





# MCCLELLAN-KERR ARKANSAS RIVER NAVIGATION SYSTEM

The McClellan-Kerr Arkansas River Navigation System (MKARNS) is Oklahoma's primary navigable waterway originating at the Tulsa Port of Catoosa and flowing southeast to the Mississippi River. The MKARNS is synonymous with the Arkansas River in Oklahoma from the Port of Muskogee downstream to the Arkansas border. Upstream of the Port of Muskogee, the MKARNS leaves the Arkansas River and joins the Verdigris River as it heads up to the Tulsa Port of Catoosa. It was dedicated by President Nixon in 1971 after being funded by Congress at a cost of \$1.2 billion with a name that was selected in honor of U. S. Senators John L. McClellan and Robert S. Kerr from Arkansas and Oklahoma, respectively, after their vision became a reality.

The system is currently open 24/7/365, and the system is continuing to ship its annual tonnage. A total of 18 locks and dams enable tows to traverse the 445 mile trip along the MKARNS by raising the tows a total of 420' to meet the total change in elevation going upstream and lowering the tows going downstream through these locks. The five dams located in Oklahoma provide numerous benefits, one of which is preventing flood damage, estimated at a savings to Oklahoma of \$644 million, and a cumulative savings of \$9.3 billion since the MKARNS opened in 1971. Other benefits of the MKARNS include water supply, hydropower generation, recreation, fish and wildlife conservation and, most importantly, navigation. Transporting by barge is the most economical, safe and environmentally friendly way of shipping bulk and oversized cargo.

There are two hydropower plants with a total of seven power generating units on the MKARNS in Oklahoma benefiting approximately 636,500 end users that provide clean energy. A portion of the revenues is applied to the operations, maintenance and construction costs of these projects and the rest is deposited into the U.S. Treasury. Over 11,800 full and part-time jobs are provided for in Oklahoma and the surrounding region from the MKARNS.

MARINE HWY M40



The MKARNS has been designated the M-40 Marine Highway. It is considered a corridor of the inland river system. These designations identify alternate routes where water transportation presents an opportunity to reduce air emissions and offer a level of relief to Interstate surface transportation facilities that may be congested or have condition issues. In May 2016, the first Marine Highway sign in the nation was unveiled by Deidre Smith, ODOT Waterways Manager; Gene Higginbotham, Executive Director of the Arkansas Waterways Commission; and Chip Jaenichen, Administrator of USDOT Maritime Administration, during the Port of Catoosa's dock dedication ceremony.

## INLAND WATERWAY FREIGHT TRANSPORTATION

Movement of cargo by inland waterway tends to be comprised of the least time sensitive and heavy bulk commodities. Ports and waterways are an important component of Oklahoma's network for transporting these goods. The MKARNS waterway links Oklahoma to a 12-state service area with various domestic ports on the U.S. inland waterways system and foreign ports by way of New Orleans and the Gulf Intracoastal Waterway.

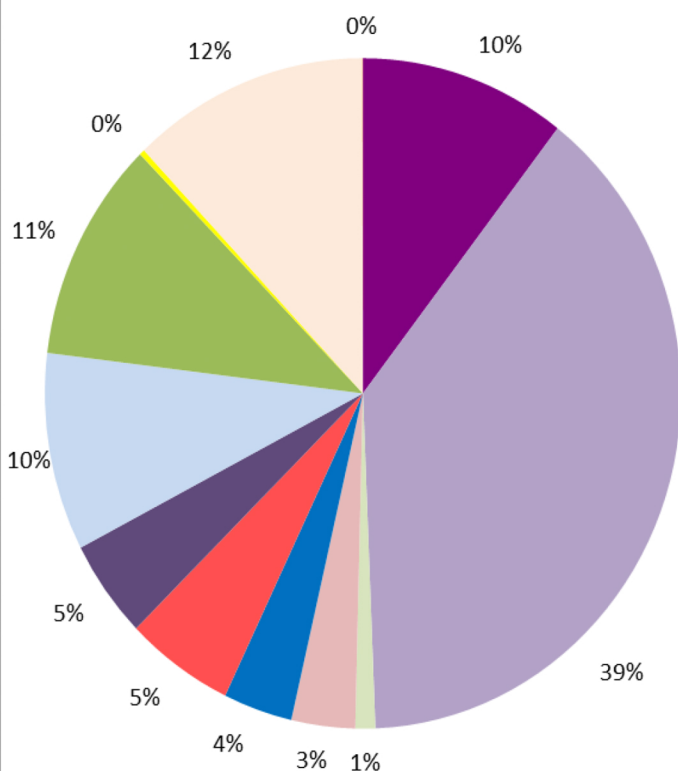
The most prevalent commodities shipped on the MKARNS are fertilizer and steel moving inbound and agricultural products such as wheat, soybeans and other grains moving outbound. Agricultural commodities accounted for 73% of the total product moved on the Oklahoma segment of the MKARNS in CY15.

The 2015 tonnage transported on the Oklahoma segment was 4.6 million tons (valued at \$2.2 billion), which could require as many as 185,164 equivalent trucks to move on Oklahoma's highways, interstates and bridges. The system as a whole has a 10 year average of 11.6 million tons (valued at \$3.6 billion), which could require as many as 467,570 equivalent trucks to move. While a significant and growing volume of freight is transported via the waterway, the representative tonnage is less than one percent of the total annual freight moved in, out, within and through the State of Oklahoma when considering truck, rail and waterway. Shipping rates of all modes are reduced by 15% due to the competition the system provides. Fuel use and Co<sub>2</sub> emissions are reduced by 40% compared to rail and 270% by truck.

In 2015, the MKARNS was inundated with a deluge of heavy rainfall. Close to 43 million acre feet of water, which is 5.5 times what it would take to fill the MKARNS, hit the system during June and July and another high water event occurred late in December, 2015. The navigation system was shut down for 60 days due to shoaling and high flows too dangerous to traverse for tows. The high water events were unprecedented and accounted for the tonnage dropping by 1.1 million tons from the previous year. Water transportation will continue to play an important part in the state's future. There is ample room for growth in this mode; and it provides some excellent examples of intermodal transportation.

