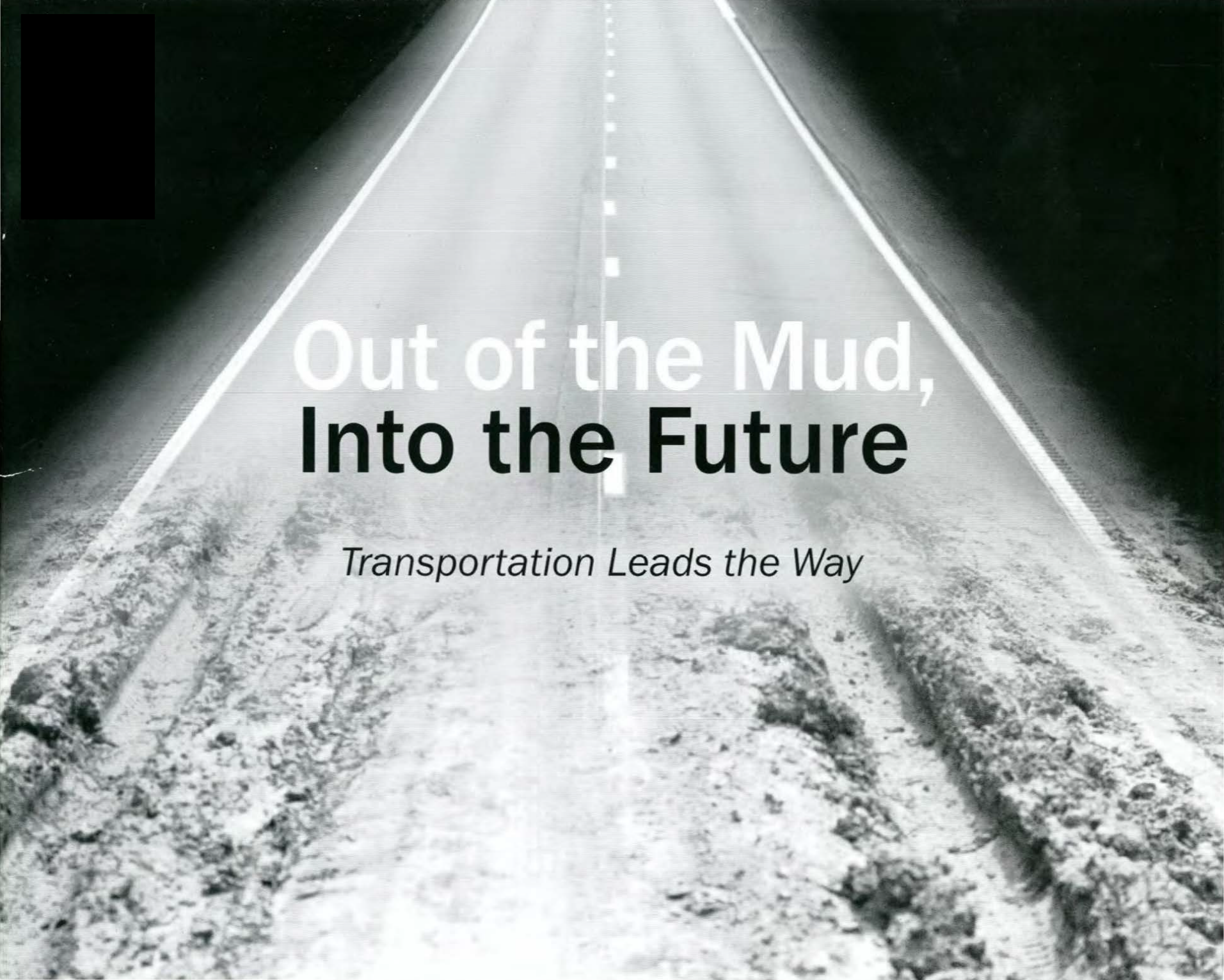

Out of the Mud, Into the Future

Transportation Leads the Way

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Celebrating Missouri's Transportation History

Some would say it's only in reflecting on the past that we can successfully shape the future. Perhaps through history, there is the opportunity to reflect on our accomplishments and find a source of energy that encourages us to conquer the challenges ahead and to realize the opportunities knocking at our doors.

