



CHAPTER 12. MULTIMODAL FREIGHT

Both ARDOT and MoDOT have developed state freight plans that meet federal requirements outlined in MAP-21, and continued in the FAST Act. Due to the small size of the MPA in Missouri, discussion in this chapter will use the Arkansas State Freight Plan. The Missouri State Freight Plan can be found at <https://www.modot.org/freight-plan>.

Multimodal freight or shipping, with regards to the MTP, refers to intermodal, trucking, rail and air shipment modes. Several MTP goals and objectives support investment in multimodal freight – **Implement strategies that help reduce fatality and serious injury crash rates for all modes; Increase transportation mobility and accessibility for both persons and freight, thus promoting economic vitality in the region; Support an integrated system with efficient connections between transportation modes; Enhance commerce; and Promote improvements that facilitate the efficient movement of freight and enhance regional and global competitiveness.**

NATIONAL MULTIMODAL FREIGHT POLICY

The U.S. DOT developed the National Freight Strategic Plan (NFSP) with vision and goals for the nation's multimodal freight system and to define strategies to achieve those goals. The NFSP is used to guide national freight policy, programs, initiatives, and investments. The Plan also is used to inform state freight plans and identify freight data and research needs.

According to the NFSP website, <https://www.transportation.gov/freight/NFSP/fullreport>, Strategic Goals include:

- **SAFETY:** Improve the safety, security, and resilience of the national freight system.
- **INFRASTRUCTURE:** Modernize freight infrastructure and operations to grow the economy, increase competitiveness, and improve quality of life.
- **INNOVATION:** Prepare for the future by supporting the development of data, technologies, and workforce capabilities that improve freight system performance.

INTERMODAL TRANSPORT

Intermodal transportation is the transfer of products involving multiple modes of transportation – truck, railroad or ocean carrier. Intermodal, freight, rail and air transportation are all modes of transportation that deserve continued and expanded investment in terms of Federal, State and local resources.

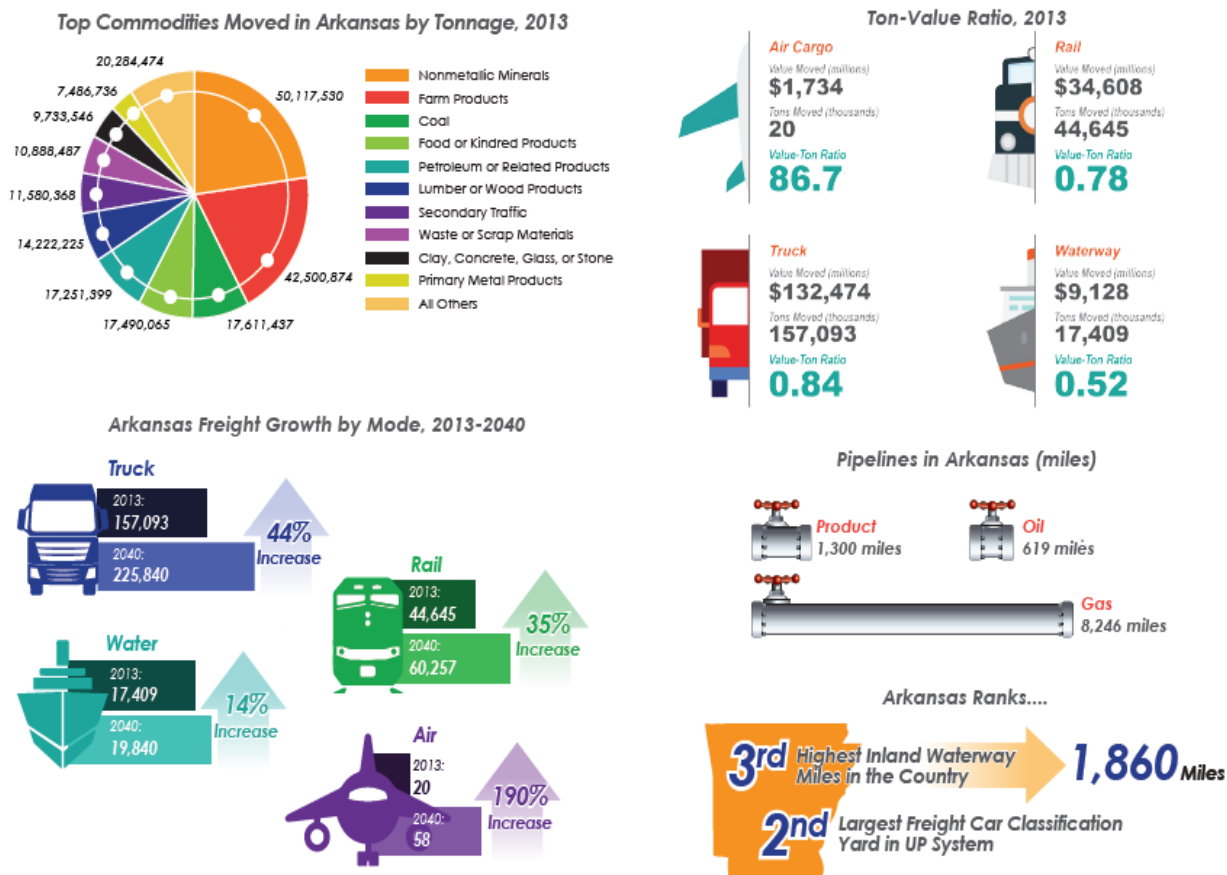
- The trucking industry is facing increasing and significant road congestion, which has prompted some carriers to offer intermodal service.
- Diverting traffic from the highway to the railway may be a solution to the enormous cost of adding highway capacity.
- Shipper demands for capacity and trucker productivity and cost issues have combined to move most of the larger