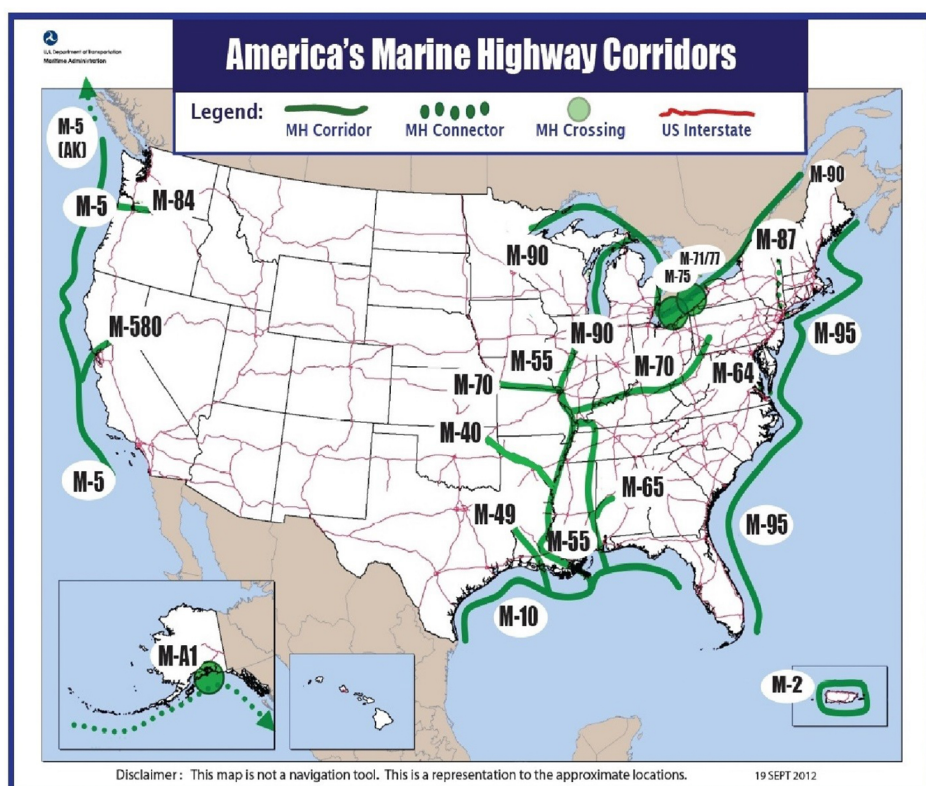
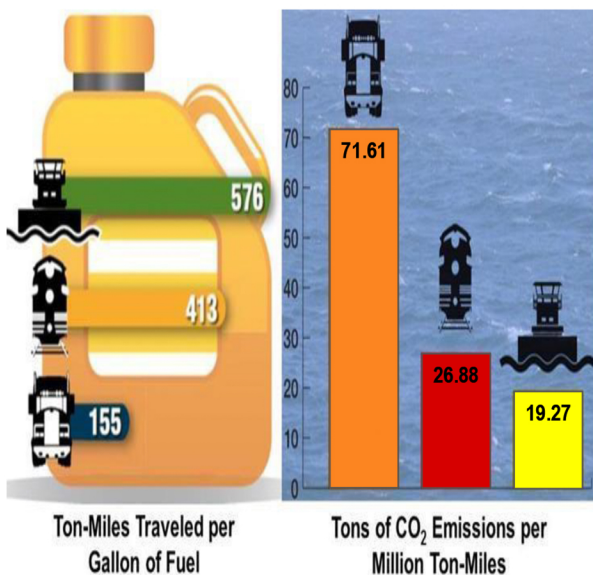


# COMMODITY COMPARISON BY TON ON THE OKLAHOMA SEGMENT OF THE McCLELLAN-KERR ARKANSAS RIVER NAVIGATION SYSTEM (MKARNS) FOR CY15 (4,629,121 / \$2,201,997,850)



	TONNAGE	VALUES
IRON/STEEL	485,400	\$195,693,864
CHEM FERT	1,800,160	\$1,354,908,426
OTHER CHEM	46,773	\$35,204,166
PETRO PROD	149,908	\$139,236,050
SAND/GRAVEL/ROCK	162,400	\$1,346,296
COKE & COAL	254,900	\$16,063,798
MINERALS/BLDG MAT'S	219,900	\$46,533,039
FOOD/FARM PROD	441,900	\$93,510,459
WHEAT	495,800	\$66,144,678
EQUIP/MACH	12,580	\$62,900,000
SOYBEANS	558,000	\$190,160,820
MISC	1,400	\$296,254
<b>TOTALS:</b>	<b>4,629,121</b>	<b>\$2,201,997,850</b>

## TRANSPORTATION MODE COMPARISON ON FUEL AND CO2 EMISSIONS





## PORTS

There are 31 terminal facilities along the MKARNS within Oklahoma; however, most facilities are clustered along the Ports of Catoosa and Muskogee. The Port of Catoosa and the Port of Muskogee are the two public ports on the Oklahoma segment of the system. They both have rail access in and out of their industrial parks where industries lease property from the ports and ship liquid and bulk materials and project cargo from across the globe. Both public ports have designated Foreign Trade Zones and have served over 44 countries. Oakley's Port 33 is the largest private port located 13 river miles downstream from the Port of Catoosa. The other ports and terminals in Oklahoma include Consolidated Grain and Barge located within Oakley's Port 33, the Port of Dunkin, and Webbers Falls; Frontier Terminal and Georgia Pacific, LLC, located downstream from the Port of Muskogee, and Livestock Nutrition at the Port of Keota. The main commodities being shipped include: iron and steel, chemical fertilizer, other chemicals, petroleum products, coal & coke, sand, gravel and rock, soybeans, wheat, other grains, forest products/minerals, miscellaneous, farm products/minerals and project cargo such as manufacturing equipment or machines that are generally too large to ship by rail or truck.

