

2018  
UPDATE



# WATERWAYS



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# 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 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.

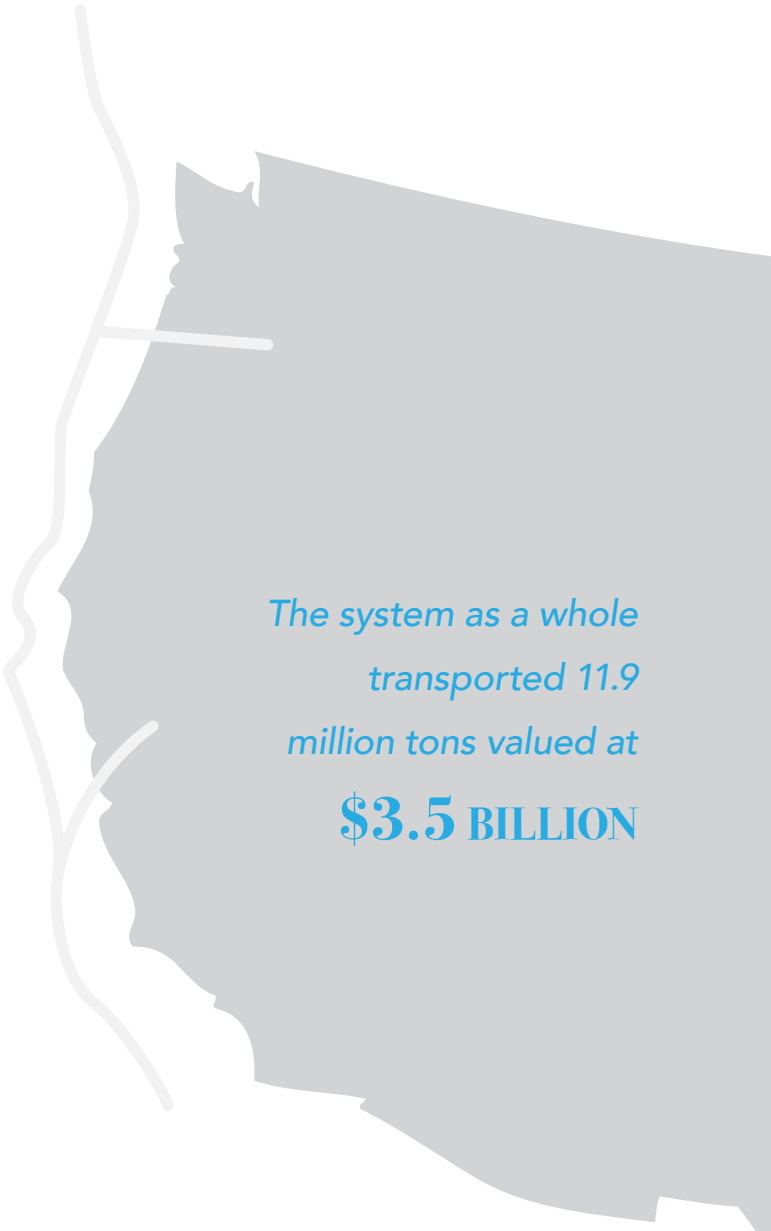


# INLAND WATERWAY FREIGHT TRANSPORTATION

**M**ovement 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 2017 tonnage transported on the Oklahoma segment was 6.2 million tons (valued at \$2.2 billion), which would require as many as 237,996 equivalent trucks to move on Oklahoma's highways, interstates and bridges. The system as a whole transported 11.9 million tons (valued at \$3.5 billion), which would require as many as 458,420 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 all modes of transport, including truck, rail and waterway. Shipping rates of all modes are reduced by 15% due to the competition the system provides. Fuel use and CO2 emissions are reduced by 40% compared to rail and 270% by truck.



*The system as a whole  
transported 11.9  
million tons valued at*  
**\$3.5 BILLION**

***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.***





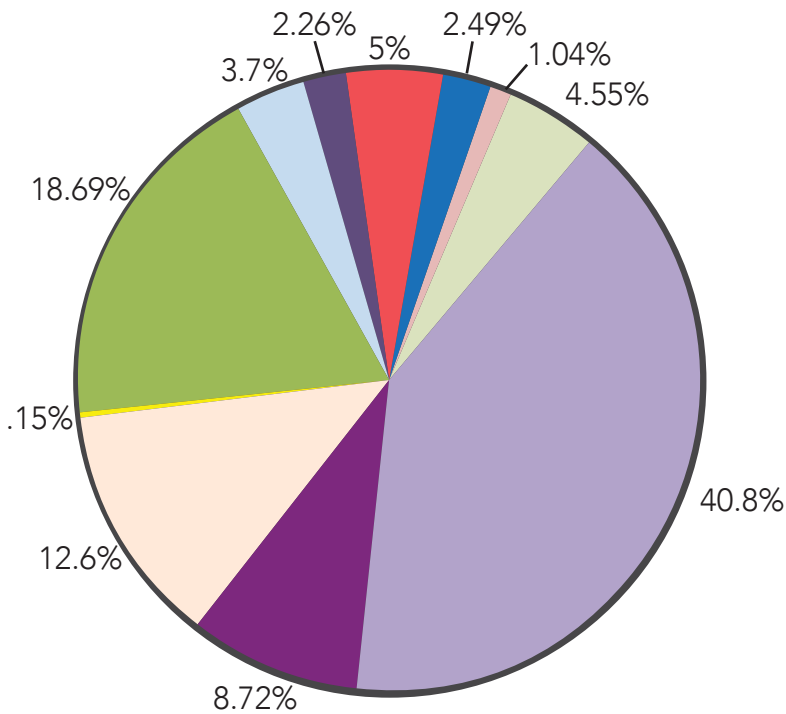
Oklahoma's Marine Highway

MKARNS  
M-40

The 2017 tonnage transported on  
the Oklahoma segment was  
6.2 million tons valued at  
**\$2.2 BILLION**

