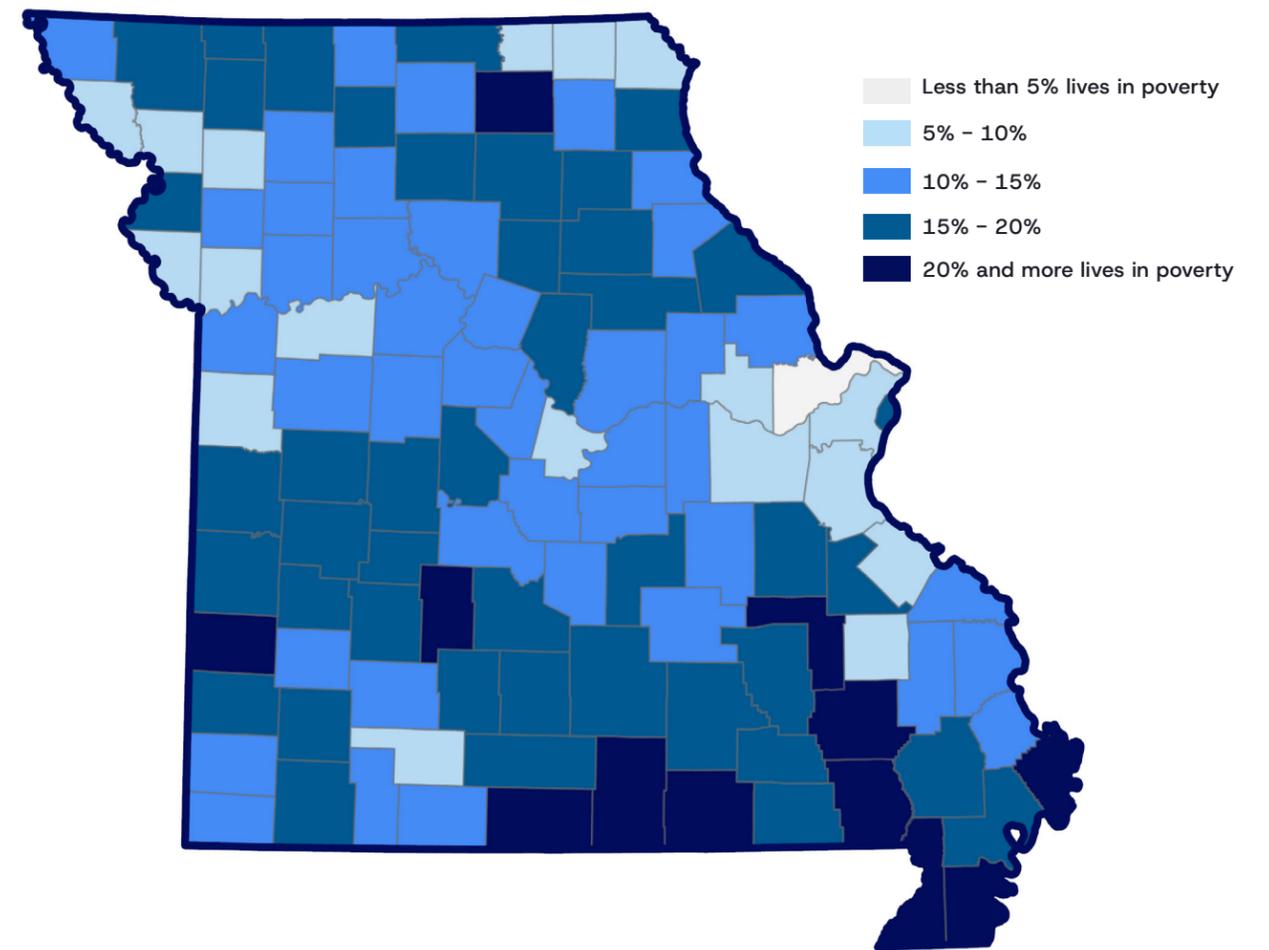


Source: MERIC, Current Employment Statistics, 2025.

Personal Income and Poverty Statistics

The real median income in the state was reported to be \$68,920 in the year 2023.⁷ This was an increase of 4.5% from the reported real median income of 2022. Even with the increase of median income, 12% of the state's population lived below the poverty level at some point during the year 2023, according to ACS statistics.⁸ Poverty percentages are highest in Wayne County and Pemiscot County where more than 25% live below the poverty line, as displayed in **Figure 14**. For many living below the poverty line, it can be difficult to find transportation to and from a job or seek a prospective job, with limited transportation choices. Lower income individuals may have one or no vehicles available and those in rural areas typically have limited public transit options.

Figure 14 – Missouri Poverty Levels by County, 2023



Source: U.S. Census Bureau, Poverty Status in the Past 12 Months, American Community Survey, ACS 5-Year Estimates Subject Tables, Table S1701, 2023.

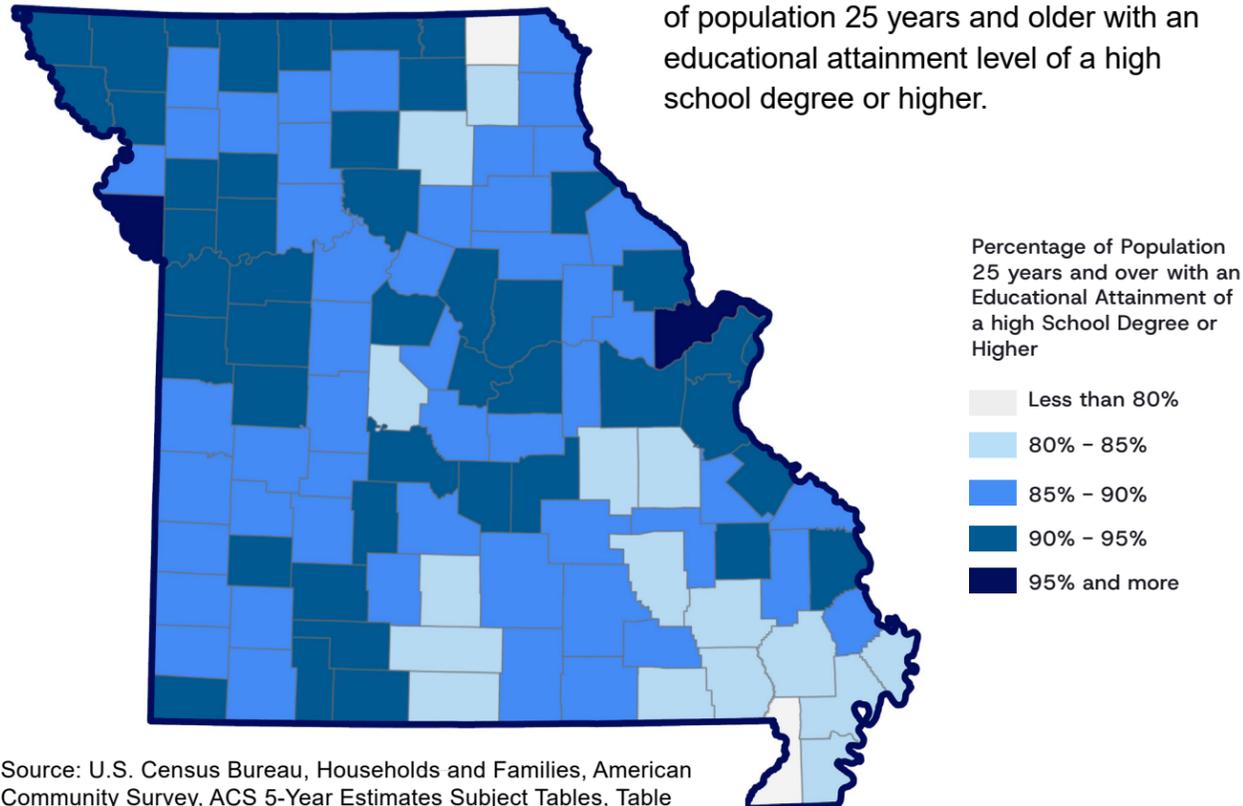
⁷ U.S. Census Bureau, "Median Income in the Past 12 Months (in 2023 Inflation-Adjusted Dollars)," American Community Survey, ACS 5-Year Estimates Subject Tables, Table S1903, 2023, [https://data.census.gov/table/ACSST5Y2023.S1903?t=Income+\(Households,+Families,+Individuals\)&g=040XX00US29](https://data.census.gov/table/ACSST5Y2023.S1903?t=Income+(Households,+Families,+Individuals)&g=040XX00US29).