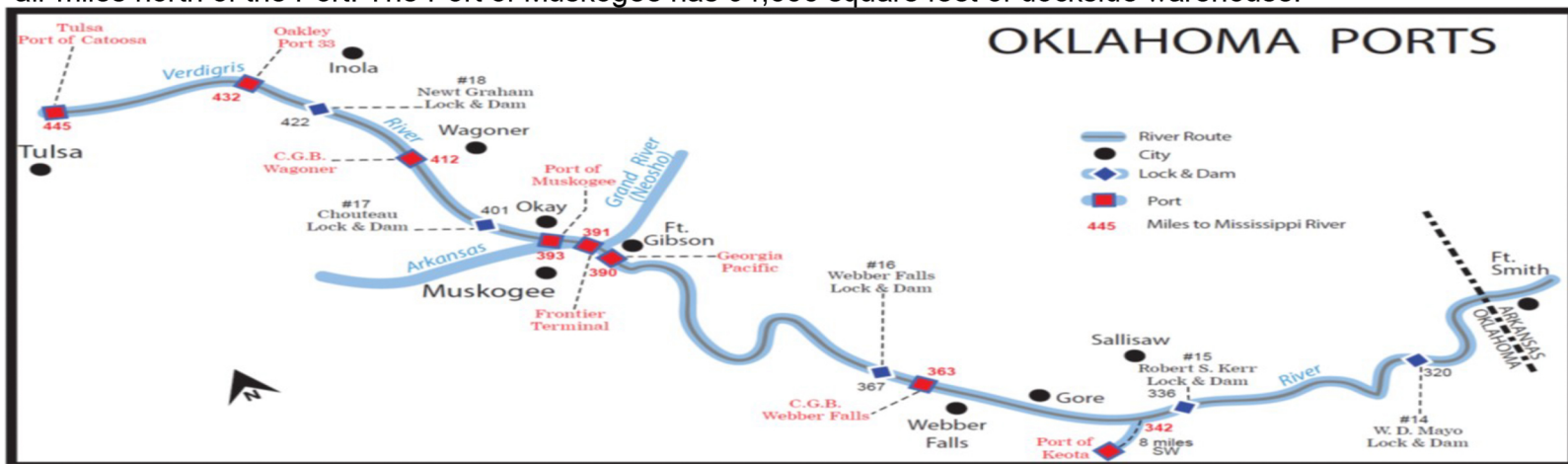
The port facilities are able to transfer cargo quickly and easily to the next mode of transportation. Oakley's Port 33 and the Port of Keota, have their own harbor towboats for barge movement, while the two public ports also have internal rail tracks with locomotives for rail switching within the ports for the mainline railroads, in addition to the harbor towboats. Additionally, the Port of Catoosa handles services to and from pipelines and is eight miles from the Tulsa International Airport. Most ports have direct access to several interstate, state highway, and/or turnpike facilities.

### Tulsa Port of Catoosa

The Tulsa Port of Catoosa is one of the nation's largest inland river-ports, located at the head of the MKARNS. It is owned by the City of Tulsa-Rogers County Port Authority in Catoosa, with approximately 2,000 acres of industrial park space with multi-modal access. Industrial facilities located within the Port of Catoosa include manufacturing, distribution, and processing of goods. The Port has five public terminals including a general dry cargo dock, roll-on/roll-off low water wharf, dry bulk terminal, grain terminals, and the 6 liquid bulk terminals are all privately owned and operated. The Port of Catoosa was awarded a \$6.425 million TIGER Grant from USDOT for rehabilitation of the main dock and adding a second crane with 100+ ton capacity. Barges, trains, and trucks serve the Port of Catoosa. The Port owns three locomotives for its 12-mile short-line railroad system that serves the terminals and private industries. The Port also owns two switch-boats that move barges between docks. The Port of Catoosa is served by various nationwide trucking shippers, and averages over 1,000 trucks per day. There is easy access on and off of I-44 and SH-169. Class I railroads serving the Port include Burlington Northern Santa Fe directly, and Union Pacific Rail Road through a short-line switch on the South Kansas and Oklahoma Railroad. The Tulsa International Airport is seven miles from the Port, and provides freight cargo shipping.

### Port of Muskogee

The Port of Muskogee lies in the city of Muskogee and provides industrial park facilities with access to multiple modes of transportation. There is the Port Industrial Park with 144 acres of industrial park land, and the Port of Muskogee/John T. Griffin Industrial Park with 117 acres. Industrial roads connect the Port to the Muskogee Turnpike and SH-165. The Turnpike and SH-165 provides access to US-69, which provides access to I-40 and I-44. Commercial trucking companies that serve this Port include J.B. Hunt, Yellow Freight, Dalworth Trucking, Arrow Trucking, Oakley Trucking and a few others. There is a rail marshalling yard and an internal track system within the Muskogee switching limits of the UPRR. Overhead and mobile cranes are available for transloading shipments among barge, rail, and truck. Davis Field Airport lies nine miles south of the Port, and Tulsa International Airport is 45 air miles north of the Port. The Port of Muskogee has 94,000 square feet of dockside warehouse.





## SYSTEM NEEDS

There is a backlog of critical maintenance of approximately \$75 million needed on the 100% federally funded navigation features of the system. The Corps of Engineers is responsible for the operation and maintenance of the system and defines “critical maintenance” projects as having a 50% or greater probability of failure within the next 5 years. The available funding has not kept pace with the demand over the years with the increasing wear and tear on the locks that are now over 40 years old. With decreased federal funding, industry proposed legislation that was approved in the 2014 Water Resources Reform and Development Act (WRRDA) regarding contributions from the stakeholders, not only with funding, but also materials and services. In addition, H.R. 647 ABLE Act of 2014 included Section 205 in which industry advocated to have the diesel fuel tax increased from \$0.20 cents per gallon to \$0.29 cents to be collected in the Inland Waterways Trust Fund for construction projects approved through the Inland Waterways User Board. For navigation systems like the MKARNS, lockage fees would be detrimental with 18 locks on the system. The tax increase represents a more equitable means of distributing the burden of addressing the backlog of critical maintenance on inland waterway infrastructure.

Another priority for the navigation system is to upgrade Oklahoma’s locks with tow haulage equipment. All 13 of Arkansas’ locks are equipped with this feature. Because there is only enough room for eight barges and a towboat in a lock chamber, if more than eight barges are being pushed in the tow, the captain has to separate the tow to push the first eight barges and lock through, turn around and lock the towboat through to pick up the remainder of the tow and lock through again. Without tow haulage, it almost doubles the lock time for tows of 9 – 17 barges.