trucking fleets towards offering an intermodal service.

- Intermodal trucks and rails are offering dozens of new “corridors” running into shorter and shorter lengths of haul.
- Nearly 25 million containers and trailers are moved using intermodal transportation every year. This is due to the fact that intermodal combines the best abilities of different transportation modes to deliver service, savings and solutions to shippers. (Source: Intermodal Association of North America, <http://www.intermodal.org>)
- By working together, trucking companies, ocean steamship lines, and railroads are providing a cost-effective, reliable, efficient, safe and environmentally friendly way to move freight.

Recognizing that the use of intermodal transportation in the region will most likely continue to rise, local and State officials must strive to ensure that transportation infrastructure will accommodate this growth.

Arkansas Freight At-a-Glance



Source: Arkansas State Freight Plan

https://www.arkansashighways.com/Trans_Plan_Policy/freight_plan/ArkStateFreightPlan_ExecSum%20with%20state%20map.pdf

MOTOR FREIGHT

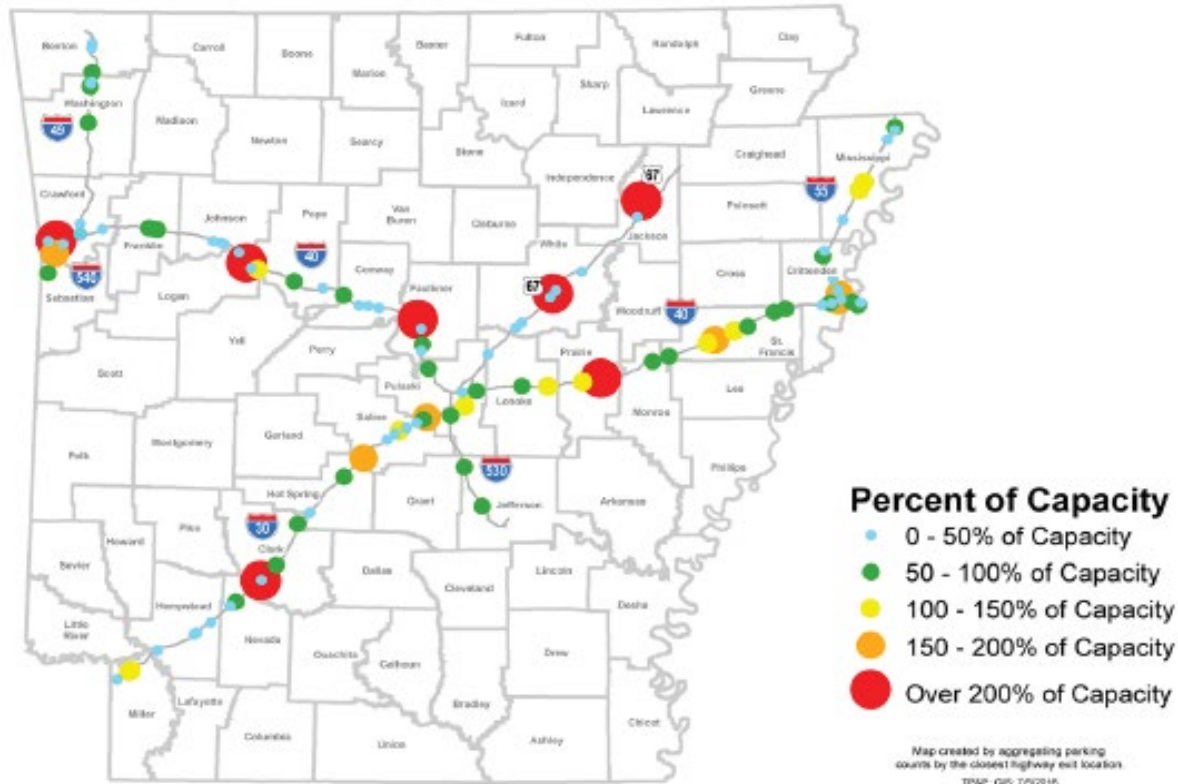
A survey conducted by the American Transportation Research Institute (ATRI) of the trucking industry in September/October 2020 to identify the top issues of concern for industry stakeholders shows that the resurgence of freight demand in 2020, due in part by the coronavirus pandemic, placed Driver Shortage at the top of the 10 Trucking Industry Issues. Closely related is Driver Compensation, which ranked as the number two industry issue. Truck Parking is the third highest ranking issue of concern. The Federal Motor Carrier Safety Administration’s (FMCSA’s) Compliance, Safety, Accountability (CSA) program is the fourth highest rank, with Insurance Cost/Availability rounding out the top five issues. An issue that fell just outside the Top 10 as the 11th ranked issue is Driver Distraction. According to the latest data from the National Highway Traffic Safety Administration (NHTSA) “8% of fatal crashes, 15% of injury crashes, and