⁸ U.S. Census Bureau, "Poverty Status in the Past 12 Months," American Community Survey, ACS 5-Year Estimates Subject Tables, Table S1701, 2023, <https://data.census.gov/table/ACSST5Y2023.S1701?t=Poverty&g=040XX00US29>.

Educational Attainment

In 2023, according to ACS statistics, the percentage of persons 25 years and older with an educational attainment level of a high school degree or higher for the state of Missouri was 91.6%. This was an increase of 0.3% from 2022's percentage of persons 25 years and older with an educational attainment level of a high school degree or higher. The state's 2023 percentage of persons 25 years and older was over 2% higher than the national percentage of 89.4%.

Figure 15 – Educational Attainment Levels by Missouri County, 2023



Source: U.S. Census Bureau, Households and Families, American Community Survey, ACS 5-Year Estimates Subject Tables, Table S1101, 2023.

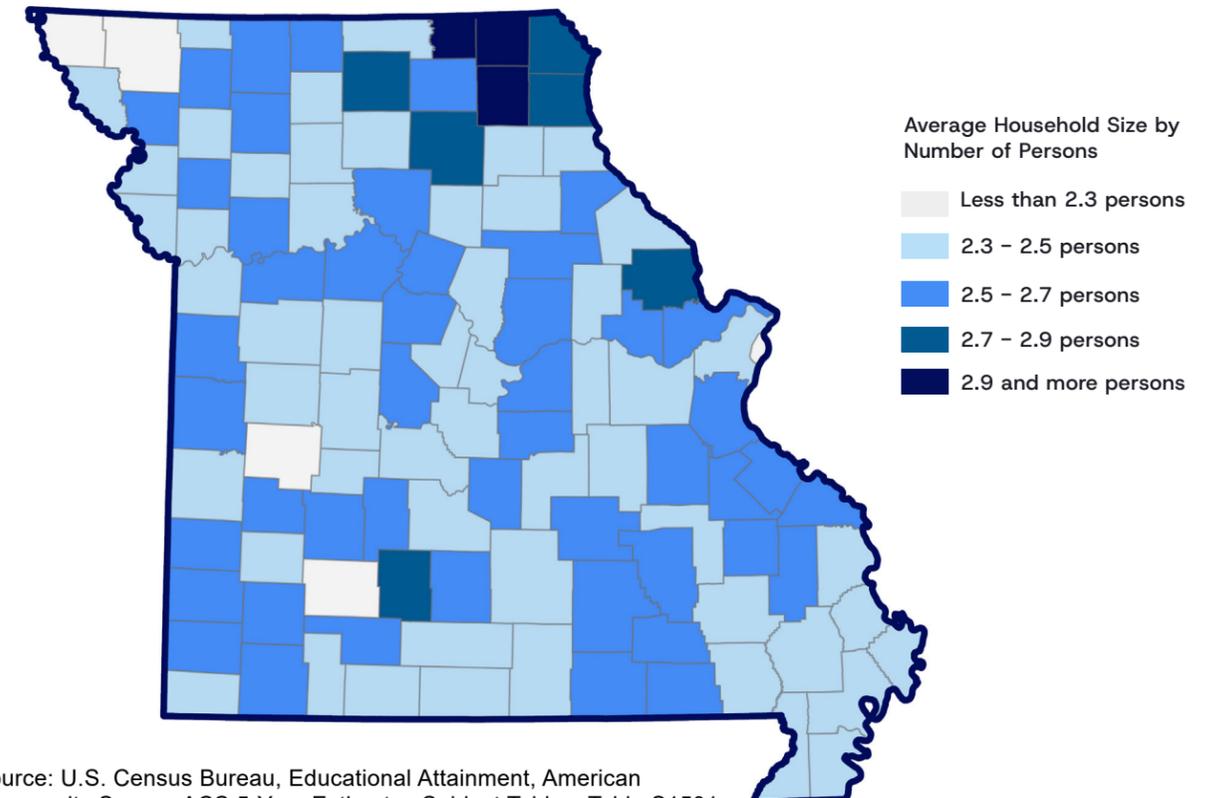
The percentage of persons 25 years and older with an educational attainment level of a high school degree or higher was highest in Platte County with 96.7%. Scotland County had the lowest percentage of persons 25 years and older with an educational attainment level of a high school degree or higher at 78.4%. Transportation availability can influence access to education and job opportunities. A well-functioning transportation system with a variety of available and reliable transportation options may remove barriers to higher levels of educational attainment.

Figure 15 shows each county's percent of population 25 years and older with an educational attainment level of a high school degree or higher.

Persons and Children Per Household

The average number of persons per household in the state for 2023, according to ACS statistics, was 2.42 persons. The state's 2023 average household size was 0.02 persons less than 2022's value of 2.44 persons. For 2023, the state's average number of persons per household was 0.1 persons less than the national number of 2.54 persons. Schuyler County had the highest average number of persons per household with 3.2 persons and St. Louis City has the lowest average number of

Figure 16 – Average Household Size by Missouri County, 2023



Source: U.S. Census Bureau, Educational Attainment, American Community Survey, ACS 5-Year Estimates Subject Tables, Table S1501, 2023.

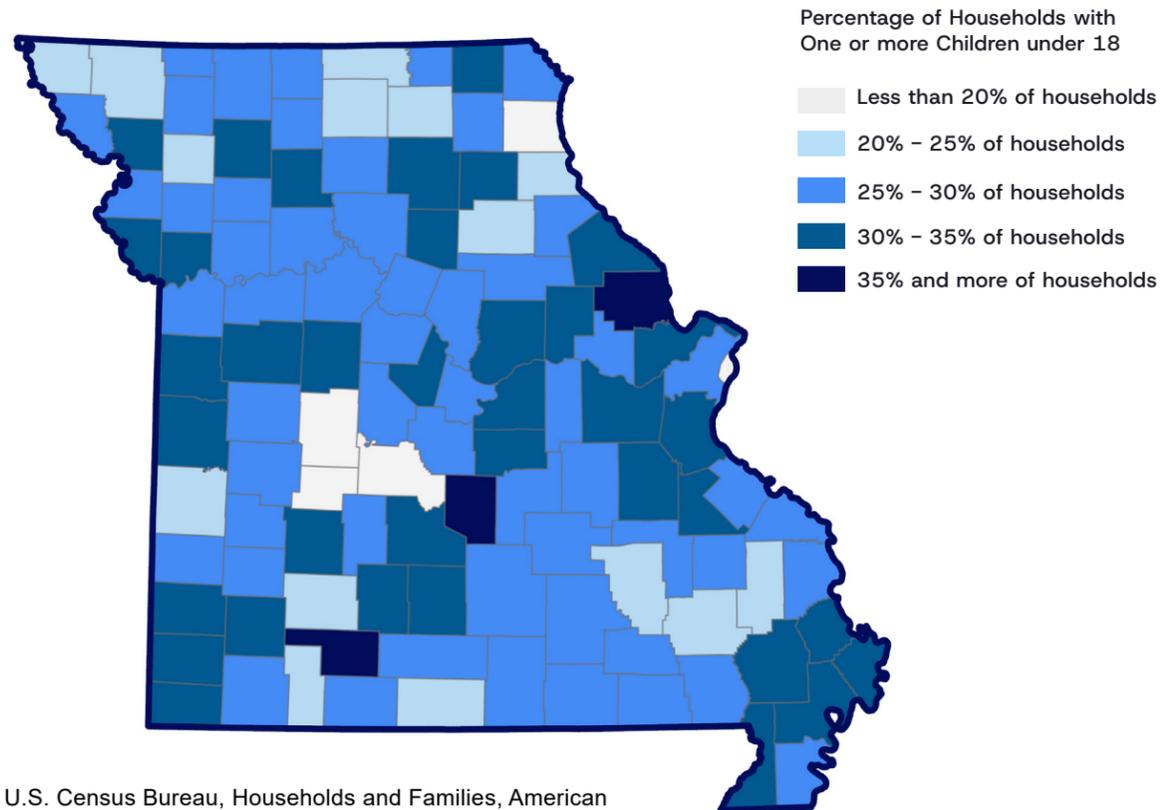
persons per household with 1.96 persons. A larger household may indicate a greater number of transportation users than a smaller household. The greater the number of transportation users a household has the more reliant that household is on the transportation system. **Figure 16** shows each county's average number of persons per household.