Although the channel is currently navigable with a 9’ draft, Congress authorized the channel at 12’ in the Energy and Water Development Act of 2004, H.R. 2754. However, funds have never been appropriated for the work. The 12’ draft would allow more weight to be placed on the barges lowering shipping costs that are ultimately paid by the consumer, as well as making MKARNS more competitive with other inland rivers in transporting commodities through the heartland and bringing economic growth to the region.

The Three Rivers Feasibility Study was included in President Obama’s FY2016 budget and received a “new start” from the Assistant Secretary of the Army (Civil Works). This study is to determine a solution for the problem area at the White River, which is part of the MKARNS, and the lower Arkansas River which is non-navigable. Should the White River cut through to the lower Arkansas River, a loss of navigation would occur. Repairs to this breach could take up to one year and could have a serious economic impact on Oklahoma’s ports. The \$3 million dollar study is a 50/50 cost share between the U.S. Army Corps of Engineers and the Arkansas Waterways Commission, the local sponsor, obtaining its funding from the Arkansas State Legislature and Governor.

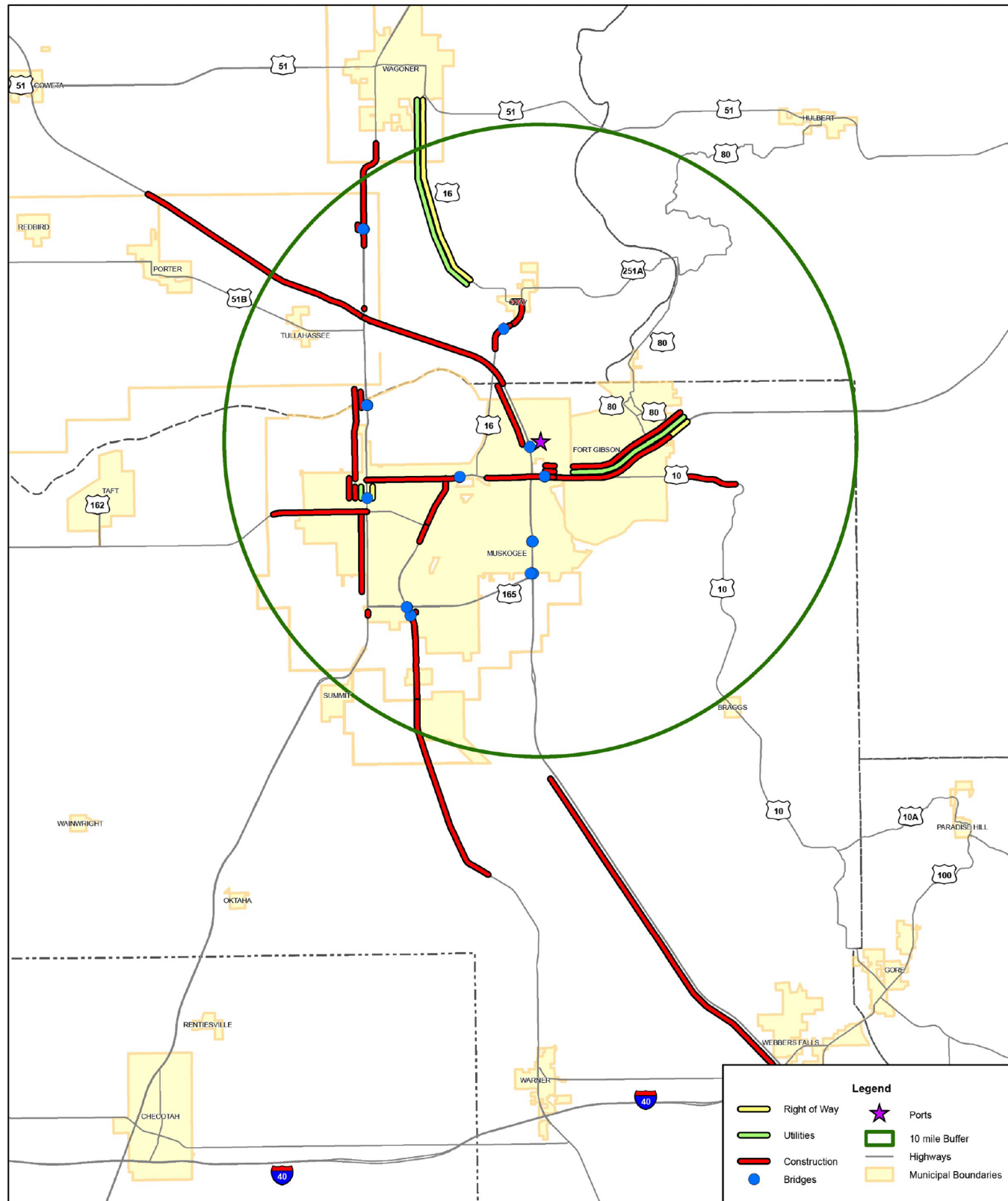
## ODOT COMMITMENT TO WATERWAYS

The importance of maintaining this vital infrastructure to Oklahoma’s economy is undeniable. ODOT and the Arkansas Waterways Commission jointly worked on a Regional Economic Impact Study that was conducted by the University of Arkansas Little Rock, Oklahoma State University and the University of Arkansas Mack-Blackwell Rural Transportation Center in Fayetteville. The study illustrates the estimated economic impact of the MKARNS to not only Oklahoma’s and Arkansas’ economies, but also the nation.

Due to the commitment of the Department to support the ports and the freight and shipping opportunities that are provided for the state, numerous transportation system improvement projects have been completed and are scheduled in their vicinities (reference illustrations on pages 5 – 8). Since 2000, the Department has awarded 175 contracts, including right-of-way and utility relocation efforts, totaling in excess of \$573.9 million within a 10 mile radius of the Port of Catoosa and Oakley’s Port 33. Further, within that same area an additional 49 projects totaling nearly \$255.2 million are scheduled for award in FFY 2017 through 2024 of which \$214.2 million are included in the 8 Year Construction Work Plan. Similarly, since 2000, the Department has awarded 50 contracts, including right-of-way and utility relocation efforts, totaling almost \$83 million within a 10 mile radius of the Port of Muskogee. An additional 18 projects totaling over \$154.5 million are scheduled for award in FFY 2017 through 2024 of which \$138.3 million are included in the 8 Year Construction Work Plan for that same area.