The Transportation Engineers' Association of Missouri has convened on 100 occasions to study and learn, and to share ideas and celebrate successes as together we have strived to provide Missouri a safe and efficient transportation system.

This reflection of history represents and honors Missouri's men and women – beyond those pictured here, who, through transportation, have contributed to the state's prosperity and the citizens' quality of life. Through these next pages are a few of the state's transportation highlights – a celebration of who we are and what we can accomplish when we work together in the spirit of cooperation and compassion.

History of TEAM

TEAM was originally known as the Highway Engineers Association of Missouri and was formed on February 28, 1908. Official bylaws for the organization were adopted on January 24, 1923. An article in the April 1944 issue of the Missouri Highway and Transportation Department's employee publication credits the association with being the oldest organization of its kind in Missouri and possibly the United States.

The purpose of the association and its annual convention is to establish closer relations among those connected with street and highway work and promote all interests in public road welfare in Missouri. The association is composed of county commissioners, city officials, state and local engineers, contractors, and suppliers.

In 2003, to more accurately portray the various engineering disciplines that are involved with transportation in Missouri, the organization's bylaws and name were changed by a vote of the general membership to Transportation Engineers Association of Missouri.

2010 marks the organization's 100th conference.

TEAM Presidents and Secretary/Treasurers since 1948

(to the best of our knowledge)

Year	Past Presidents	Secretary-Treasurers
1948	Edgar Rapp, Jr.	J.J. Corbett
1949	C.C. Redman, Jr.	J.J. Corbett
1950	H.E. Frech	J.J. Corbett
1951	E.R. Jackson	J.J. Corbett
1952	Fred H. Kirburz	J.J. Corbett
1953	John E. Maring	J.J. Corbett
1954	Benjamin F. Frick	J.J. Corbett
1955	Stanley C. Palmer	J.J. Corbett
1956	Frank O. Fink	J.J. Corbett
1957	R.N. Ellis	J.J. Corbett
1958	Eugene Grote	J.J. Corbett
1959	John J. Leslie	J.J. Corbett
1960	Judge F. J. Culver	J.J. Corbett
1961	W.R. Sigrist	J.J. Corbett
1962	W.H. Ice	A.E. Brewer
1963	Byron Fly	A.E. Brewer
1964	Judge C.M. Purchase	Harold R. Crane
1965	Ernest E. Hagan	E.H. Logan
1966	I.E. McCanless	E.Q. Mell
1967	R.A. Beck	E.Q. Mell
1968	C. Larry Unland	C.L. Breuer
1969	J. Neil Nielsen	C.L. Breuer
1970	Judge W. Fred Schaeffer	C. L. Breuer
1971	Judge Randy H. Collins	C. L. Breuer
1972	Edwin H. Rackers, Jr.	C.L. Breuer
1973	Harvard F. Ebers	Charles F. Rhea
1974	Judge Ralph N. Smith	Charles F. Rhea
1975	Donald Hurlbert	J. Robert Chappell
1976	Judge Edward J. Bauman	J. Robert Chappell
1977	David G. Snider	Jack Thurston
1978	Judge Frank W. McGraw	Jack Thurston
1979	Harold L. McCoy	Gary B. Chullino
1980	Judge Charles L. Schwendemann	Gary B. Chullino
1981	Myron D. Calkins	Willis L. Graven *Cancelled*

1982	Myron D. Calkins	Willis L. Graven
1983	Judge J. Ronald Fischer	Russell W. Sublette
1984	John H. Poelker	Russell W. Sublette
1985	Judge Eldon Hixson	
1986	Bryon Pearl	
1987	Robert M. Bates	
1988	Richard M. Caster	Bill Yarnell
1989	George Satterlee	
1990	John Yancy	Robb L. Monroe
1991	Stephen Hargis	Robb L. Monroe
1992	Larry Kallenbach	Lew Hancock
1993	Kensey Russell	Lew Hancock
1994	Wilton Adkins	Milton Seales
1995	Gurnie Gunter	Milton Seales
1996	S.T. "Andy" Anderson	Fred Martin
1997	S.T. "Andy" Anderson	Fred Martin
1998	Marc Thornsberry	Kirk Juranas
1999	Marcia McQuerry Murphy	Mike Stephenson
2000	Royce Fugate	Mike Stephenson
2001	George 'Ed' Wolf	Mike Shea
2002	Chris Yarnell	Mark Zacher
2003	David Hertzberg	Mark Zacher
2004	Dave Nichols	Mike Fritz
2005	Phil Broyles	Mike Fritz
2006	Kevin Lowe	Scott Stone
2007	Larry Benz	Scott Stone
2008	Benny Hedden	Tim Redmond
2009	David Miller	Tim Redmon
2010	Duffy Mooney	Karen Yeomans

Highlights of Transportation in Missouri

In recognition of the 100th TEAM conference, we would like to take a look back at some of the highlights of transportation in Missouri and major milestones in transportation in the United States.