In 2023, the percentage of the state's households with one or more people under 18 years old was 28.7%, 0.1% less than in

2022 (28.8%). The state's 2023 percentage of households with one or more people under 18 years old was 1.2% less than the national percentage of 29.9%. According to 2023 ACS statistics, Christian County had the largest percentage of households with one or more people under 18 years old at 39%. Hickory County was the county with the smallest percentage of households with one or more people under 18 years old at 12.4%. Children rely on other household members for transportation to and from school and other activities. Children may

also rely on school provided transportation services as well as public transportation. The more children a household has, the more reliant that household may be on the transportation system. Having a dependable transportation system and providing a variety of accessible transportation services benefits all transportation users and may benefit households with people under 18 more. **Figure 17** shows the percentage of households with one or more people under 18 for each county in the state.

Figure 17 – Missouri Percentage of Households with One or More Children by County, 2023



Source: U.S. Census Bureau, Households and Families, American Community Survey, ACS 5-Year Estimates Subject Tables, Table S1101, 2023.

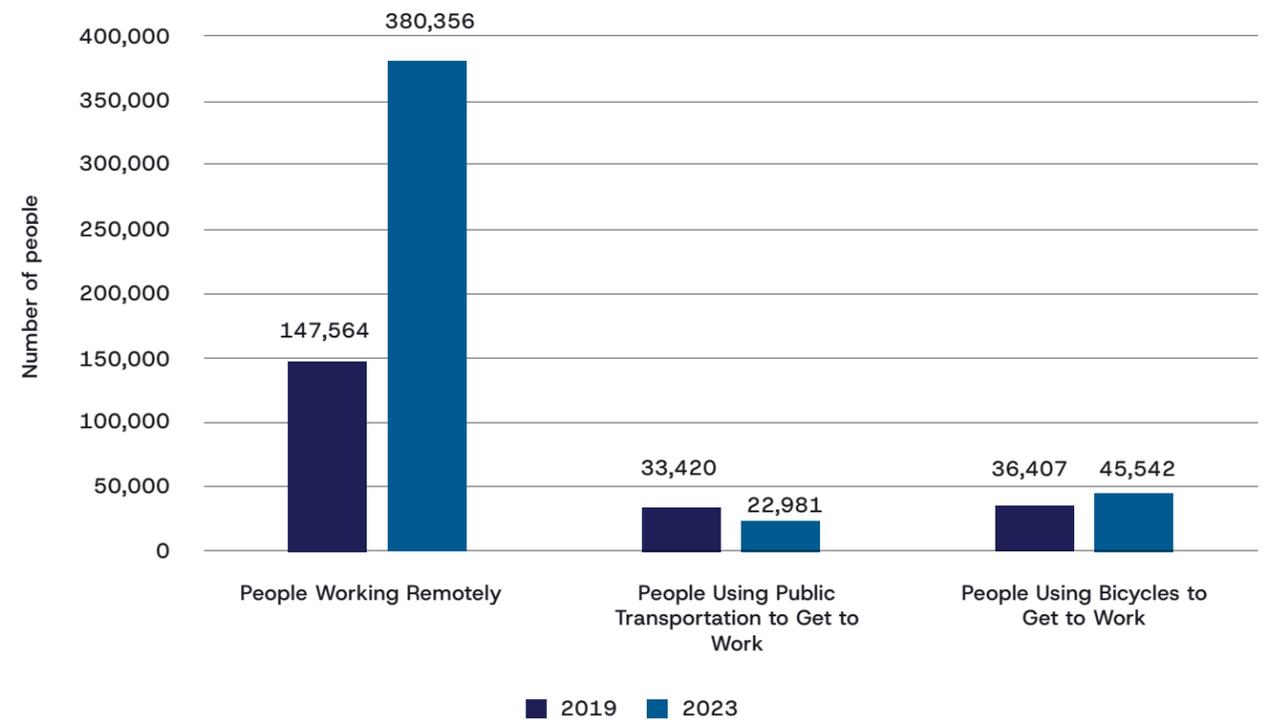
Travel Trends

Emerging trends including an aging population, a growing younger population, increasing urbanization, the sharing economy and advanced technology may combine in ways that would significantly alter transportation needs. Moreover, existing trends include anticipated growth in truck freight, commuters preferring to travel in private vehicles and increasing VMT would continue to be significant contributing factors to the use of the transportation system and travel patterns in the state.

Travel Choices in Missouri Are Changing

Travel by personal vehicle is still the primary transportation mode of choice both in the state and nationally. However, there are changing trends in travel choices seen in the state. From 2019 to 2023, the percentage of Missourians who work remotely increased by 158% (380,356). Exploring other commuter modes, 10,439 Missourians stopped using public transit to commute to and from work and an increase of 9,135 started biking or cycling to commute to and from work. See **Figure 18** below.

Figure 18 – Travel Choices in Missouri, 2019 and 2023



Source: MoDOT, Fast Facts, 2025; Adapted from MoDOT, Transportation Systems Management and Operations (TSMO) Program and Action Plan, 2024.

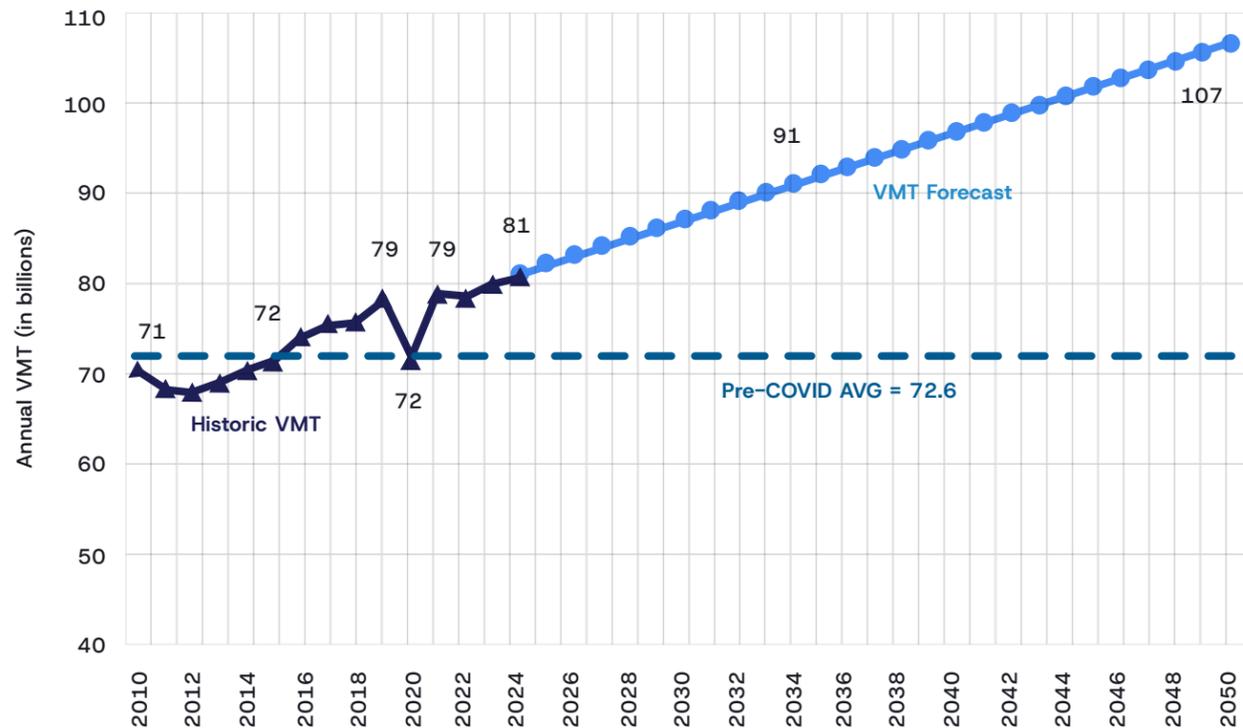
Roadway

While the personal automobile is the primary transportation mode of choice both in the state and nationally, this section examines trends in travel choices being made today and how these trends may influence overall transportation system usage.

Recent State VMT Trends

Figure 19 shows annual VMT trends between 2010 and 2024 and includes projections through 2050. Since 2012, VMT has experienced a slight increase annually, followed by a noticeable decrease in 2020. The drastic drop of roughly seven billion VMT, in 2020, coincided with the COVID-19 pandemic. VMT rose significantly in 2021 to be slightly above the pre-pandemic level of 2019. After a decrease in 2022, VMT increased in 2023 and 2024. In the future, VMT is expected to grow annually. VMT is projected to surpass 100 billion by 2044.