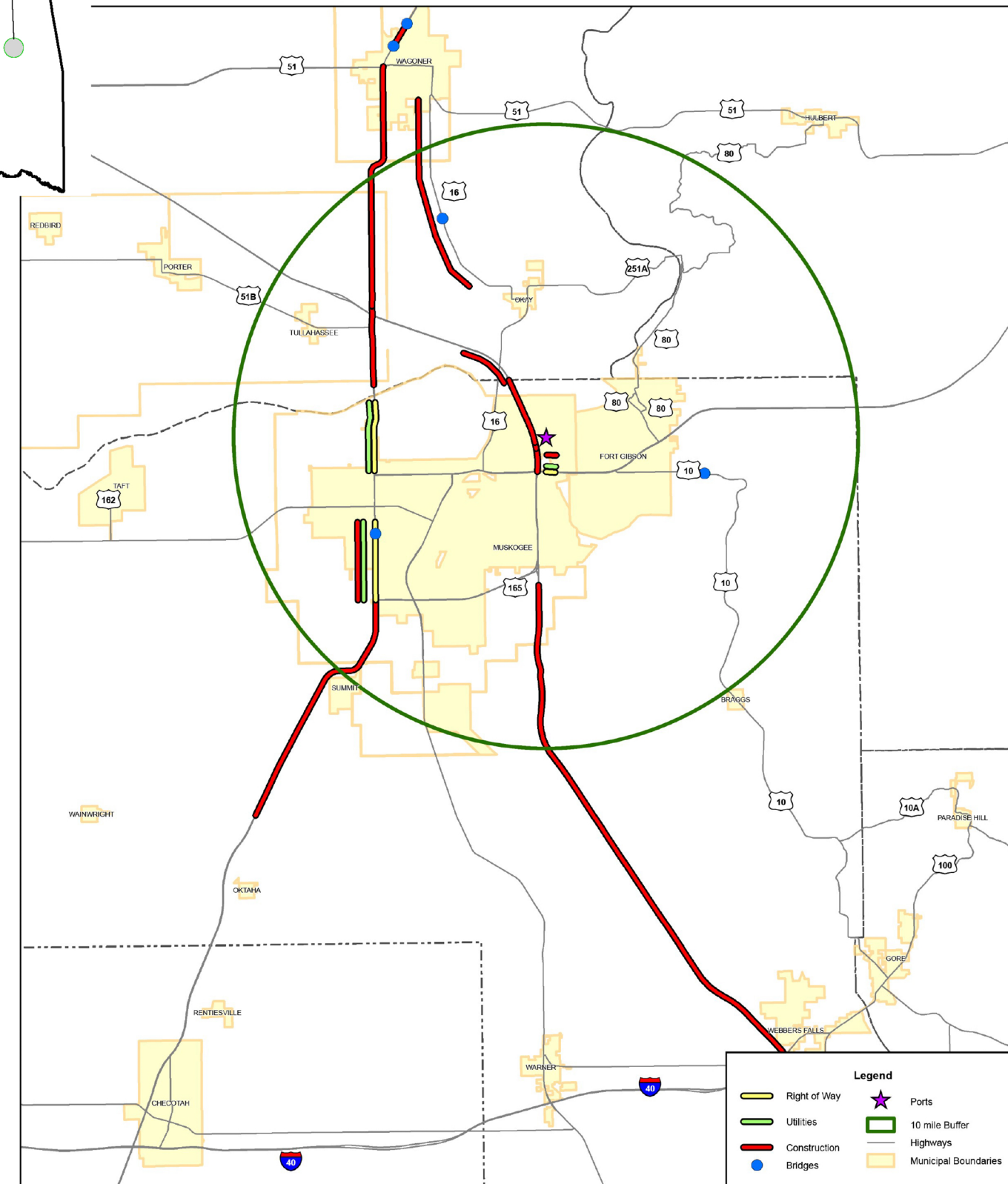
# PORT OF MUSKOGEE



**Awarded Projects**  
\$83,061,322.00 since 2000



PORT of MUSKOGEE

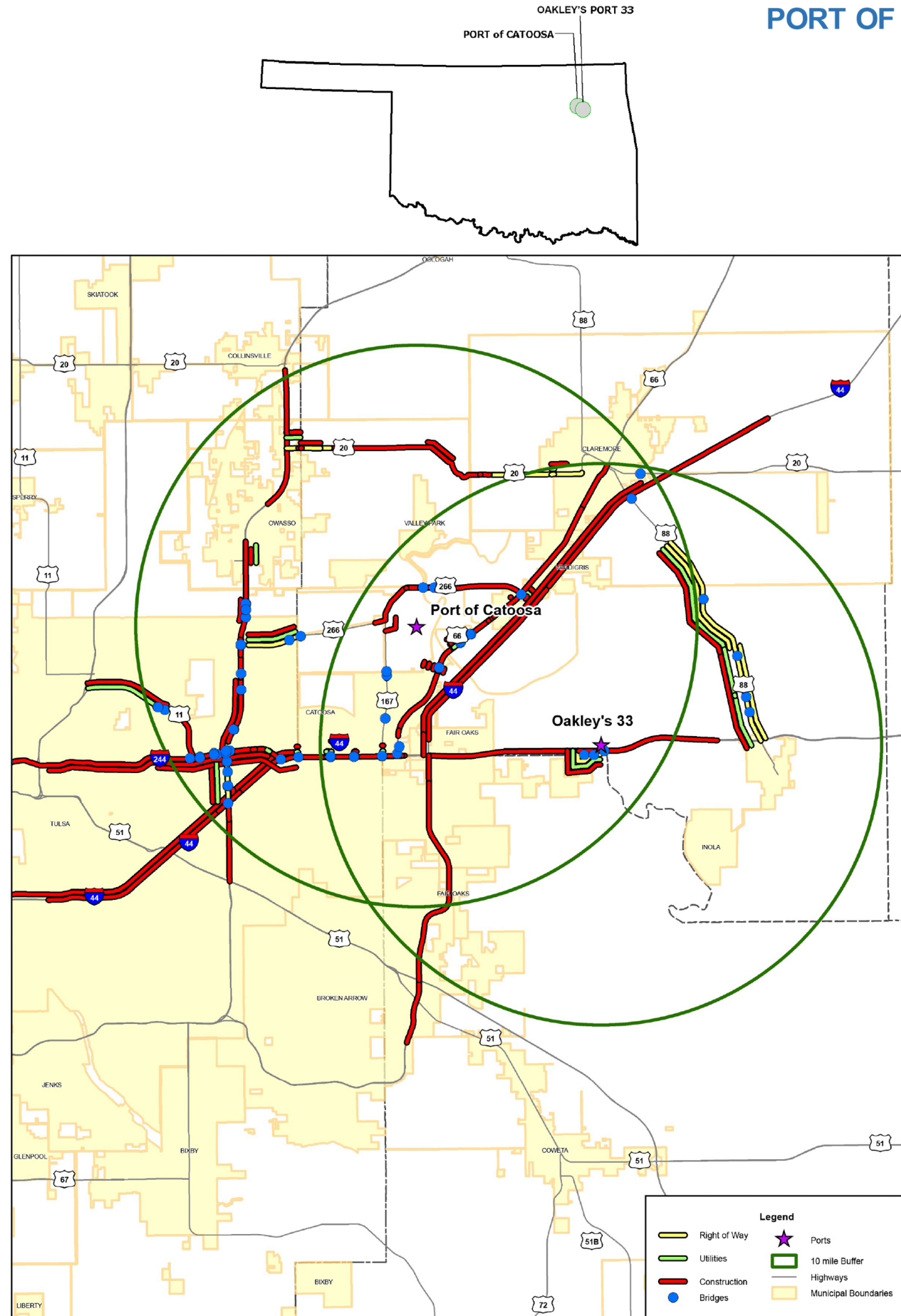


**Active Projects**  
\$154,505,386.00 between 2017 and 2024

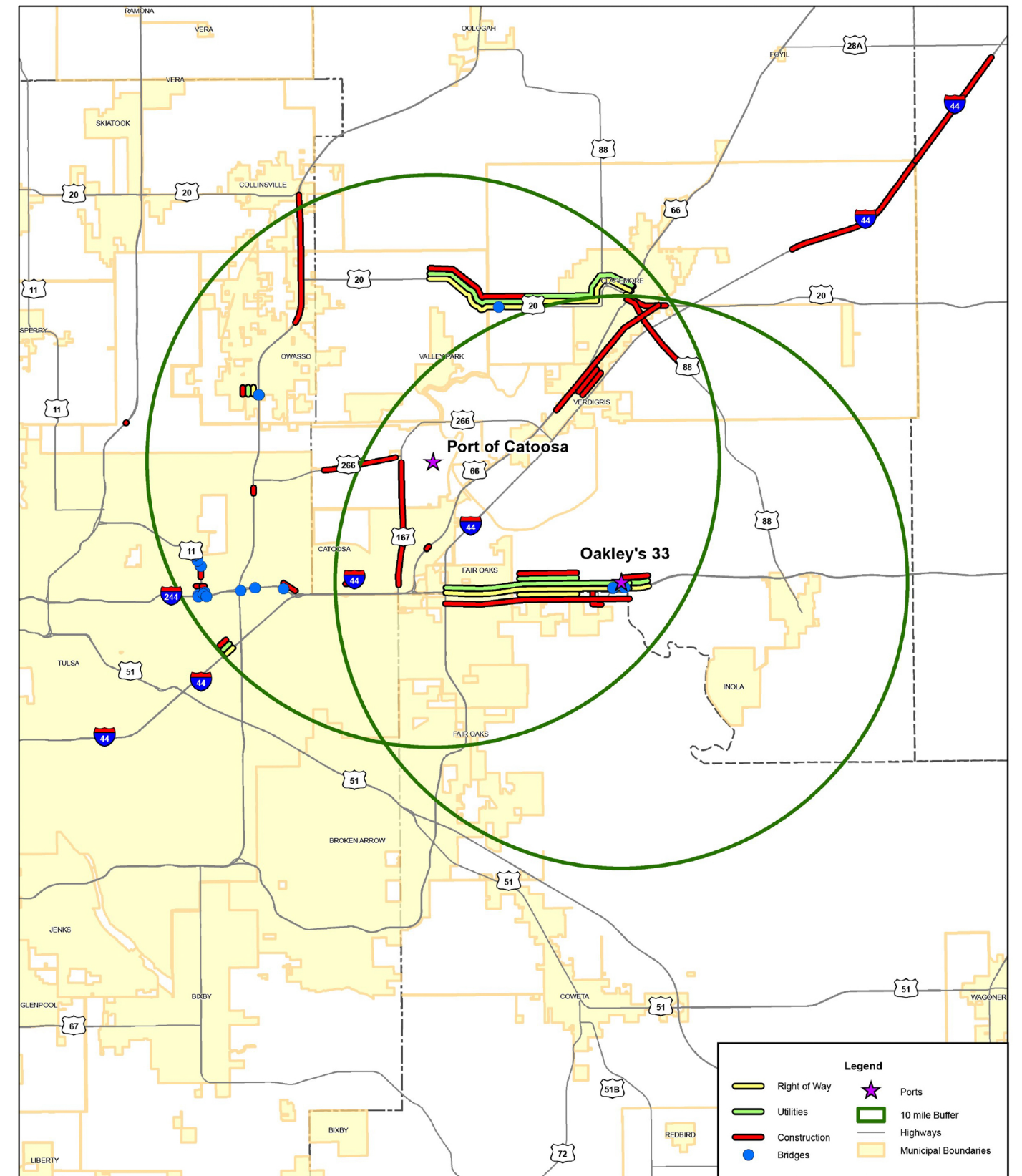




## PORT OF CATOOSA & OAKLEY'S PORT 33



**Awarded Projects**  
\$573,922,334.00 since 2000



**Active Projects**  
\$255,238,722.00 between 2017 and 2024

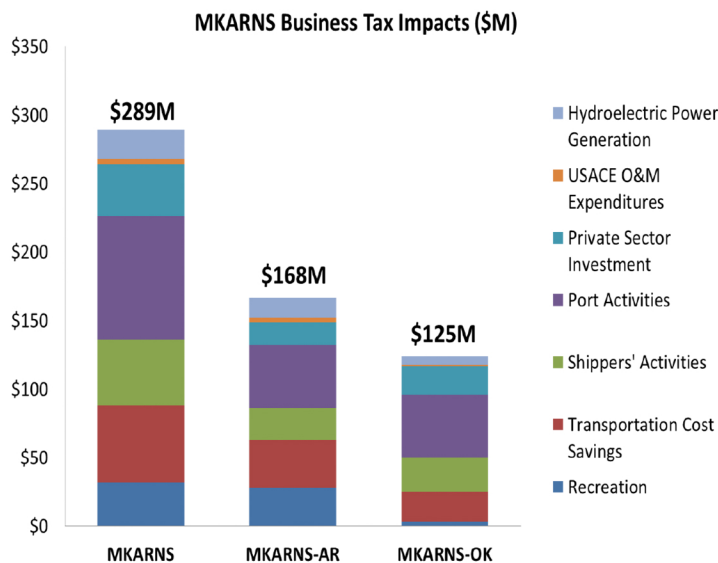




The total nationwide impact of the entire MKARNS operations on business taxes is \$289 million. On its own, the Arkansas segment of the MKARNS nationally contributes \$168 million, while the Oklahoma MKARNS segment nationally contributes \$125 million. The combined impact is slightly less than the two segment impacts combined due to shared freight benefits.