Pre-1900s

Around 1735, the first unofficial road in Missouri was called Three Notch Road.

In 1808, The King's Highway, from St. Louis to southeast Missouri, became the first legally designated road west of the Mississippi River.

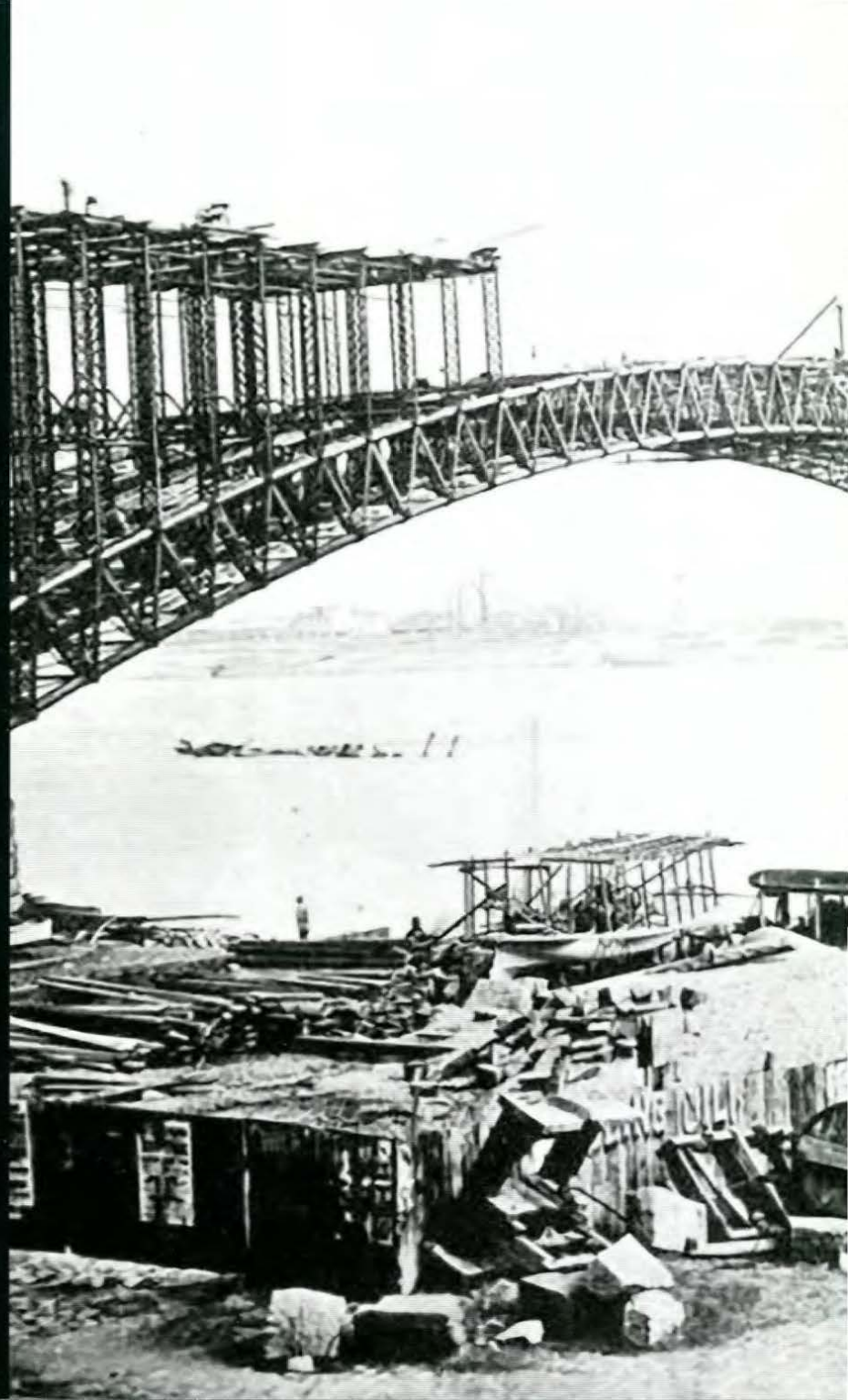
July 1874 - The St. Louis Bridge (now known as Eads Bridge) was completed at a cost of over $10,000,000. Inspiration was to link St. Louis to the rail lines running east to west and to be able to compete with Chicago as the center of commerce in the west.