COMMODITY COMPARISON BY TON  
THE OKLAHOMA SEGMENT OF THE MKARNS  
NAVIGATION SYSTEM FOR CY17

tonnage  
6,187,878 tons



**IRON/STEEL**  
539,800 tons  
\$303,977,574

**CHEMICAL FERTILIZER**  
2,524,975 tons  
\$1,041,451,188

**OTHER CHEMICALS**  
281,397 tons  
\$116,065,007

**PETROLEUM PRODUCTS**  
64,400 tons  
\$21,183,092

**SAND/GRAVEL/ROCK**  
154,000 tons  
\$1,276,660

**COKE & COAL**  
309,400 tons  
\$14,387,100

**MINERALS/BLDG MAT'S**  
140,000 tons  
\$115,143,000

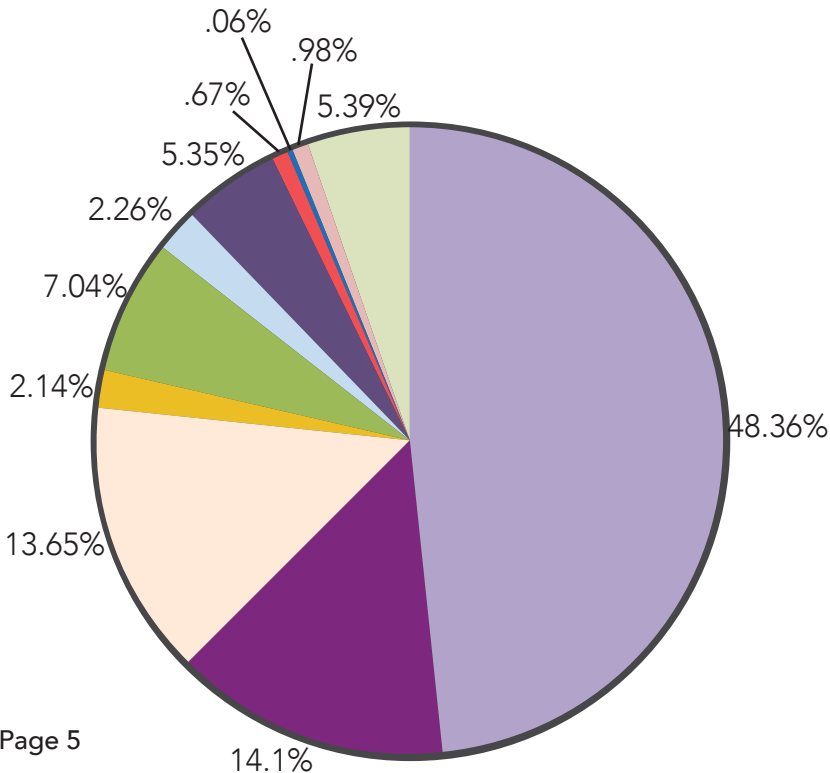
**FOOD/FARM PROD**  
229,600 tons  
\$48,585,656

**WHEAT**  
1,156,300 tons  
\$151,544,678

**EQUIPMENT/MACHINERY**  
9,206 tons  
\$46,030,000

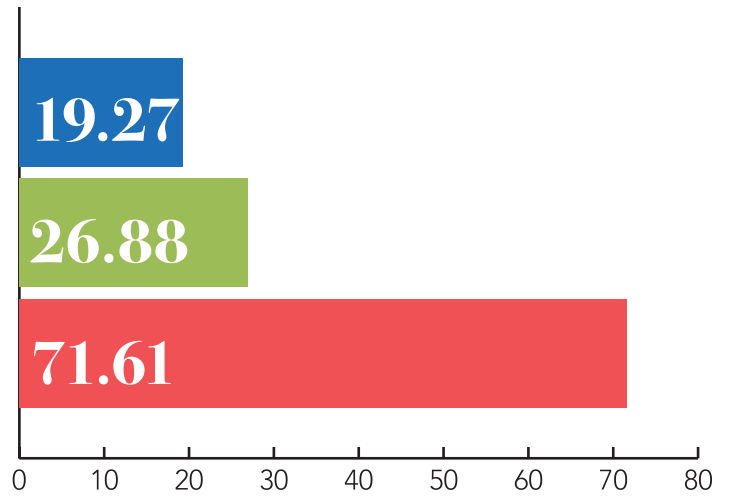
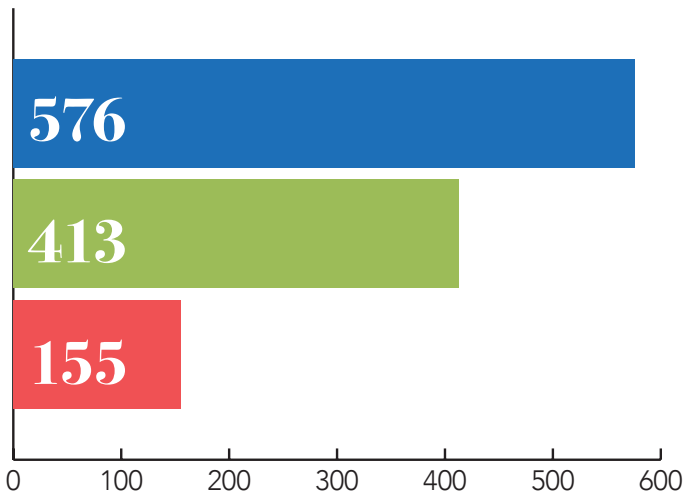
**SOYBEANS**  
778,800 tons  
\$293,950,272