Examining the MKARNS Business Tax impacts, **Port Activities** and **Transportation Cost Savings** are the largest contributors to Business Tax impacts.

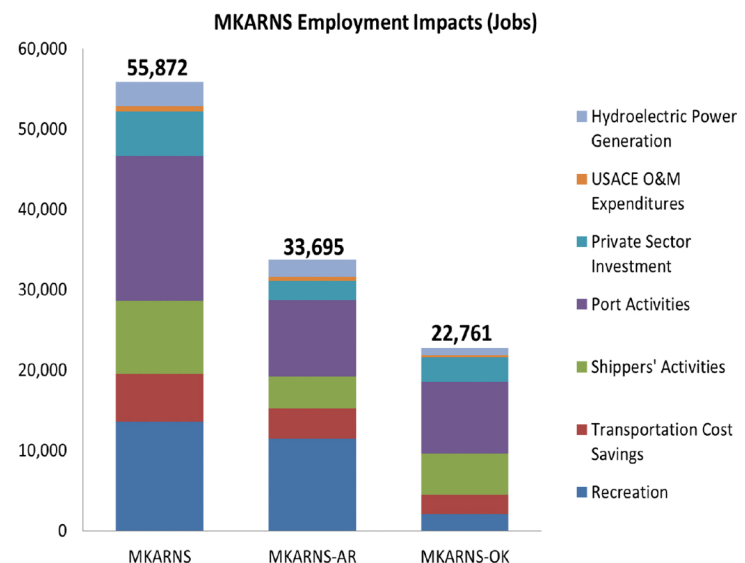
Port Activities and Transportation Cost Savings are the largest contributors to Business Tax impacts.



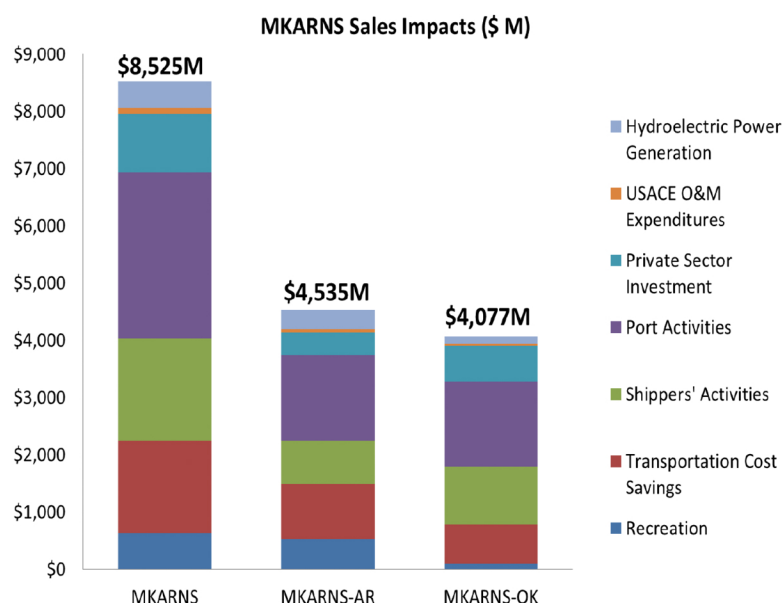
The total impact on **Employment of the MKARNS is 55,872 jobs nationwide**. On its own, the **Arkansas segment of the MKARNS nationally contributes 33,695 jobs**, and the **Oklahoma MKARNS segment nationally contributes 22,761 jobs**. The combined impact is slightly less than the two segment impacts combined due to shared freight benefits.

The largest component of the **entire MKARNS and MKARNS Oklahoma segment employment impacts** are due to **port activities (18,070 and 8,969 jobs respectively)**. The largest **employment impact component of the MKARNS Arkansas segment is due to recreation (11,429 jobs)**.

Employment impacts in US and OK are primarily due to Port Activities; Recreation is the primary employment impact factor in AR.



Port Activities, Shippers' Activities, and Transportation Cost Savings are the largest contributors to Sales impacts.



The diagram to the left illustrates the total direct and indirect impacts on sales revenues if the MKARNS was no longer in operation. Sales is defined as the revenue generated by firms whose operations are affected by the MKARNS.