Figure 19 – Annual Vehicle Miles Traveled

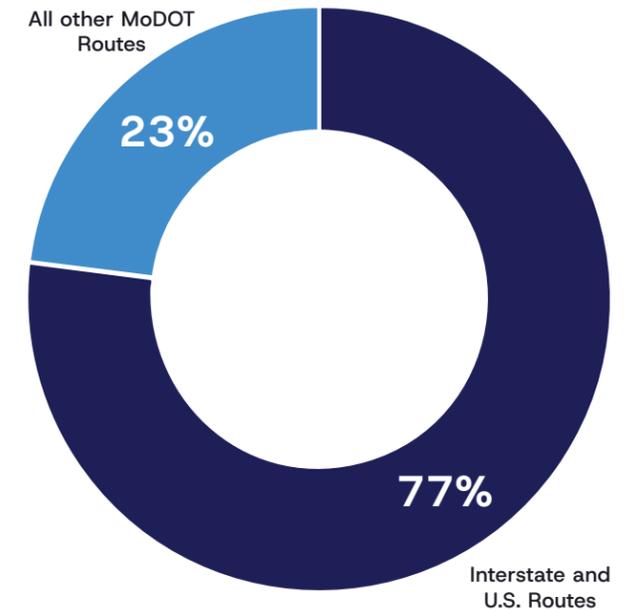


Source: MoDOT, Fast Facts, 2025; Adapted from MoDOT, TSMO Program and Action Plan, 2024.

Percentage of Travel by Route Type

The Missouri state highway system spans over 33,800 miles and is categorized by route type based on usage and traffic volume. As shown in Figure 20, which illustrates the percentage of total traffic carried by each route category, a significant portion of travel is concentrated on a relatively small segment of the network. Interstate and U.S. Routes, totaling approximately 5,560 miles, accommodate 77% of all highway traffic in the state. In contrast, all other MoDOT routes, which include around 28,254 miles of minor and low-volume roads, carry the remaining 23%. This distribution highlights the critical role of major routes in supporting the state's transportation demands despite their limited share of the total roadway mileage.⁹

Figure 20 – Percent of Statewide Traffic by Route Type



Source: MoDOT, Fast Facts, 2025.



Source: MoDOT

¹⁰ MoDOT, "Fast Facts," accessed June 5, 2025, <https://www.modot.org/fast-facts>.

Existing Traffic – Congestion Hotspots

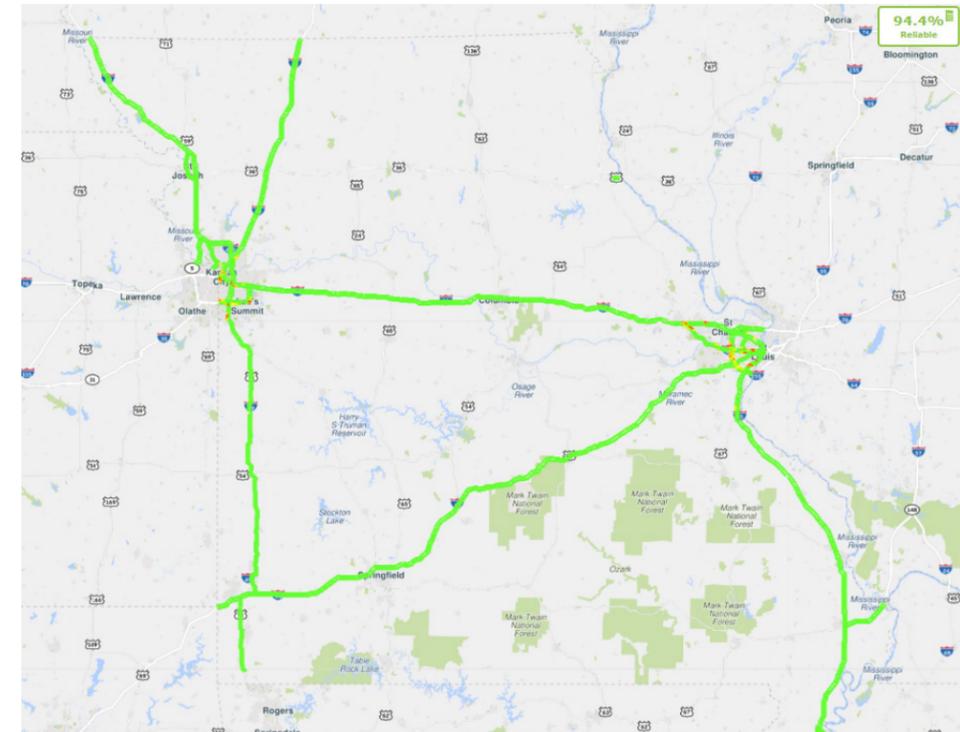
MoDOT uses real-time traffic information from third-party data sources to help monitor congestion and identify bottlenecks on the statewide roadway network. Bottlenecks are locations on the roadway where conditions have fallen below a certain percentage of the free-flow speed for an extended period of time. Simply put, these are areas where recurring congestion typically occurs.

For this analysis, traffic information from 2024 was evaluated for all routes designated as U.S. or state routes to help identify bottlenecks by looking at total delay and congestion metrics. Total delay is the amount of time drivers spend on a roadway in excess of the amount of time they would have been on the roadway in free-flow conditions. In other words, if a trip normally takes 10 minutes but congestion caused the trip to take 15 minutes, the delay would be five minutes. The top 10 areas of total delay in the state are shown in **Appendix E**.

Congestion is similar to total delay, except that it is for individual vehicles and not the cumulative amount of delay for all drivers. This metric helps identify bottlenecks regardless of how much traffic uses a particular roadway. The top 10 areas of congestion in the state are shown in **Appendix F**.

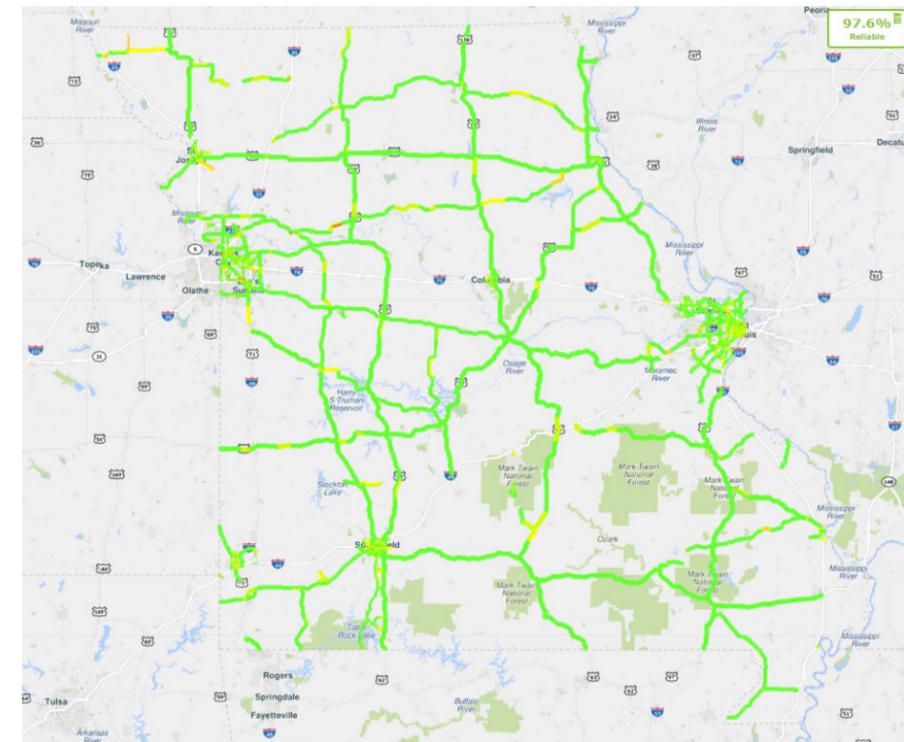
Finally, the Level of Travel Time Reliability (LOTTR) assesses the consistency or dependability of travel times from day to day regardless of whether congestion is a recurring incidence. Even if a road segment experiences recurring congestion, if the level of congestion is similar from day to day, the segment would have a high level of reliability. In contrast, road segments that sporadically have high levels of congestion are considered to be unreliable. As shown in **Figure 21**, 94.4% of interstate routes in the state of Missouri are considered reliable. As shown in **Figure 22**, 97.6% of non-interstate National Highway System (NHS) routes are considered reliable.

Figure 21 – Interstate Travel Time Reliability for Missouri, 2024



Source: MoDOT Analysis of HERE Data, 2024.

Figure 22 – Non-Interstate National Highway System Travel Time Reliability for Missouri, 2024



Source: MoDOT Analysis of HERE Data, 2024.