14% of all police-reported motor vehicle crashes in 2018 were reported as distraction-affected crashes”.

(Source: *Critical Issues in the Trucking Industry – 2020*, by the American Transportation Research Institute [ATRI] <https://truckingresearch.org/wp-content/uploads/2020/10/ATRI-Top-Industry-Issues-2020.pdf>)

The Arkansas State Freight Plan found that there is a critical need for long-term parking along major freight corridors. Lack of parking impacts the efficiency of the movement of goods, contributes to undesirable truck parking activities, or drivers operating beyond their maximum hours of service.

Overcrowding of Truck Parking Facilities By Exit, 2015



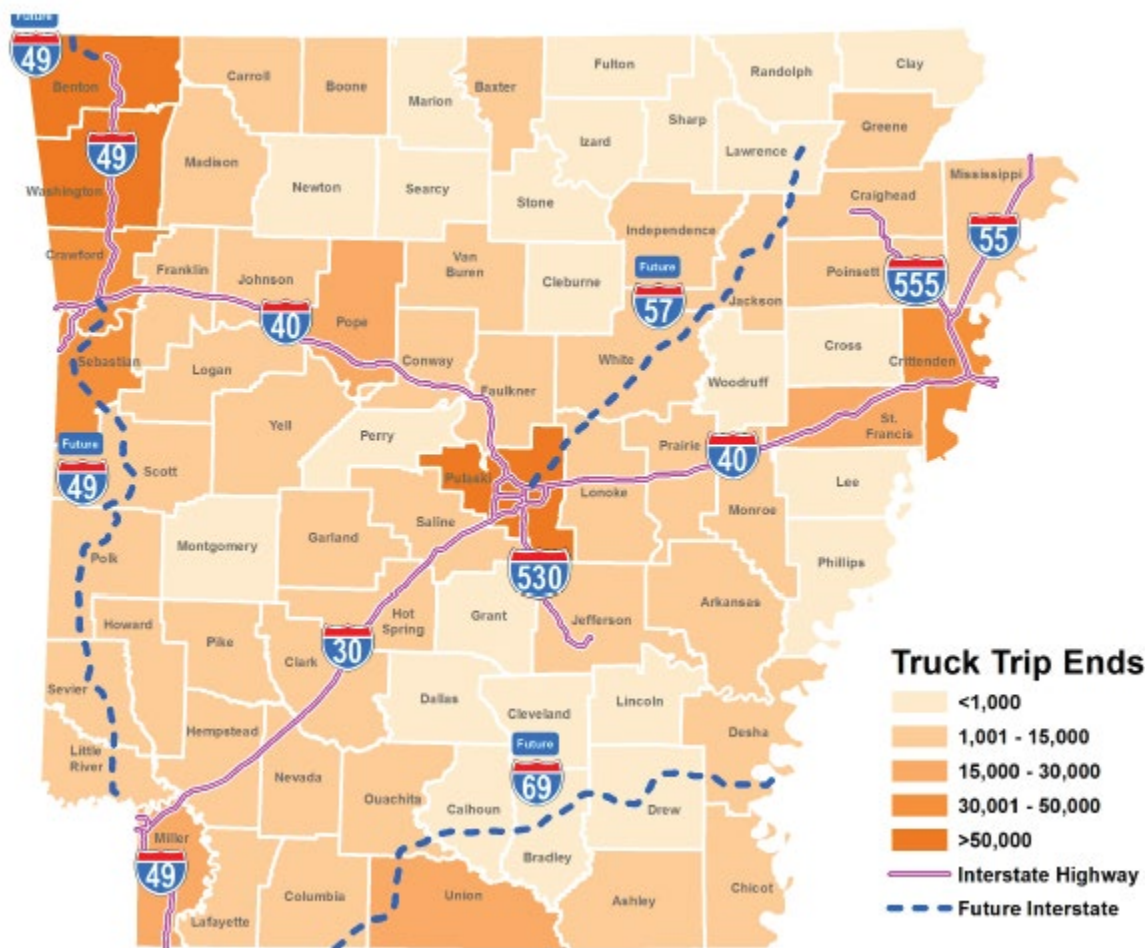
Source: Arkansas State Freight Plan

Truck size and weight is another issue that is of concern to the trucking industry and highway officials as well as other drivers. On June 5, 2015 the DOT released a series of technical reports for peer review and public comment as a step toward completion of the MAP-21/FAST Act Comprehensive Truck Size and Weight Limits Study, examining the impacts of increasing current federal truck size and weight limits. The DOT reported that the data limitations were so profound that no changes to existing truck size and weight limits should be made at this time. The study noted that more than 4,800 bridges would need to be strengthened or replaced because of added stress, at a cost to taxpayers of more than \$1.1 billion. (Source: U.S. Department of Transportation). Arkansas has a current allowable limit of 28' for twin trailers, coinciding with Federal laws that have been in place since 1982. The Federal weight limit on national highways is currently 80,000 pounds.

According to the Arkansas State Freight Plan:

- Of the five modes of freight transportation in Arkansas, commercial trucking moves the greatest tonnage;
- NWA (including Crawford and Sebastian Counties) generates 29% of truck traffic in Arkansas;
- The Interstates are the only roadways in Arkansas that serve more than 5,000 trucks per day.
- The National Highway Freight Network (NHFN) was established under the FAST Act to strategically direct Federal freight resources. In Arkansas, the NHFN includes all Interstate Highways, and other important freight routes. 150 miles of Critical Rural Freight Corridors (CRFCs) and 75 miles of Critical Urban Freight Corridors (CUFCs) are available to allow expanded use of Federal Freight funding.
- Congestion along Arkansas roadways is most significant in metropolitan areas as trucks encounter commuter traffic. There is no recurring congestion on Interstates in Arkansas outside of urban areas.

Trucks Generated in Arkansas Counties, 2015



Source: Arkansas State Freight Plan

According to the 2017 Annual Economic Survey there were 109 general freight trucking establishments in the Fayetteville-Springdale-Rogers AR-MO Metro area with 9,253 employees. NWA is the home to several major trucking companies such as Comstar Enterprises, J.B. Hunt, P.A.M Transportation Services, and Willis Shaw Express. Companies with large truck fleets include Wal-Mart, Tyson Foods, George's Inc., and Simmons Foods. It appears that the demand for trucking will increase by 50 percent over the next 20 years (Arkansas State Freight Plan) which contributes to the economy of Northwest Arkansas. Because trucking is the most heavily used mode of transporting goods, the roadways act as the primary element of freight infrastructure. In turn, roadways with high truck volumes are subject to increased levels of deterioration.