value  
\$2,153,594,227





TRANSPORTATION MODE COMPARISON  
FUEL AND CO2 EMISSIONS



Ton-Miles Travelled per Gallon of Fuel

Tons of CO2 Emissions per Million Ton-Miles



# 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, 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. Both public ports are located within 12 miles of the airports in their respective cities. Most ports have direct access to several interstate, state highway, and/or turnpike facilities.

## Tulsa Port of Catoosa

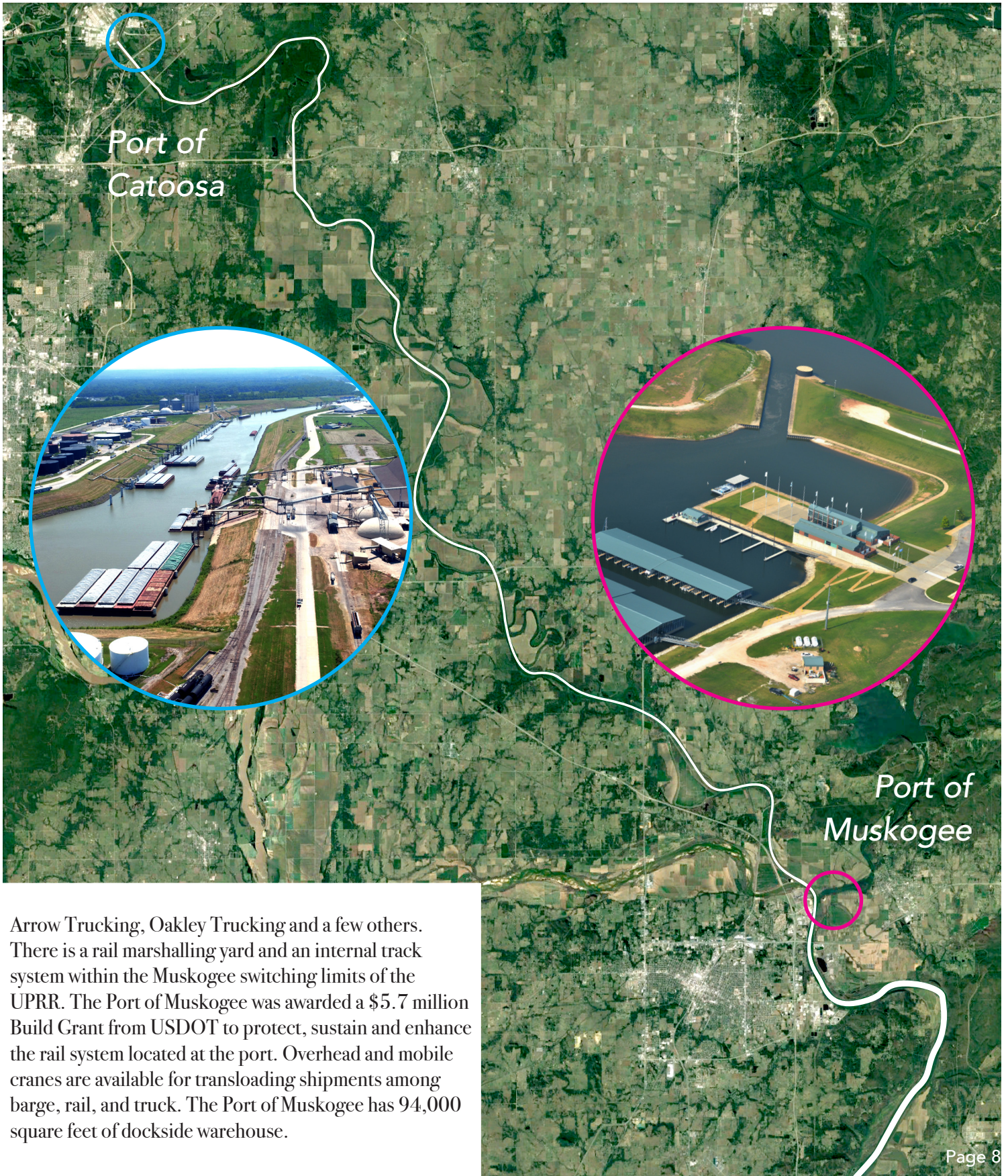
The Tulsa Port of Catoosa is one of the nation's largest inland river-ports, located at the head of the MKARNS. It is owned by the City of Tulsa-Rogers County Port Authority in Catoosa, with approximately 2,000 acres of industrial park space with multi-modal access. Industrial facilities located within 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. 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 nearby Tulsa International Airport 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,