Fuel Efficiency and Revenue Impact

As referenced in the **Revenue Forecast Chapter**, the per gallon motor fuel tax is a significant source of revenue for the state. Effective July 1, 2025, the motor fuel tax rate will be \$0.295 per gallon.¹⁰ The fuel tax collections are distributed to cities based on population and to counties based on road mileage and land valuation, while the remainder is transferred to MoDOT.

The trend toward more fuel efficient or all electric vehicles, when coupled with projections that the state’s VMT will continue to increase, indicates there will be increased demand on the state’s transportation system. All while less fuel tax is being generated per mile traveled.

To account for this shift towards more fuel-efficient vehicles and make up for less fuel tax revenue, in 2022, the Missouri Department of Revenue implemented an annual special fuel decal fee. All passenger vehicles, commercial and buses (includes public school buses but not shuttle buses) must display a special fuel decal if they are powered by the following: Liquefied Petroleum (LP)/Propane; Electricity; Plug-in Hybrid Electric Vehicle (PHEV) - Model years 2018 and newer; or Natural Gas. The revenue generated from the purchase of special fuel decals is deposited into the State Road Fund.

Since 1975, National Corporate Average Fuel Economy (CAFE) standards have been established with the goal to reduce energy consumption of passenger cars and light duty trucks. Fuel efficiency standards continue to increase. In June 2024, the National Highway Traffic and Safety Administration (NHTSA) announced the final rule establishing CAFE standards that would require an industry-wide fleet average of approximately 50.4 miles per gallon (mpg) in model year 2031 for passenger cars and light trucks and an industry fleet-wide average for heavy-duty pick-ups and vans of roughly 2.851 gallons per 100 miles in model year 2035.¹¹ While the NHTSA finalized updated CAFE standards in June 2024, subsequent legislative and administrative actions have significantly undermined their enforceability. In June 2025, the U.S. Department of Transportation (USDOT) issued an interpretive rule declaring



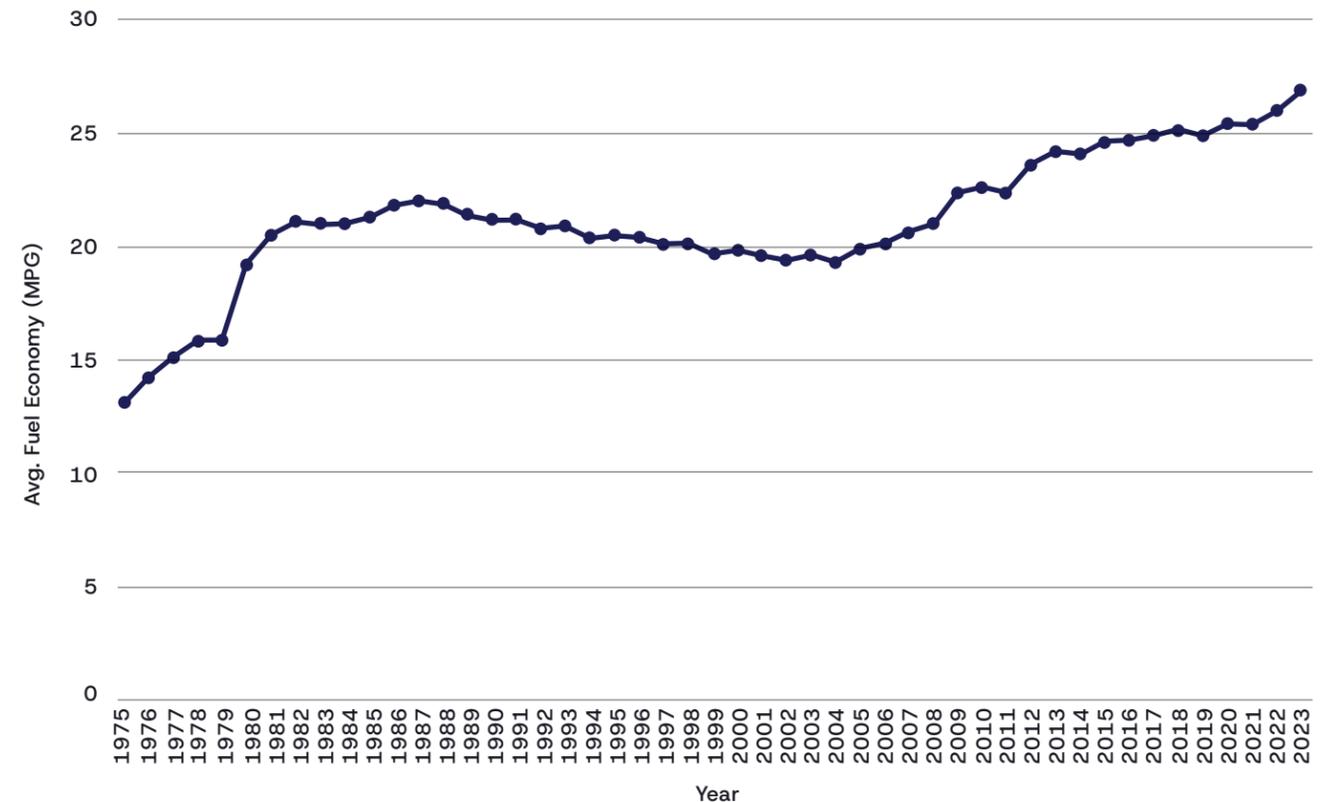
¹⁰ Missouri Department of Revenue, “Motor Fuel Tax FAQ,” accessed June 5, 2025, <https://dor.mo.gov/faq/taxation/business/motor-fuel.html>.

¹¹ U.S. Department of Transportation National Highway Traffic Safety Administration, “Corporate Average Fuel Economy,” June 7, 2024, <https://www.nhtsa.gov/laws-regulations/corporate-average-fuel-economy>.

the 2024 standards legally invalid, citing the inclusion of electric vehicles in fuel economy calculations as inconsistent with federal law. Around the same time, Congress passed a federal budget package that eliminated financial penalties for noncompliance and removed key enforcement mechanisms, effectively nullifying the program’s regulatory power. Additionally, lawmakers have introduced measures under the Congressional Review Act to formally repeal the 2024 standards, which, if successful, would further weaken or eliminate the CAFE program altogether. **Figure 23** displays the average MPG for light duty vehicles from 1975 to 2023 which has continuously increased over the course of time.

Many automakers have made independent commitments to expand electric vehicle (EV) production and to deploy autonomous vehicle fleets equipped with advanced electronic systems. If these more fuel-efficient and alternative-fuel vehicles become a larger share of the state’s rolling stock, overall fuel consumption may decline. If this transition accelerates, the resulting reduction in fuel demand could significantly impact transportation funding, particularly in a state where per-gallon motor fuel taxes remain a primary revenue source. As fuel-efficient technologies continue to advance, the state may need to consider alternative or supplemental funding mechanisms to support the sustainability of its transportation infrastructure.

Figure 23 – Average MPG for Light Duty Vehicles, 1975–2023



Source: Adapted from U.S. Environmental Protection Agency (EPA), “2024 EPA Automotive Trends Report Greenhouse Gas Emissions, Fuel Economy and Technology since 1975,” 2024.