Eads Bridge 'Firsts':

- First large bridge to span the Mississippi River
- First bridge to carry railroad tracks
- First alloy steel bridge
- First to use tubular cord members
- First to depend entirely on the use of the cantilever in the construction
- First to use pneumatic caisson

On June 14, 1874, John Robinson led a "test elephant" on a stroll across the new Eads Bridge to prove it was safe. A big crowd cheered as the elephant from a traveling circus lumbered toward Illinois. It was believed that elephants had instincts that would keep them from setting foot on unsafe structures. Two weeks later, Eads sent 14 locomotives back and forth across the bridge at one time. The structure was dedicated on July 4, 1874.

October 3, 1893 - General Roy Stone, a Civil War hero and good roads advocate, was appointed Special Agent in charge of the new Office of Road Inquiry (ORI) within the Department of Agriculture. With a budget of $10,000, ORI promoted new rural road development to serve the wagons, coaches, and bicycles on America's dirt roads.



Eads Bridge

1900 – 1930s

1907 - Missouri Legislature creates the position of state highway engineer, reporting to the Board of Agriculture. This showed an early recognition of the tie between transportation and our state's economy

1908 – Henry Ford introduced his low-priced, highly efficient Model T. Its widespread popularity created pressure for the federal government to become more directly involved in road development.

1913 - State Highway Department created by the Legislature.

1916 - With the battle cry of "Get the farmers out of the mud!" Congress passed the Federal-Aid Road Act of 1916. It created the Federal-Aid Highway Program under which funds were made available on a continuous basis to state highway agencies to assist in road improvements.

1917 - Missouri Legislature passes Hawes Law so Missouri can receive federal funds and also creates State Road Fund and a four-member State Highway Board.

1920 - $60 million bond issue passes to "get Missouri out of the mud."

1921 -Bureau of Public Roads (BPR) was authorized by the Federal Highway Act of 1921 to provide funding to help state highway agencies construct a paved system of two-lane interstate highways.

1921 – The Missouri Legislature passes the Centennial Road Law, creating a four-member State Highway Commission and the positions of secretary, chief engineer and chief counsel. The law provided for the creation of a system of state highways to connect principal population centers, county seats, and small communities within the state. Prior to 1921, the state's roads were in poor condition and were a jumbled, uncoordinated tangle of highways that made it extremely difficult to drive across the state. The highway department immediately set out to improve this situation by paving as many roads as possible and by constructing highways to link all of Missouri's county seats. Some of these early roads became part of America's first cross-country highway system.

Did you know?

The world's first gasoline station was started in 1905
through a garden hose. Before then, gasoline was pu

1926 - The federal government laid out a grid of highways that ran between the individual states. These roads were designated as United States highways, but no federal funding was included for their construction or improvement. In Missouri, several routes were given new names as part of this program. For example, Missouri State Highway Number 2 was renamed U.S. Route 40, and Missouri State Highway Number 14 became U.S. Route 66. These roads allowed drivers to travel beyond the state's borders, but they were not modern superhighways. Instead, these early "interstate" roads were usually 18-feet wide with minimal shoulders. These roads also followed local topography, making them a hilly, winding challenge for Missouri drivers.

1924 – Missouri passed two (2) cent fuel tax, first in Missouri

1926 – Route 66 approved; Acknowledged as one of the principal east-west arteries, it linked hundreds of predominantly rural communities in Illinois, Missouri, and Kansas to Chicago, thus enabling farmers to transport grain and produce for redistribution. The diagonal configuration of Route 66 was particularly significant to the trucking industry, which by 1930 had come to rival the railroad for preeminence in the American shipping industry. The abbreviated route between Chicago and the Pacific coast traversed essentially flat prairie lands and offered a more temperate climate than northern highways, which made it especially appealing to truckers.