Port of  
Catoosa

Port of  
Muskogee

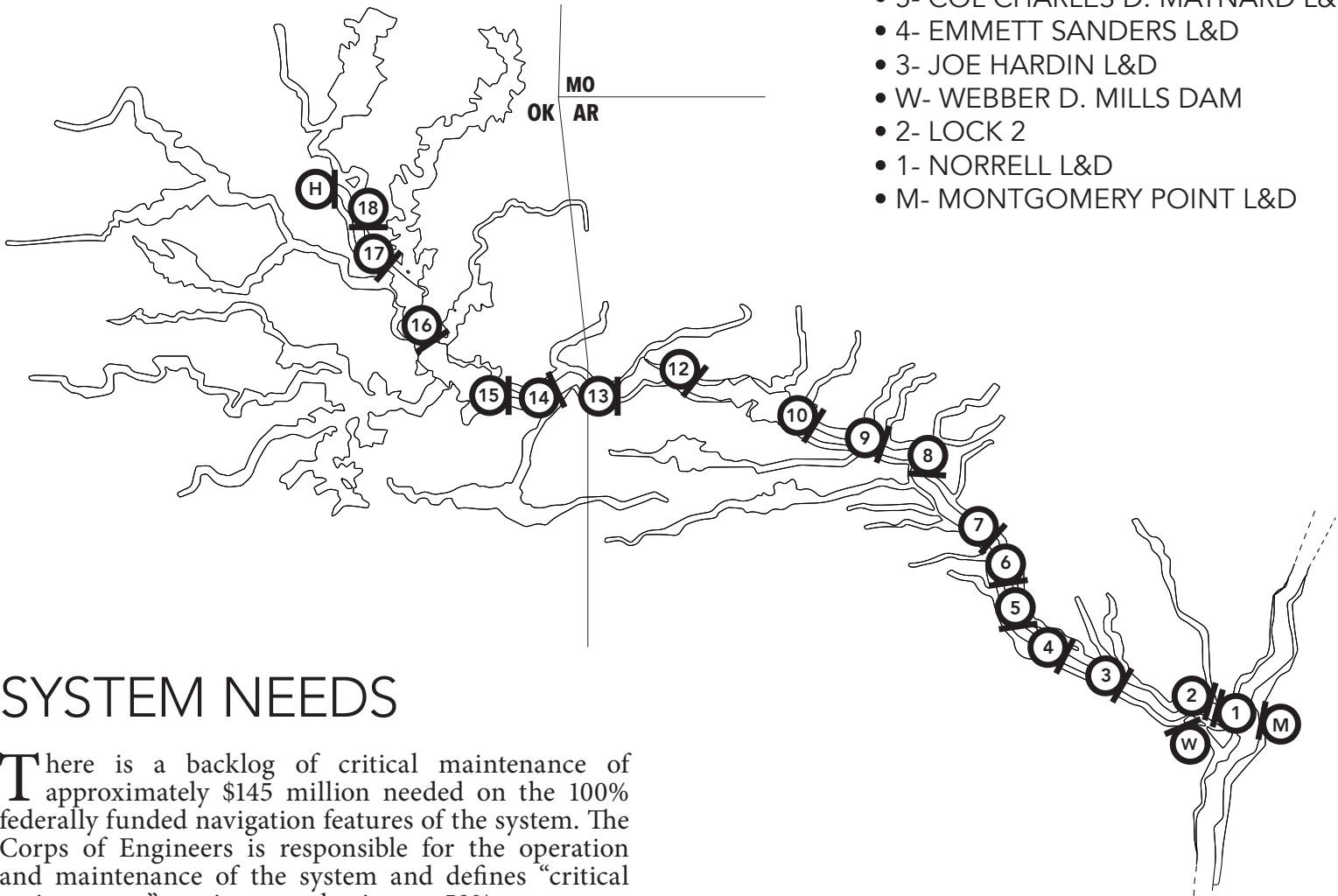
Arrow Trucking, Oakley Trucking and a few others. There is a rail marshalling yard and an internal track system within the Muskogee switching limits of the UPRR. The Port of Muskogee was awarded a \$5.7 million Build Grant from USDOT to protect, sustain and enhance the rail system located at the port. Overhead and mobile cranes are available for transloading shipments among barge, rail, and truck. The Port of Muskogee has 94,000 square feet of dockside warehouse.



## THE MKARNS

Locks and Dam System

- H- HEAD OF NAVIGATIONH
- 18- NEWT GRAHAM L&D
- 17- CHOUTEAU L&D
- 16- WEBBERS FALLS L&D
- 15- ROBERT S. KERR L&D
- 14- W.D. MAYO L&D
- 13- JAMES W. TRIMBLE L&D
- 12- OSARK JETA TAYLOR L&D
- 10- DARDANELLE L&D
- 9- ARTHUR V. ORMOND L&D
- 8- TOAT SUCK FERRY L&D
- 7- MURRAY L&D
- 6- DAVID D. TERRY L&D
- 5- COL CHARLES D. MAYNARD L&D
- 4- EMMETT SANDERS L&D
- 3- JOE HARDIN L&D
- W- WEBBER D. MILLS DAM
- 2- LOCK 2
- 1- NORRELL L&D
- M- MONTGOMERY POINT L&D



## SYSTEM NEEDS

There is a backlog of critical maintenance of approximately \$145 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 nearly 50 years old.

