

The Terminal Railroad Association relies on a robust bridge maintenance program to keep its key connections in shape.

TRRA: SPANNING A RIVER AND A MILLENNIA

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Aerial photos by Jared Wigger, manager of Bridges and Buildings, Terminal Railroad Association

Before St. Louis was known as the “Gateway to the West,” the Mississippi River was a barrier to commerce. To Samuel Wiggins, the river represented an opportunity so he started a ferry service across the river in East St. Louis.

And what a business it was becoming. As the railroads pushed west, Wiggins Ferry Service expanded its boats, warehouses and rail yards to accommodate freight cars and locomotives; dominating the movement of goods and people in the area. Clearly, the residents of St. Louis did not like the idea of being held hostage by this ferry monopoly. Beginning in 1867, a group of St. Louis businessmen met and formed the St. Louis Bridge and Iron Company with the hopes of building a bridge to alleviate the ferry monopoly.

Almost immediately, the St. Louis Bridge and Iron Co. set about raising money to build what would be the first steel bridge to carry train traffic across the Mississippi (an earlier timber rail bridge near Rock Island burned 15 days after it opened under suspicious circumstances). By hiring James Buchanan Eads as their bridge engineer, they literally changed the course of history.

Eads designed a double decker tubu-

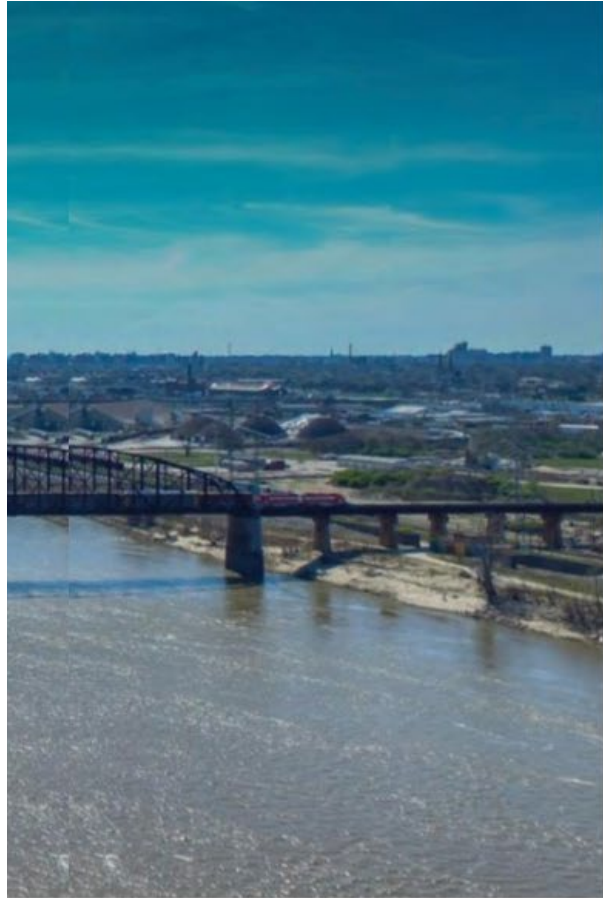
lar arch span with three 500-foot sections made of a new material called “structural steel” which Andrew Carnegie had just started making at one of his mills. Eads next engineering first was the mammoth river caissons which would be lowered to the bottom of the Mississippi. Once pressurized, men inside these huge caissons used Eads-designed pumps to excavate the river silt and move them deeper until they hit bedrock. Eads was responsible for many engineering “firsts” these were but a few. The bridge was completed in 1874 with tremendous fanfare.

The opening of the Eads Bridge was the genesis of what was to become the Terminal Railroad Association (TRRA). The Eads Bridge also caught the eye of Jay Gould, the financial railroad baron from the East Coast. He used his business acumen to acquire and launch various St. Louis holding companies used to secure terminal facilities, build connecting elevated transit routes and bring his own group of railroads together. Like a spider web, the tracks grew in all directions in downtown St. Louis and beyond. The builders of the Eads Bridge did not plan for future railroad connections and the lack of business forced the bridge company into receivership by 1878.

Employing one of his holding companies, Jay Gould gained control of the Eads Bridge in 1880. This was the start of a railroad shipping monopoly in St. Louis.

The Wiggins Ferry Service fought hard against this new technological force of iron and steel, but the writing was on the wall. The merchants of St. Louis were not impressed with Gould’s shipping monopoly in their midst. Together they raised money to build yet another bridge over the Mississippi to free them of this expensive tyranny. In 1889, the building of the Merchants Bridge began. On July 30, 1889, Jay Gould brought together six “partner railroads” and formed the TRRA of which he was the first president. The Merchants Bridge was completed in 1890, this structure had the benefits of a number of railroad connections already in place to give railroad traffic access to the bridge. Unfortunately, during the financial panic of 1893, this organization went bankrupt, as well. In stepped the TRRA and “rescued” the Merchants Bridge and some of its creditors. Jay Gould completed his checkmate of all rail traffic in St. Louis.