The ability of fuel taxes to adequately fund transportation improvements has been declining due to improvements in fuel economy and stagnant fuel tax rates. As the transportation infrastructure ages and repairs and/or new construction become more costly, it is necessary to find additional funding to make up for shortfalls. It has been suggested that an increase in the fuel tax is the best way to ensure the transportation system is adequately funded. Additionally, it may be necessary to prioritize where transportation funding is spent. Some have suggested the creation of a new funding program to focus Federal resources on truck bottlenecks on major freight routes.

Going forward, enhancing the link between freight planning and land use will help identify and prioritize freight issues and needs, and provide for the ability to recommend physical improvements to infrastructure and identify potential freight-related development locations. Planning for the impacts of increased freight volumes in the future can help reduce the negative impacts of freight (increased traffic, noise, and pollution) while promoting economic and operational efficiencies.

ELECTRIC TRUCKS

Currently, less than 1 percent of fleet vehicles is electric, but that number is expected to grow to 12 percent by 2030. All-electric heavy-duty big rigs, semi-trucks, box trucks, and delivery vans are among the types of trucks being built and tested on interstate, state, and local roadways. Major obstacles facing the industry are ones of scale, price points and battery technology. There's also the challenge of building an interstate network of electric vehicle charging stations capable of keeping the next generation of long-haul trucks on the road.

(Source: <https://www.greenbiz.com/article/8-electric-truck-and-van-companies-watch-2020>)

According to Target Transportation, the shift to renewable-powered vehicles in the coming future has the freight industry and many trucking manufacturers focusing on a future-ready trucking system that uses electric solutions to speed up the long-haul freight management industry. The new-generation of fully-electric truck-types aims to reduce all the market vulnerabilities, i.e., petroleum-based fuels, and bring in more stability, thereby shaving operating costs and curbing emissions. With fewer moving parts, they are also easier to maintain.

(Source: <https://targettrans.com/post/electric-semi-truck-companies-is-the-future/>)

Regional deliveries using medium-and heavy-duty trucks are expected to grow rapidly in the future due in part to a dramatic increase in e-commerce. With a defined daily route, and trucks that return to the same place every night to recharge, electric trucks make sense. There is a sustainable e-commerce growth trend that the industry has been anticipating. However, equipping central depot facilities to accommodate commercial charging needs is a challenge that will need to be overcome.

The electrification of trucking appears to be rolling out in three phases, beginning with medium-duty box trucks and vans, followed by heavy-duty semis used for regional hauling. Long haul, over-the-road trucks traveling more than 600 miles a day will probably be the last to see electrification, due to fuel cells that are still in development.

About two million of the 15.5 million trucks operating in the United States are semis, or tractor-trailers. They're replaced at the rate of 200,000 to 300,000 a year. Still, the market for electric heavy-duty trucks is expected to be less than 4 percent of all trucks sold until 2025, according to the global information firm IHS Markit. In NWA, interstate, State and local roadways will continue to play a big part in the movement of goods via semis, and will require maintenance and improvements for the foreseeable future.

(Source: NYTimes <https://www.nytimes.com/2020/03/19/business/electric-semi-trucks-big-rigs.html>)

AUTONOMOUS TRUCKS

Companies that specialize in moving goods across the country are working to bring down shipping costs by reducing inefficiencies in the system, and automated trucks will be a crucial part of their success. Autonomous, or self-driving, trucks are currently being developed and tested. The trucks use cameras and sensors, plus lidar and radar, that provide vast amounts of data, so the vehicle's computer software knows what's happening up to 3,000 feet up the road, and can react to emergencies 10 times faster than a typical human.

Some companies are concentrating on long-haul semis meant to operate without humans, with the goal to autonomously navigate traffic, and other surprises, on the roads, with routes up to 1,000+ miles. Other companies are

focused on last-mile delivery and are using smaller self-driving minivans to move packages to consumers. The idea with some of these companies is to implement the self-driving technology into vehicles and parts produced by other manufacturers.

Regardless of whether companies are building their own long-haul or last mile fleets, or developing autonomous technology, the truck freight industry is changing. The technology will hopefully make trucking cheaper, safer, faster, more fuel-efficient, and more environmentally friendly.

(Source: <https://www.vox.com/recode/2020/7/1/21308539/self-driving-autonomous-trucks-ups-freight-network>)

RAIL

Unlike most other modes of transportation, freight railroads operate over infrastructure that is built and maintained with private funds. These private investments help sustain jobs and ensure the industry can meet growing demand to move more of what the nation and world needs. Freight railroads spend nearly \$29 billion annually to maintain and add capacity to the nationwide freight rail network. The impact of freight rail investments has helped provide a safe, efficient, affordable, and reliable means by which U.S. products can travel to market anywhere in the country and, through ports, anywhere around the globe.