At the beginning of 2016, a list of shovel ready infrastructure projects was submitted by Governor Mary Fallin with the Trump Administration infrastructure package. The following MKARNS projects were included in the submission: a joint request from Oklahoma and Arkansas for rehabilitation of U.S. Army Corps of Engineers lock and dam infrastructure and dredging the river bottom and a permanent fix for the Three Rivers Area.

The Three Rivers Feasibility Study was completed in June 2018 at which time a Chief’s report was submitted for approval. In September 2018, the Chief’s report was signed, approved and later added in the 2018 Water Resources Development Act. A “new start” for a new construction project for the permanent fix now needs to be acquired and funded for a 50/50 cost share.

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.



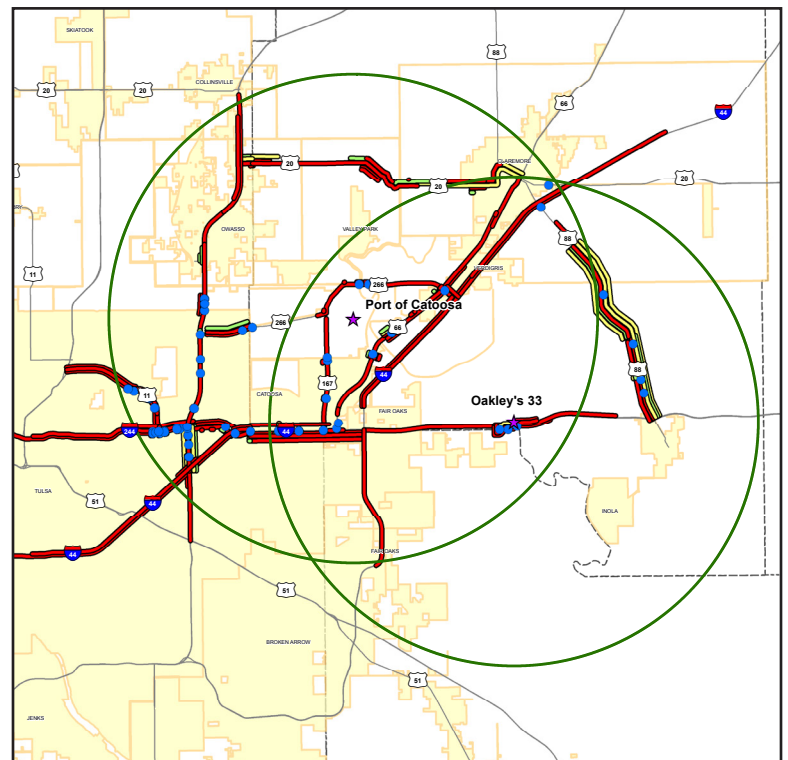


# ODOT COMMITMENT TO WATERWAYS

The importance of 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. Since 2000, the Department has awarded 186 contracts, including right-of-way and utility relocation efforts, totaling in excess of \$621.4 million within a 10 mile radius of the Port of Catoosa and Oakley's Port 33. Further, within that same area an additional 40 projects totaling nearly \$266 million are scheduled for award in FFY 2019 through 2026, of which \$240.3 million are included in the 8 Year Construction Work Plan. Similarly, since 2000, the Department has awarded 53 contracts, including right-of-way and utility relocation efforts, totaling almost \$100.7 million within a 10 mile radius of the Port of Muskogee. An additional 22 projects totaling over \$147.3 million are scheduled for award in FFY 2019 through 2026, of which \$125.1 million are included in the 8 Year Construction Work Plan for that same area.