Again, the business constituency of St. Louis cried foul and set out to build yet another bridge; the Municipal



LEFT: A train traverses the Merchants Bridge.

BELOW: Work equipment on the MacArthur Bridge.

TRRA evolves with the times

By the 1940's, the importance of all these railroad connections hit its zenith. In 1943, an average of 200 trains a day traversed TRRA property while close to 100,000 people made transit connections in St. Louis. The Gateway to the West was second only to Chicago in moving freight and people. Over time, the importance of moving people lost significance to other modes of travel. Mergers within the railroad industry continuously depleted TRRA membership role but the remaining members grew in size. Today there are five partner railroads that share control of the TRRA, they are BNSF, Illinois Central, CSX, Norfolk Southern and Union Pacific.

Together, these five railroads pay a "users fee" depending on the number of bridge crossings and trains built in the yards and the use of the hump yard for train classification. TRRA is a self-supporting railroad that survives by the "fees" they collect and industries they serve.

With more than 10 miles of bridges, not counting all the elevated connections,

TRRA emphasis is on keeping bridge infrastructure in a state of good repair. This focus on bridge maintenance was reinforced by TRRA's acquisition of the MacArthur Bridge in 1989, transferring ownership of the Eads Bridge back to the City of St. Louis after almost 110 years. Now St. Louis could concentrate on their Metro light-rail system and the TRRA had the broad shoulders of the MacArthur and Merchants bridges to fully consolidate and maximize operations.

The next 100 years

Over the past decade, engineering plans and feasibility studies have been conducted to determine the best methods to replace the 127-year-old Merchants Bridge. Currently, the expansive west approach is being filled using a mixture of fly ash, concrete and a foaming agent to create "cellular fill encasement." More than 70,000 cubic yards of this cementitious slurry is in the process of being placed. Eric Fields, chief engineer for TRRA, highlights the difficulty in the next phases, which will be the main river spans and the east approach.

"We are pursuing the best methods for replacement while juggling financing, permitting and design parameters. Existing infrastructure on the East approach must be taken into account along with the difficulty in removing the

Bridge (later renamed the MacArthur Bridge). Also, after repeated legal attempts to declare the TRRA a business "monopoly," the city of St. Louis had the U.S. Supreme Court's attention too.

Construction on the Municipal Bridge began in 1910. In the interim, the Supreme Court's final ruling was handed down in February 1915, holding that TRRA could not exclude railroads from using its infrastructure to serve St. Louis, any railroad could have access to TRRA routes on equal terms as other owners. To the dismay of the antagonists to the TRRA, the court did not split up the TRRA. Instead, TRRA had to include all railroads that would pay the dues and have freight rates set by the Interstate Commerce Commission. The new Municipal Bridge, with double tracks and overhead automobile traffic lanes opened in 1920. For the first time in almost 75 years, the railroad monopoly in St. Louis was broken... sort of.

In reality, the TRRA had become a series of connecting railroads. The sprawling East St. Louis rail yards located on the old Wiggins Ferry frontage and related transfer connections allowed TRRA to build trains according to their customers/owners wishes. The resulting spider web of 20-plus railroad companies all tied into the core feeder lines of the TRRA. This nexus of transportation was a true "hub and spoke" system that allowed access to all four points of the compass.





THIS PAGE: An inspector looks at the underside of one of the TRRA's bridges.

OPPOSITE PAGE: The west approach of the Merchants Bridge is being filled using a mixture of fly ash, concrete and a foaming agent.

truss spans. This will be a mammoth undertaking with multiple state, federal and local municipalities becoming involved. One of the next important upgrades is the reinforcement of the main river piers of the Merchants Bridge for seismic activity (AREMA Level 2 forces)," said Fields.

"Clearly, we continue to inspect and maintain the Merchants Bridge" explained Jared Wigger, manager of Bridges and Buildings for TRRA. "We have evolved and upgraded our inspection techniques so that the majority of all bridge inspections are completed with our own forces. Due to the age of



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the Merchants Bridge we perform two detailed inspections each year with our focus targeting the floor system (stringer/floor beam connections) and other key connection points.”

On average, TRRA spends upward of three months inspecting the MacArthur and Merchants Bridges alone not counting the miles of elevated rail that needs inspection too.

“We try to schedule our inspection on the big bridges to coincide with our yearly programed steel repairs with our contractor, **Koppers Railroad Structures**. In the event we locate a defect requiring more immediate attention, we have our contractor close at hand and that saves on costs,” reports Wigger.

Fields notes, “The MacArthur Bridge is in great shape. We believe the floor system may need greater attentions in 20 years and upgrades to the truss sections are probably 50 years away. The recent removal of the unused overhead roadway has removed considerable deadload on the MacArthur Bridge.”



Today, TRRA operates over almost 155 miles of track; 45 miles of this is still part of the original core system that includes the Merchants and MacArthur River crossings.

“Even with reduced coal and oil

shipments, our member railroads recognized that the TRRA is a strategic and vital transportation link that must be maintained. We have definitive plans that reach out almost 50 years,” explained Fields. □