The U.S. freight network consists of nearly 140,000 rail miles operated by more than 600 railroads. While these railroads typically own their own tracks and locomotives, they share a fleet of approximately 1.5 million cars. Moving goods along the freight rail network involves a process called interchange, which means transferring cars from one railroad to another. The movement of shipping containers and truck trailers by rail has been the fastest growing rail traffic segment over the past 25 years.

Several kinds of railroads share the network:

- **Class I railroads** – Operate in 44 states and the District of Columbia and concentrate largely on long-haul, high density intercity traffic. Class I railroads are the largest railroads based on operating revenue. The seven Class I railroads include BNSF Railway Company, Canadian Pacific National Railway (Grand Trunk corporation), Canadian Pacific (Soo Line Corporation), CSX Transportation, Kansas City Southern Railway Co., Norfolk Southern Combined Railroad Subsidiaries, and Union Pacific Railroad Co. These railroads account for 68 percent of the industry's mileage, 88 percent of its employees, and 94 percent of its freight revenue.
- **Short line and regional rail roads** – Range in size from small operators handling a few carloads a month to multi-state operators. The short line and regional railroads account for 31 percent of U.S. freight rail mileage and 10 percent of employees, operate in every U.S. state except Hawaii and often feed traffic to Class I railroads and receive traffic from Class I railroads for final delivery.
- **Switching and terminal railroads** – Usually perform pick-up and delivery services within a port or industrial area, or move traffic between other railroads.
- **Passenger railroads** – Typically operate over tracks owned by freight railroads. Approximately 70 percent of the miles traveled by Amtrak trains are on tracks owned by freight railroads. Additionally, each year hundreds of millions of commuter trips occur on commuter rail systems that operate, at least partially, over track or right-of-way owned by freight railroads.

Of particular importance to railroad operators, the public, and local, State and Federal officials alike, are the approximately 210,000 grade crossings in the nation. All these players are working together to improve grade crossing safety and promote safe driver and pedestrian behavior. The Federal Section 130 program, which will allocate \$245 million in Federal funds for FFY 2020 to states for installing new active warning devices, upgrading existing devices, and improving grade crossing surfaces, has helped prevent tens of thousands of at grade crossing related injuries and fatalities. The train accident rate in 2019 was down 30 percent from 2000 and the grade crossing collision rate in 2019 was down 32 percent from 2000. NWARPC has awarded funding to two STBGP-GT 200K projects that address improving rail crossings through gate installation.

Sources:

Association of American Railroads <https://www.aar.org>

Federal Rail Administration <https://dotcms.fra.dot.gov/rail-network-development/freight-rail-overview>

FHWA <https://safety.fhwa.dot.gov/hcip/xings/>

RAIL IN ARKANSAS

According to the Arkansas State Freight Plan, there are approximately 2,662 miles of active rail lines in the state. Union Pacific Railroad owns about half of these miles. Burlington Northern Sante Fe (BNSF) and Kansas City Southern owns another 356 miles. The remaining nearly 1,000 miles are owned by 23 Class III or shortline railroads. The 2013 Arkansas State Rail Plan identified nearly 100 improvements for freight rail infrastructure, totaling \$1.5 billion. Additional freight improvement projects recommended in the State Rail Plan include over \$300 million in capacity enhancement, \$22 million in industrial access and economic development projects, \$70 million in intermodal and transloading improvements, and \$62 million in track upgrades and rehabilitation. Rail traffic is forecast to grow by 35 percent in Arkansas between 2013 and 2040. [Source ARDOT Publications.](#)

NORTHWEST ARKANSAS

The Northwest Arkansas region is served by two railroads: The Arkansas and Missouri Railroad (A&M) and the Kansas City Southern (KSC).

Kansas City Southern Railroad

KCS offers the foundational rail route between the industrial heartlands of the U.S. and Mexico and is just one interchange away from every major market in North America. It offers seamless transportation throughout North America and beyond through strategic partnerships with all Class 1 railroads, short line partners, ports, transload centers and intermodal ramps. The KCS operates along a route north and south of Kansas City, through Siloam Springs on the western edge of Benton County.