## PORT OF CATOOSA & OAKLEY'S PORT 33

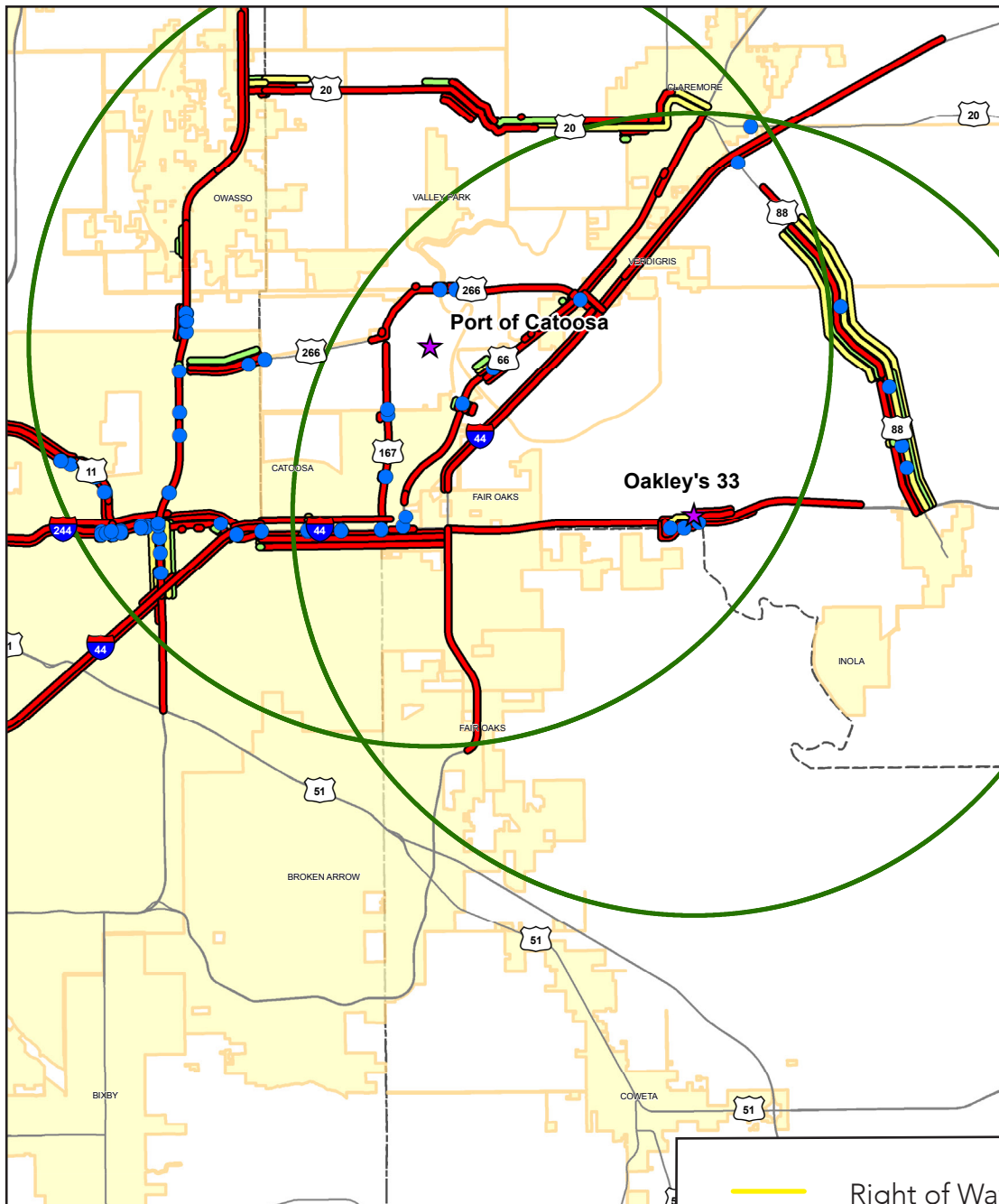


*Awarded Projects*

**\$621,448,497.00**

*since 2000*





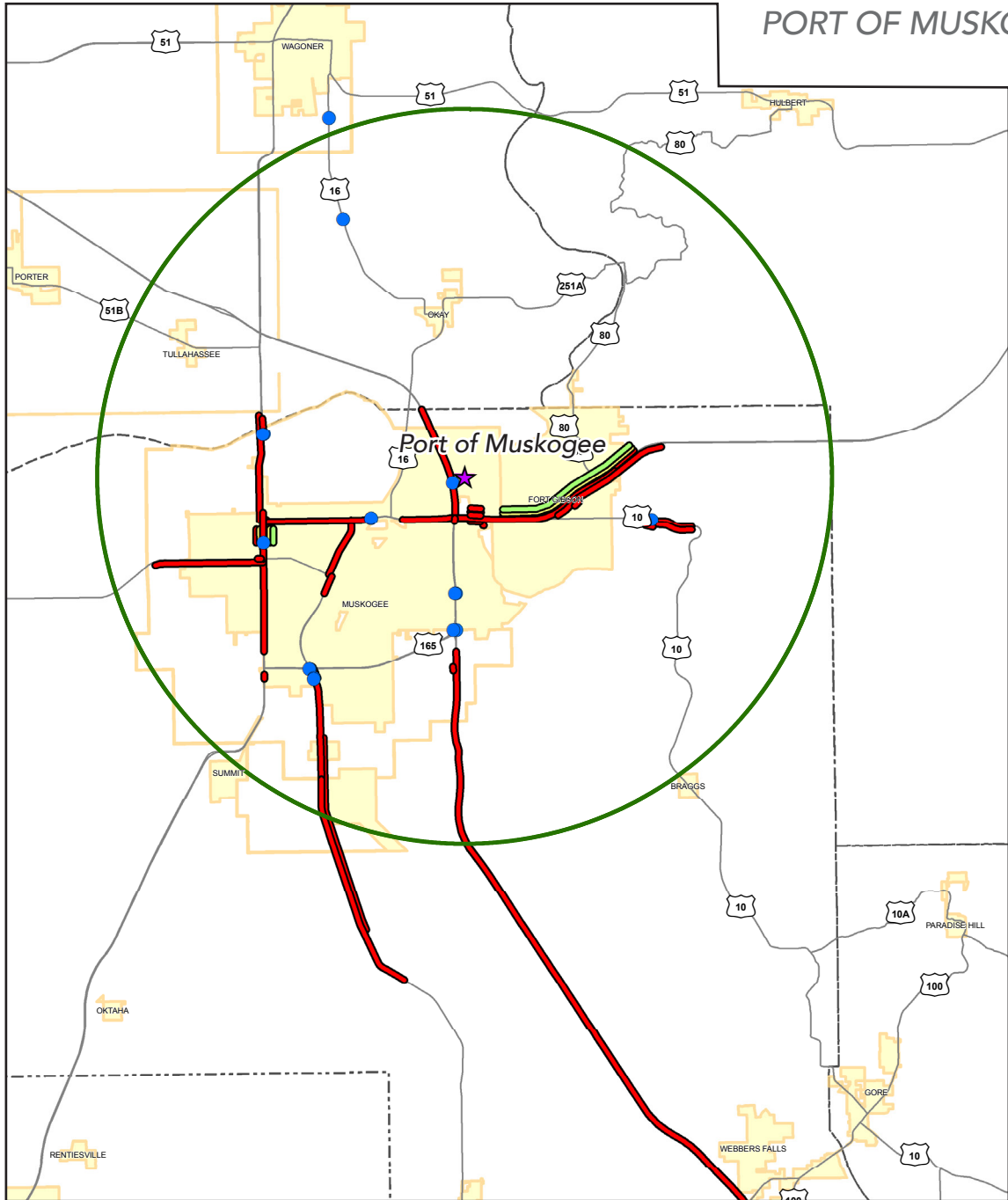
Active Projects

**\$266,020,573.00**

between 2019 and 2026

- Right of Way
- Utilities
- Construction
- Bridges
- Ports
- 10 mile Buffer
- Highways
- Municipal Boundaries