Vehicle Ownership

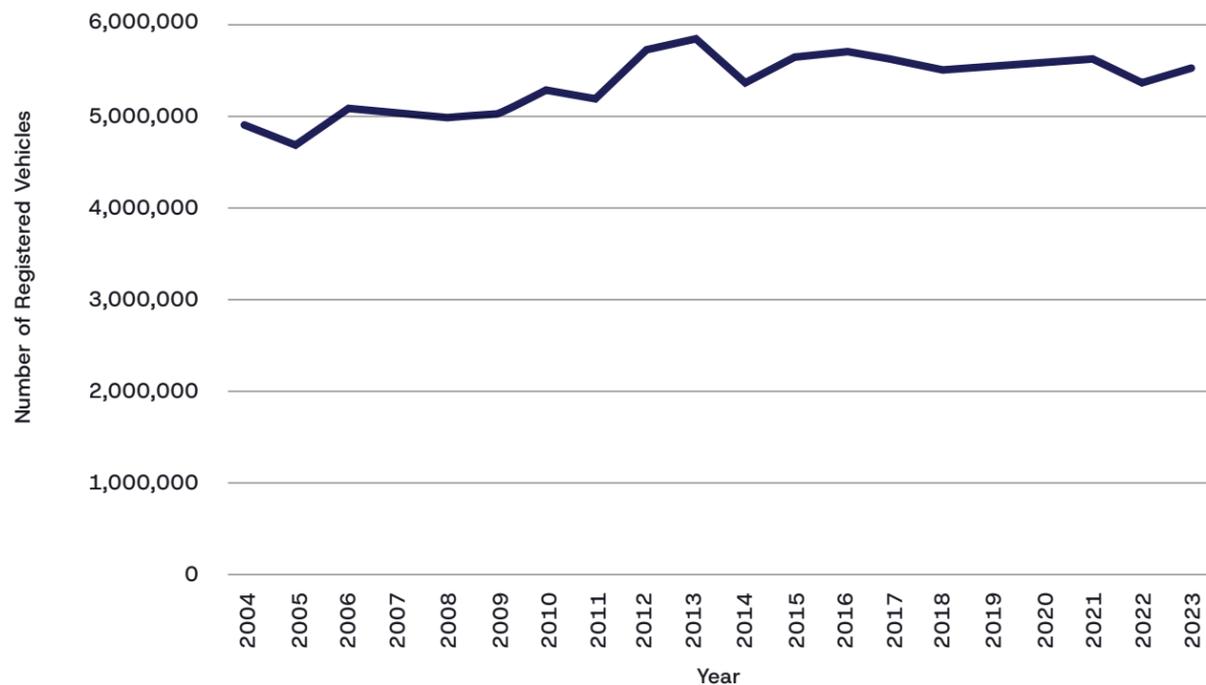
As shown in **Figure 24**, motor vehicle registrations in the state peaked in 2013 when Missourians registered 5.8 million total private and commercial vehicles. In 2023, the state had 5.5 million registered vehicles, an increase of 2.4% from 2022.

Based on ACS data, in 2023, the county with the largest percentage of households with zero vehicles was St. Louis City at 17.9%. Knox County has the lowest percentage of households having zero vehicles at 1.8%. The percentage of zero vehicle households for each county in the state is shown in **Figure 25**. Overall, 6.6% of households in the state have no vehicle, which is less than the National percentage of 8.3%.

Today, not owning a vehicle poses less of a hindrance to a person’s transportation mobility. With the rise of ride-share apps that allow riders to simply pay to ride on-demand services, there are now more alternatives to owning personal vehicles.

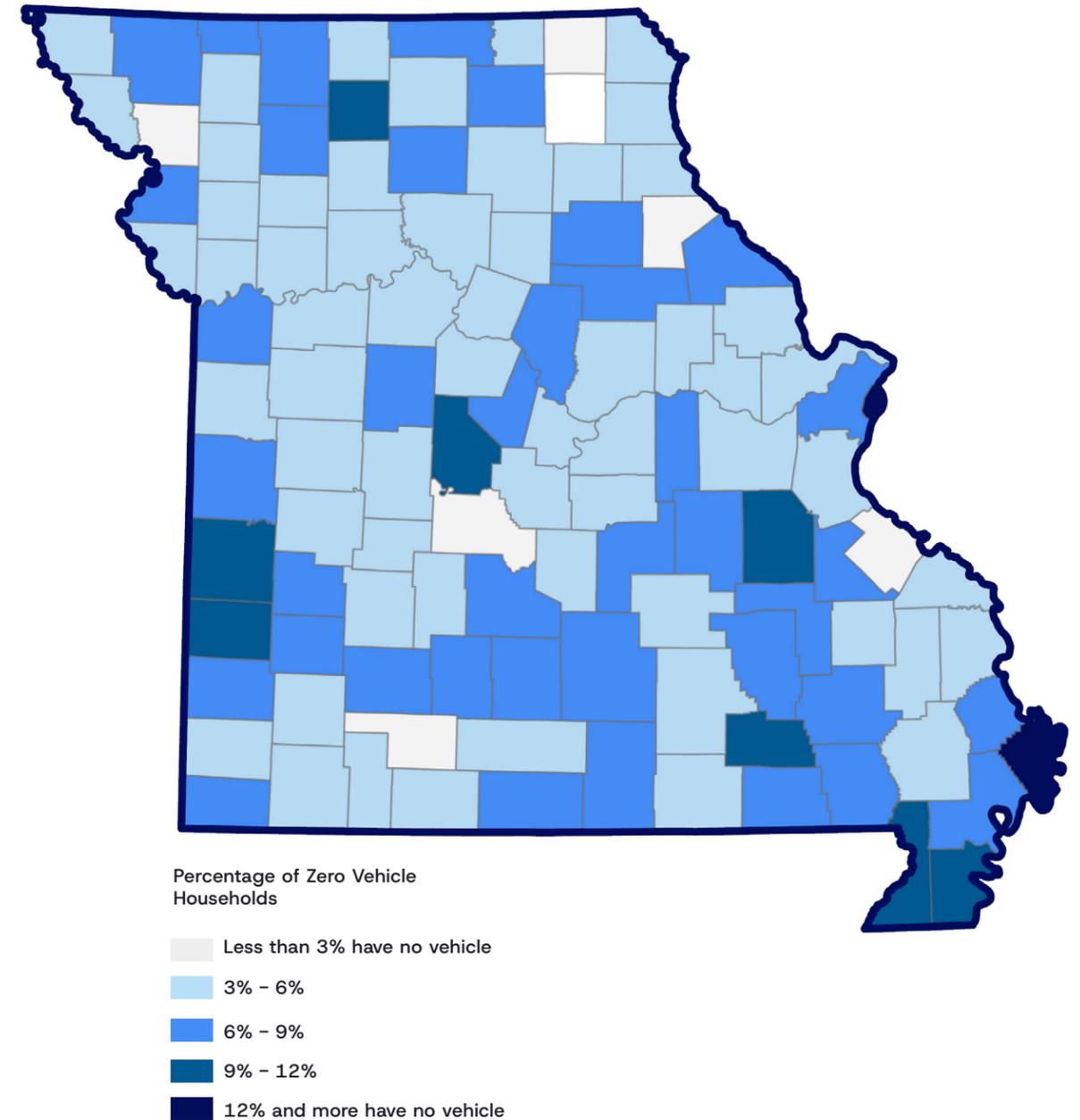


Figure 24 – Total Number of Private and Commercial Vehicles Registered in Missouri, 2004–2023



Source: Adapted from Federal Highway Administration (FHWA), Office of Highway Policy Information, Motor Vehicle Registrations, (1990-2023).

Figure 25 – Zero Vehicle Households in Missouri by County, 2023



Source: U.S. Census Bureau, Household Size by Vehicles Available, American Community Survey, ACS 5-Year Estimates Subject Tables, Table B08201, 2023.

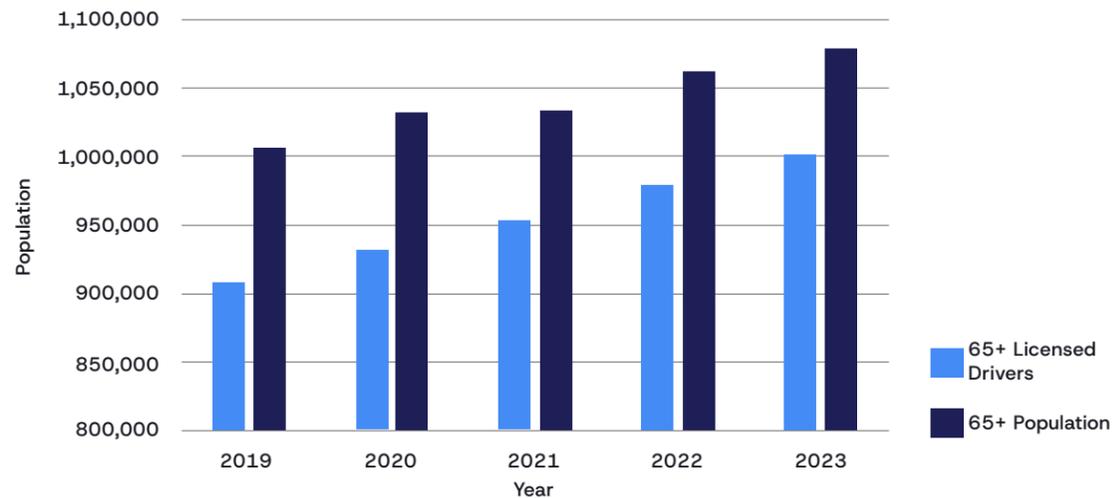
Licensed Drivers

In 2023, the state had more than 4.3 million licensed drivers, this is an increase of 0.4% from 2022. The 4.3 million licensed drivers are approximately 70% of the state's total population eligible to become a licensed operator. Since 2020, the overall trend for the number of licensed drivers in the state has been increasing.¹²