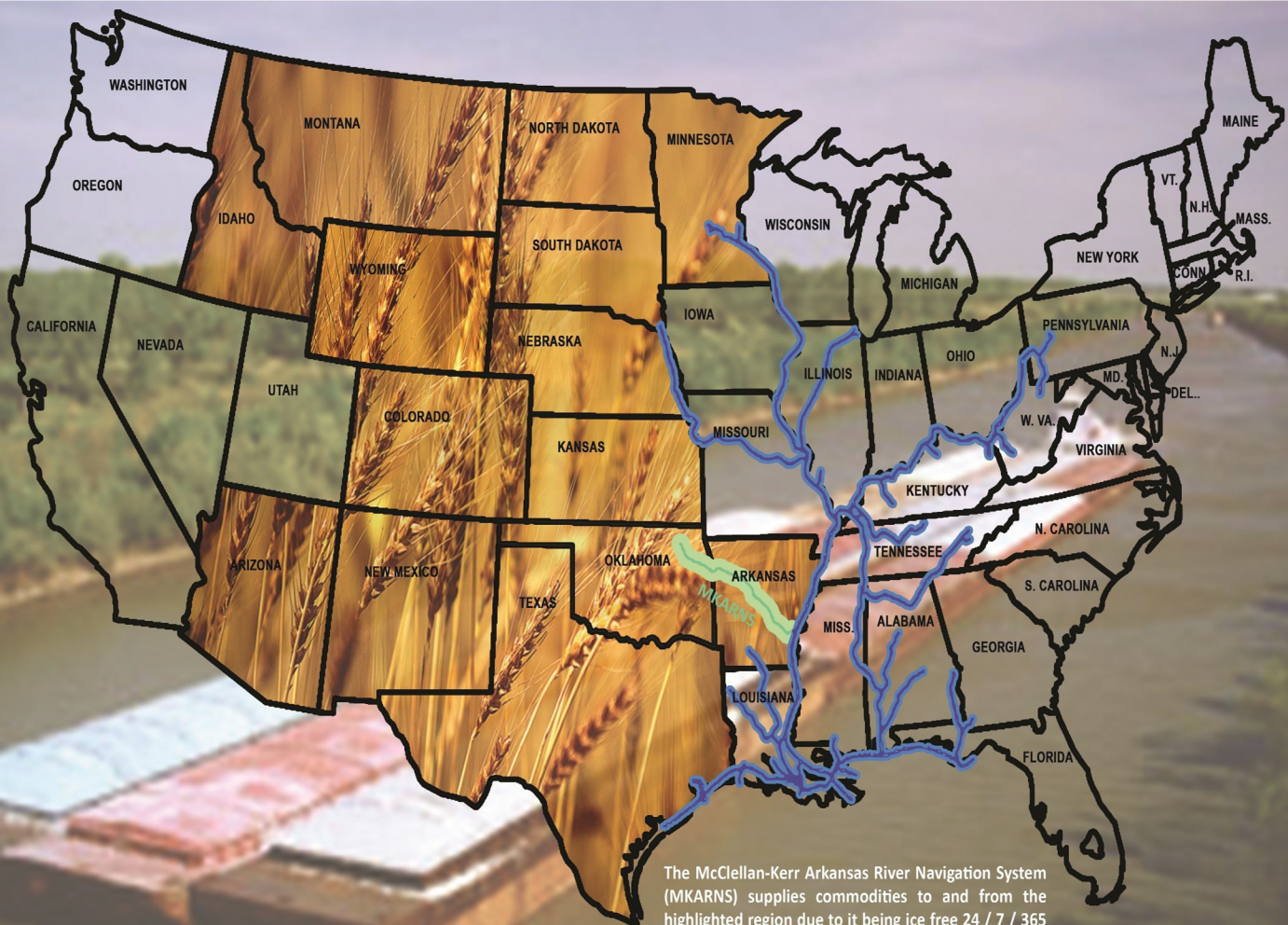
The total MKARNS impact on sales is \$8.525 billion nationwide. On its own, the Arkansas segment of the MKARNS nationally contributes \$4.535 billion, and the Oklahoma MKARNS segment nationally contributes \$4.077 billion. The combined impact is slightly less than the two segment impacts combined due to shared freight benefits.

Examining the MKARNS sales impact results, we observe **Port Activities (\$2,904 million)**, **Shippers' Activities (\$1,775 million)**, and **Transportation Cost Savings (\$1,615 million)** are the largest contributors to Sales impacts.



## BY THE NUMBERS...

- ❖ One barge can carry the weight of 136 school buses, 750 pickup trucks, 12,000 refrigerators, or 200 elephants.
- ❖ The MKARNS shipped 16.5 million bushels of wheat and 18.6 million bushels of soybeans in 2015.
- ❖ The 2,500-acre Tulsa Port of Catoosa is one of the largest, most inland ice-free ports in the nation, with 70+ industries employing over 4,000 workers. On average, 1,000 semi-trucks per day carry products through the Port complex.
- ❖ Port & dock facilities on the MKARNS in Oklahoma serve/facilitate 85 industries, nearly \$5 billion in private investments, 6,620 jobs, and \$216,569 million in annual payroll.
- ❖ If Oklahoma's 4,629,121 tons of waterborne commerce were transported by alternative methods, it would require 185,164 trucks or 46,291 railcars respectively.
- ❖ A 2001 study showed that moving freight by barge resulted in cost savings of \$68 million for Oklahoma farmers, manufacturers and consumers, compared to the cost of alternative overland modes.
- ❖ In 2013, over 1.2 million people visited the five Corps-operated recreational facilities (projects) on the system in Oklahoma. Over 5 million visitors took advantage of the 12 Corps-operated projects in Arkansas (campgrounds, parks, boat ramps, reservoirs, hiking trails and picnicking areas).
- ❖ There are three designated Foreign Trade Zones on the MKARNS. The ports of Catoosa, Muskogee and Little Rock have traded commerce with 44 countries worldwide.
- ❖ Studies have shown that without barge competition, agricultural shippers pay higher rail and highway transportation costs the farther they are from an inland waterway.
- ❖ Hydropower facilities, built and maintained by the Corps, produce nearly a third of the nation's total hydropower output, powering nearly 10 million households.
- ❖ Towboat operators pay a 29-cent per gallon diesel fuel tax that goes into the Inland Waterways Trust Fund, and a 4.3-cent tax earmarked for deficit reduction. The 9-cent increase beginning on April 1, 2015 was approved in the ABLE Act passed by Congress.
- ❖ Investments in inland river navigation infrastructure are investments in the long-term strength and security of the nation to keep the U.S. a major player in the global market.



The McClellan-Kerr Arkansas River Navigation System (MKARNS) supplies commodities to and from the highlighted region due to it being ice free 24 / 7 / 365 days a year, as well as it being the most westerly inland river system in the central United States.



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