PORT OF MUSKOGEE

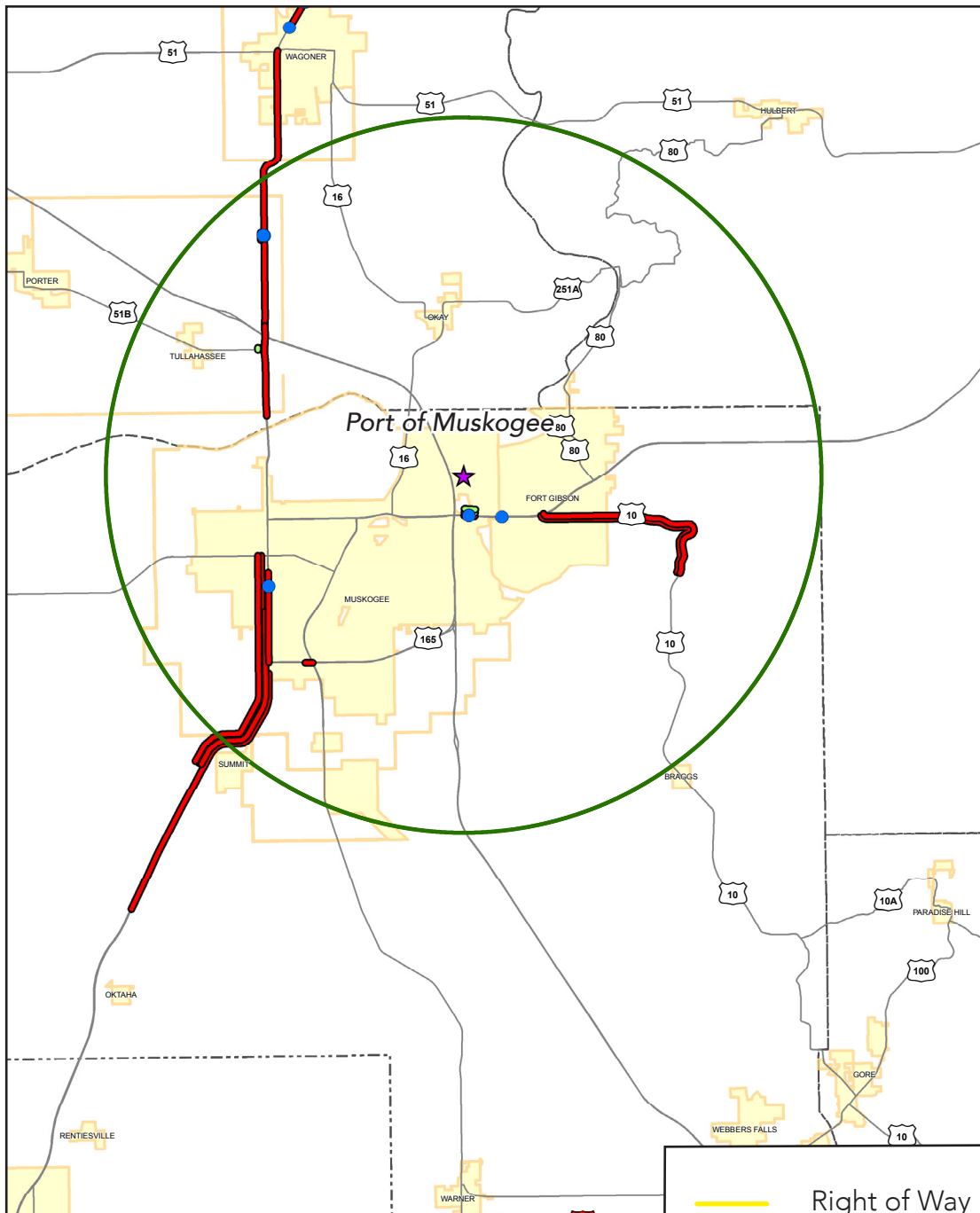


Awarded Projects

**\$100,693,820.00**

since 2000





Active Projects

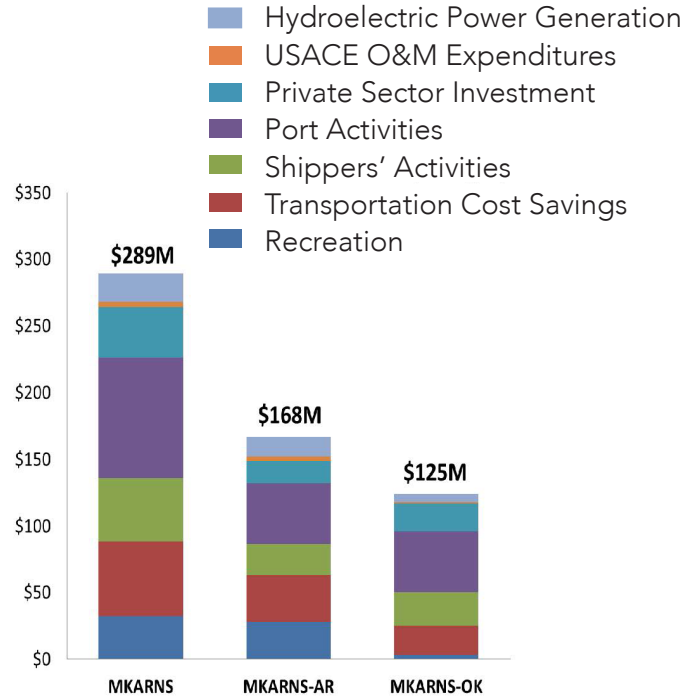
**\$147,383,800.00**

between 2019 and 2026

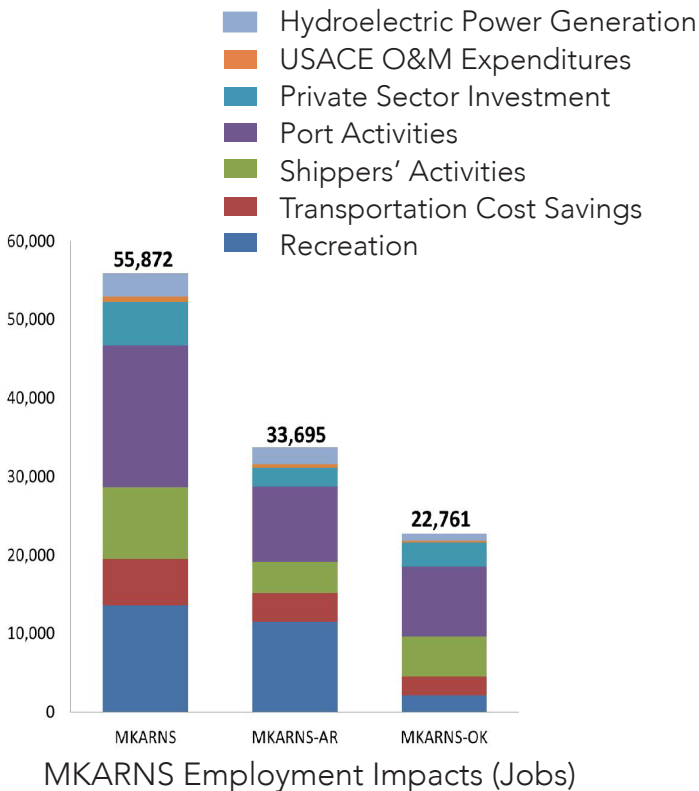
- Right of Way
- Utilities
- Construction
- Bridges
- ★ Ports
- 10 mile Buffer
- Highways
- Municipal Boundaries

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.

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



MKARNS Business Tax Impacts (\$ Million)



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).*

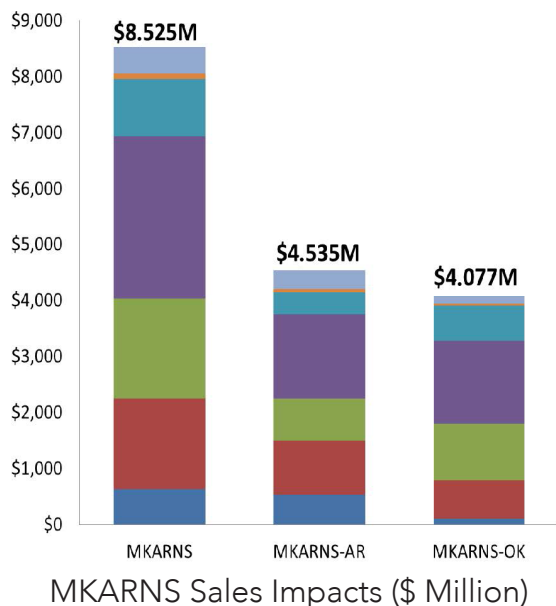




- Hydroelectric Power Generation
- USACE O&M Expenditures
- Private Sector Investment
- Port Activities
- Shippers' Activities
- Transportation Cost Savings
- Recreation

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.



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



Studies have shown that without barge competition, agricultural shippers pay higher rail and highway transportation costs the farther they are from an inland waterway.

A 2014 study showed that moving freight by barge resulted in cost savings of \$156.1 million for Oklahoma farmers, manufacturers and consumers, compared to the cost of alternative overland modes.

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.



The MKARNS status changed from a moderate to high-use waterway system in February 2015 after the Waterborne Commerce Statistic Center (WCSC) showed the 5 year average to be 3.3 billion ton-miles.

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.

If Oklahoma's 5,928,612 tons of waterborne commerce were transported by alternative methods, it would require 247,293 trucks or 59,286 rail cars respectively.

The MKARNS shipped 42 million bushels of wheat and 53 million bushels of soybeans in CY 2017.

Flood damages prevented by Arkansas River Basin projects under the jurisdiction of the Corps' Tulsa district totaled \$552 million in FY 2015. Cumulative damages prevented through 2015 equal more than \$11 billion.



*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.*





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