The Federal Highway Administration (FHWA) classifies young drivers as individuals with a driver's license between the ages of 16-to-24. Of the more than 4 million licensed drivers in the state, 12% of them were in the 16-to-24 age group. In contrast to the classification of young drivers, FHWA classifies older drivers

as individuals with driver's license over the age of 65. As the state's population of people 65 and older has grown, so has the number of licensed drivers in this age group. **Figure 26** shows the number of the state's residents 65 years and older with a vehicle operating license. In 2023, of the state's 4.3 million licensed drivers 1 million (23%) of them were 65 years old or older. This was the first time the number of licensed drivers aged 65 or older surpassed 1 million. Older drivers (age 65 and up) have been involved in 16-18% of all the state's fatal and serious injury crashes in the past three years. This is primarily due to the growing population in this age group.¹³

Figure 26 – Missouri Residents Aged 65 and Older with an Operating License, 2019–2023



Source: FHWA Policy and Governmental Affairs Office of Highway Policy Information, Highway Statistics Licensed Drivers, by State, Sex and Age Group, 2023; Source: Adapted from FHWA, Policy and Governmental Affairs Office of Highway Policy Information, Highway Statistics Licensed Drivers, by State, Sex and Age Group, 2022; Source: FHWA, Policy and Governmental Affairs Office of Highway Policy Information, Highway Statistics Licensed Drivers, by State, Sex and Age Group, 2021; Source: FHWA, Policy and Governmental Affairs Office of Highway Policy Information, Highway Statistics Licensed Drivers, by State, Sex and Age Group, 2020; Source: FHWA, Policy and Governmental Affairs Office of Highway Policy Information, Highway Statistics Licensed Drivers, by State, Sex and Age Group, 2019.

¹³ FHWA, Office of Highway Policy Information, "Highway Statistics 2023," accessed March 20, 2025, <https://www.fhwa.dot.gov/policyinformation/statistics/2023>.

¹⁴ MoDOT, "Save MO Lives, Older Drivers," accessed June 5, 2025, <https://www.savemolives.com/mcrs/older-drivers>.

Commuting Patterns

Approximately 75% of those who commute to work do so alone, in a personal vehicle and 8% use carpooling in a personal vehicle. The percentage of commuters carpooling has remained relatively consistent over the last 10 years with only a 0.5% decrease. The percentage of commuters driving alone has decreased 6.8% during the last 10 years; this decrease is the largest among seven commute modes.¹⁴

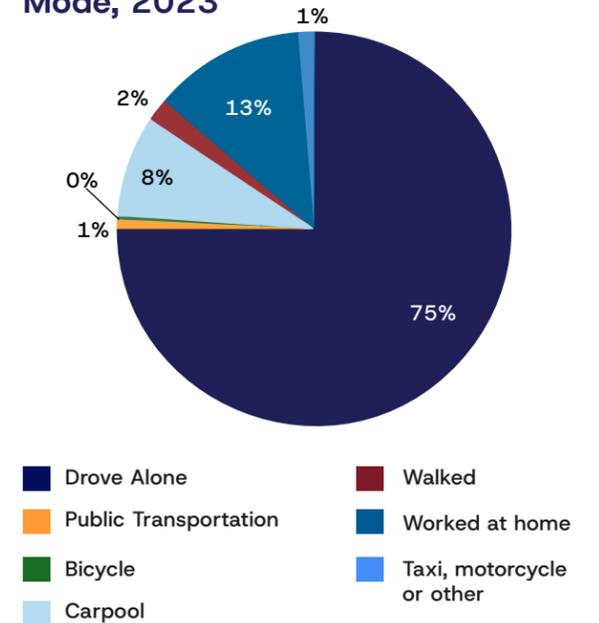
Figure 27 highlights the preferred commute mode for Missourians. The percentage of Missourians working from home has increased 8.1% over the last 10 years. In 2023, approximately 13% of Missourians worked from home, making it the second largest commute mode that year. The largest increase in the percentage of workers working from home occurred between 2019 and 2020. An 8% increase occurred between those years, likely tied to the COVID-19 pandemic and continued improvements in communication technologies.

The commuting modes of walking and cycling have decreased slightly over the last 10 years. In 2023, around 0.3% of Missourians commuted via bicycle and 1.8% walked. The use of public transit among commuters has fallen steadily over the last 10 years from its

peak of 1.6% of commuters in 2014, with only 0.8% of commuters opting for this mode in 2023.

When compared to national trends, Missourians drive alone to work at a rate nearly 6% above the national average and commute by public transit at a rate of 2.8% less than the national average. The remaining commute modes are close to the national average. Independent of travel mode, Missourians average 23.7 minutes of travel time to work.¹⁵

Figure 27 – Missourians' Commute Mode, 2023



Source: BTS, Commute Mode, 2023.

¹⁵ BTS, "Commute Mode 2023," accessed June 5, 2025, <https://www.bts.gov/browse-statistical-products-and-data/state-transportation-statistics/commute-mode>.

¹⁶ U.S. Census Bureau, "QuickFacts Missouri," accessed June 5, 2025, <https://www.census.gov/quickfacts/fact/table/MO/PST045224>.

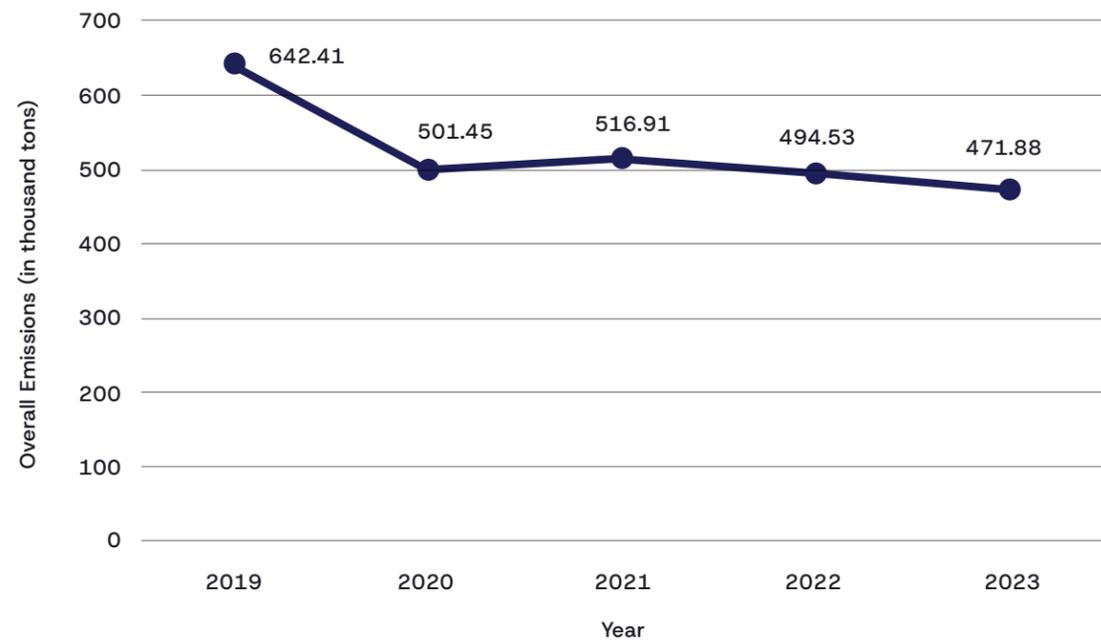
Environmental Resources and Resiliency

Sustainability and Carbon Reduction

Each year the state, along with other states and their delegated local agencies, submit emissions data to the Environmental Protection Agency (EPA) for the National Emissions Inventory. One of the key emissions inventoried is on-road mobile source emissions. On-road mobile source emissions result from motorized vehicles operating on public roadways. Motorized vehicles encompass buses, light-duty trucks, heavy-duty trucks and passenger cars.

As shown in **Figure 28**, there was a 27% decrease in the state's total on-road mobile source emissions from 2019 to 2023. On-road mobile source emissions produce several pollutants, but the pollutant contributing the most to the total number of on-road mobile source emissions is Carbon Monoxide (CO). CO forms from on-road vehicles when carbon-based fuels like gasoline are not burned completely. CO accounted for 79% of the state's total emissions from on-road mobile sources in 2023.¹⁶

Figure 28 – Missouri's Total On-Road Mobile Source Emissions, 2019–2023



Source: Adapted from U.S. Environmental Protection Agency, State Tier 1 Criteria Air Pollutants (CAPs) Trends, 1990-2024.