KCS ships by carload or intermodal:

- Carload
 - Shipping by carload is designed for those with heavy loads or a more flexible time schedule for delivery. With multiple types of equipment within the carload fleet such as boxcars, coil cars, gondolas or tank cars, any commodity ranging from agriculture to steel and anything in between can be shipped via carload.
 - Given carload's volume capacity and rail's energy efficiency, rail is one of the most environmentally efficient forms of transportation. On average, a single Class I U.S. freight train can haul one ton of freight 473 miles on just one gallon of fuel.
 - The volume capacity and energy efficiency of rail shipping equates to economical savings for carload shippers.
- Intermodal
 - As companies continue to manage the time vs. money equation as well as the complexities of domestic U.S., Mexico and cross-border transport, more and more shippers are converting to intermodal, taking advantage of the efficiency of container shipping by railroad.



- With intermodal facilities in both the U.S. and Mexico, along the International Intermodal Corridor, KCS provides an efficient transcontinental rail line from Mexico to the southeastern U.S., and beyond.

(Source: <http://www.kcsouthern.com/en-us/>)

Arkansas and Missouri Railroad

The A&M "was established in 1986 as a Class III Railroad operating a 150-mile route from Monett, Missouri to Fort Smith, Arkansas. A&M's corporate headquarters is located in Springdale, Arkansas; major operations are based there and Fort Smith. The company provides freight service to customers along its route and excursion passenger service between Springdale and Van Buren/Fort Smith. A&M interchanges traffic with three Class I railroads: Burlington Northern Santa Fe (BNSF), Kansas City Southern (KCS), and the Union Pacific Railroad (UP), as well as the Fort Smith Railroad (FSR). All lines are rated at 286,000 lbs. and cleared for double-stack rail cars, and main lines feature continuous welded rail.

The A&M extends its customer reach through collaboration with other Class I and short line railroads across the United States, Canada and Mexico. The A&M enables seamless water-based intermodal options through A & M-served river ports in Van Buren and Fort Smith, Arkansas. Port operators there provide a variety of storage, inspection, transload, packaging and other logistics services."

(Source: <http://amrailroad.com/freight>)



Image and map courtesy of Arkansas Missouri Railroad

<https://www.amrailroad.com/>



A&M train at Dickson St. Intersection in Fayetteville

AIR

The area is served by one national airport, Northwest Arkansas National Airport, located in Highfill, and five municipal airports located in Fayetteville, Springdale, Rogers, Bentonville and Siloam Springs.

The Northwest Arkansas National Airport (Airport)

In the late 1990s a regional airport was established. The Airport, located in Highfill, is the major commercial airport serving the region. The call letters assigned the Airport are XNA. The Airport opened for commercial passenger business on November 1, 1998. The geographic terrain where the Airport is located provides facilities for regional and larger jet aircraft to operate.

The Northwest Arkansas National Airport Authority (NWANAA) operates the airport. The Authority is comprised of five cities and two counties. The cities, Bentonville, Fayetteville, Rogers, Siloam Springs and Springdale, each appoint two members to the Board of Directors, as do Benton and Washington County. The Board of Directors mission is to build, operate and maintain the runways, structures, roadways, staff and finances required to operate a modern aviation facility.

The Authority is working with the Arkansas Department of Transportation to perform an Environmental Assessment for a connector road to the Northwest Arkansas National Airport (XNA). The scope of work also includes roadway and bridge design plans for the alignment, which will be determined through the Environmental Assessment process.

In an effort to expedite construction of the new connector road, ARDOT has agreed to manage the project development, construction, and add the future XNA connector to the State Highway system. The connector project is shown as part of the 2020 voter approved permanent half-cent sales tax “potential” project. ([Source CAP Program](#)).

The project is estimated to be approximately 4 miles long, connecting the Northwest Arkansas National Airport in Bentonville to the Springdale Northern Bypass (Highway 612) in Springdale.



Map and image courtesy of XNA website: <http://www.flyxna.com/>

IN SUMMARY, in order to attain the transportation system as envisioned in the MTP, it will be necessary for State and local officials, industry leaders, and citizens to work together to advance the goals and objectives of the MTP, such as:

- To increase transportation mobility and accessibility thereby promoting economic vitality in the region;
- To develop an integrated system with efficient connections between transportation modes;
- To enhance commerce; and
- To make improvements that facilitate the efficient movement of freight and enhances regional and global competitiveness.