¹⁶ EPA, "Air Pollutant Emissions Trends Data," April 28, 2025, <https://www.epa.gov/air-emissions-inventories/air-pollutant-emissions-trends-data>.

Resiliency

The state's transportation system has similar challenges and associated risks when compared to other neighboring states. These challenges and risks have the potential to impact the system's operation regarding safety and reliability. MoDOT has multiple processes in place to aid in mitigating this risk including the use of an asset management plan.

MoDOT's approach to asset management is built upon the foundation of its primary goal being to take care of the transportation system and services available today. In 2016, MoDOT's asset management planning evolved from a statewide plan to individual district models. Since 2016, each of MoDOT's seven districts has maintained an asset management plan for pavements and bridges. These plans have been developed and updated regularly by multidisciplinary teams.¹⁷

As part of the asset management plans, MoDOT has identified assets vulnerable to extreme weather due to recent flooding events occurring throughout the state. The assets vulnerable to flooding include several National Highway System (NHS) bridges and pavements, some of which are located on interstates. Locations that have been identified as having a risk due to natural disaster or extreme weather events are documented and, in 2020, MoDOT updated the Transportation Management System (TMS) to include records of all locations (NHS and all other routes) affected by natural disasters which resulted in repairs. There is consideration of potential mitigation strategies with each project programmed in these identified locations.



Source: MoDOT

¹⁷ MoDOT, National Highway System Transportation Asset Management Plan, 2022, https://www.modot.org/sites/default/files/documents/Federal%20Transportation%20Asset%20Management%20Plan_508Compliant.pdf.

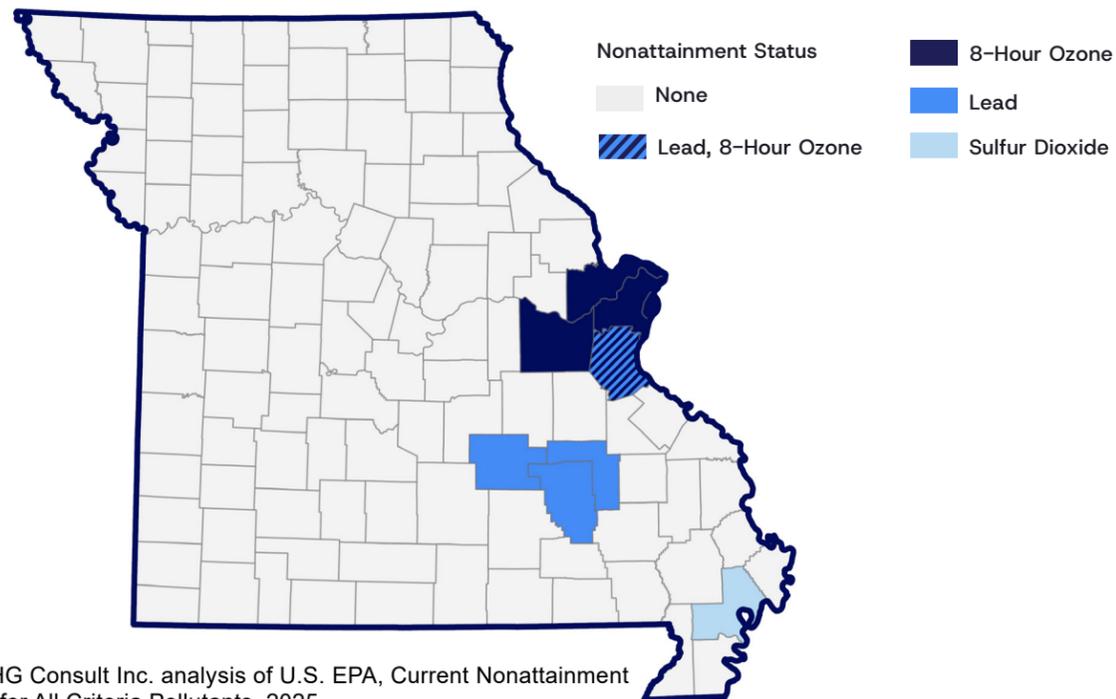
Air Quality

When it comes to air quality, MoDOT is responsible for implementing the conformity regulation for transportation actions in attainment and nonattainment areas. For the Missouri ozone nonattainment area, the East-West Gateway Council of Governments conducts conformity analyses whenever a regionally significant project is added to the Transportation Improvement Program (TIP). These analyses ensure consistency with the State Improvement Plan (SIP) developed by the Missouri Department of Natural Resources. Areas that do not meet the primary standard for any one or more of the six criteria pollutants are designated

nonattainment areas and must implement a SIP that includes measures to reduce emissions.

Ozone is the primary transportation-related pollutant for which Missouri currently has nonattainment areas, particularly concentrated in and around St. Louis in the eastern part of the state. All Missouri counties that are designated nonattainment areas for ozone and other pollutants are shown in **Figure 29**.¹⁸ MoDOT coordinates with East-West Gateway and Mid-America Regional Council Air Quality Committees to ensure consistency with the Air Quality regulations and to coordinate with State and Federal Environmental Agencies.

Figure 29 – Missouri Counties in Nonattainment, 2025



Source: HG Consult Inc. analysis of U.S. EPA, Current Nonattainment Counties for All Criteria Pollutants, 2025.

¹⁸ EPA, "Current Nonattainment Counties for All Criteria Pollutants," May 31, 2025, <https://www3.epa.gov/airquality/greenbook/ancl.html>.

Environmental Resource Constraints

The state of Missouri is home to an abundance of unique environmental resources. The state is nicknamed the "Cave State," with approximately 7,500 recorded caves in the state.¹⁹ The state's unique karst geology allows for these caves to form as well as springs and sinkholes.

The state contains the two longest rivers in the U.S. The Missouri River bisects the state west to east and the Mississippi River forms the state's eastern border. Accompanying those two rivers is the first national park area to protect a river system, Ozark National Scenic Riverway. All three of these riverways boast and support numerous natural resources, economic resources and recreational resources specific to the state.

The state has approximately 45 federally listed threatened and endangered plant and animal species.²⁰ The state is also home to Mark Twain National Forest, which encompasses 1.5 million acres in 29 counties. Complementing Mark Twain National Forest are the state's 57 state parks and 36 historic sites. Two National Historic Trails cross through the state, the Trail of Tears and the Butterfield Overland Trail.

MoDOT's policy is to avoid impacts on natural resources where feasible. Federal policy guides the proposed mitigation on potential impacts to natural resources such as streams, wetlands and farmland.



Source: MoDOT

¹⁹ Missouri Department of Natural Resources (DNR), "Caves," accessed June 5, 2025, <https://dnr.mo.gov/land-geology/geology/karst-missouri/caves#:~:text=With%20approximately%207%2C500%20recorded%20caves,be%20easily%20dissolved%20by%20water.>

²¹ MoDOT, "Environmental Studies – Threatened and Endangered Species," accessed June 5, 2025, <https://www.modot.org/threatened-and-endangered-species#:~:text=Missouri%20has%20approximately%2045%20federally,found%20on%20the%20USFWS%20website.>

Transportation Implications

The state's demographic and socioeconomic projections underscore the complexity of transportation planning through 2050. The state's population is expected to surpass 6.7 million by mid-century, with urban and suburban regions, particularly Kansas City, St. Louis, Springfield, Columbia and Cape Girardeau, driving the majority of growth while many rural areas continue to decline. The proportion of residents over 65 will peak at more than 21% by 2030, while the population under 20 is projected to decrease by 65,000 by 2050, signaling significant shifts in travel demand, mobility preferences and household transportation reliance. Concurrently, VMT is projected to exceed 100 billion annually by 2044, amplifying congestion, safety and maintenance concerns.

Economics and workforce dynamics reinforce these challenges. GSP has grown at an inflation-adjusted rate of 2.1% since 2019, led by manufacturing, healthcare and real estate, all sectors dependent on efficient freight and commuter networks. Cross-border commuting in the Kansas City and St. Louis metropolitan areas continues to place disproportionate strain on the state's infrastructure without equivalent revenue returns. At the same time, fuel efficiency gains and adoption of electric vehicles, while beneficial for sustainability, threaten to erode per-gallon motor fuel tax revenues that remain the state's primary funding source. These interlinked demographic, economic and travel trends make clear that the state's future transportation strategy must prioritize system resiliency, capacity expansion in high-growth corridors, alternative funding mechanisms and equitable access to mobility for an increasingly diverse and aging population.



Source: MoDOT