There was controversy over the designation of the route number. Cyrus Avery, one of the early champions of the highway, wanted it to have a round number and had proposed number 60 to identify it. A controversy erupted over the number 60, largely from delegates from Kentucky who wanted a Virginia Beach–Los Angeles highway to be US 60 and US 62 between Chicago and Springfield, Missouri. Arguments and counter-arguments continued and the final conclusion was to have US 60 run between Virginia Beach, Virginia, and Springfield, Missouri, and the Chicago–L.A. route be US 62. Avery settled on

in St. Louis by C. H. Laessig. The gasoline was delivered
chased by the can at grocery stores.

"66" (which was unassigned) because he thought the double-digit number would be easy to remember as well as pleasant to say and hear.

Route 66 crossed eight states - traveling from east to west they are Illinois, Missouri, Kansas, Oklahoma, Texas, New Mexico, Arizona, and California. It was officially 'decommissioned' as a federal highway in 1985 after the last section of I-44 was completed in Williams, AZ.

1928 - Missouri becomes the first state to earmark and protect funds for highway purposes.

1937 - Missouri Legislature makes it "unlawful" to drive any motor vehicle on any highway of the state without either an operator's or chauffeur's license.

1930s - BPR helped state and local governments create Depression-era road projects that would employ as many workers as possible. (History repeats itself in 2009 with the American Reinvestment and Recovery Act transportation projects.)

1940 – 1960s

1940s – During World War II, the focus turned toward providing roads that the military needed. After the war, the nation's roads were in disrepair, and congestion had become a problem in major cities. In 1944, President Franklin D. Roosevelt had signed legislation authorizing a network of rural and urban express highways called the "National System of Interstate Highways." Unfortunately, the legislation lacked funding. It was only after President Dwight D. Eisenhower signed the Federal-Aid Highway Act of 1956 that the Interstate program got under way.

THIS IS THE FIRST PROJECT
IN THE UNITED STATES
ON WHICH ACTUAL CONSTRUCTION WAS STARTED
UNDER PROVISIONS OF THE NEW
FEDERAL AID HIGHWAY ACT OF 1956
MISSOURI STATE HIGHWAY COMMISSION
CAMERON, JOYCE & COMPANY
CONTRACTOR

1952 – Missouri Highway Department takes over responsibility for almost 12,000 miles of county highways, bringing 95 percent of all Missourians to within two miles of a hard-surfaced road.

June 29, 1956 - President Dwight David Eisenhower signed the Federal Aid-Highway Act into law. This new law called upon the states to build a 41,000-mile system of interstate highways linking America's major cities. The new roads were to be built to uniform standards that would accommodate both military and civilian traffic, and the roads were to feature controlled access and gentle curves and slopes, allowing travelers to drive quickly and safely across the nation. The Federal Aid-Highway Act also created a unique funding mechanism for the new road system. The federal government would reimburse 90 percent of the costs incurred by the states while building the interstate system, while each individual state would be responsible for providing the remaining 10 percent and supervising the actual construction of new highways. Fuel taxes and other user fees paid into a highway trust fund would finance federal costs for this massive construction project. Finally, the Federal-Aid Highway Act called for construction of the interstate system to be completed by 1972. The stage was set for the largest construction project in the history of the world to begin, and Missouri was ready to respond to Eisenhower's challenge.

August 2, 1956 - Missouri became the first state to award a contract with the new interstate construction funds, inking a deal for work on U.S. Route 66 – now Interstate 44 – in Laclede County. Also that day, Missouri awarded a contract for work on U.S. 40 – now I-70, the Mark Twain Expressway – in St. Charles County.

1961 - The Legislature passes a bill temporarily raising the fuel tax from 3 cents to 5 cents per gallon. The bill provides that a constitutional amendment be put before the people which would allow cities and counties to share in state motor fuel tax revenues. If the amendment is not submitted within six months, or if it is rejected, the tax would revert to 3 cents. Voters approve the amendment on March 6, 1962, and the 5-cent per gallon tax becomes permanent. This act establishes the County Aid Road Trust program.

April 1967 – BPR was renamed the Federal Highway Administration (FHWA)

Six of the people involved in one of the nation's first interstate projects on Interstate 70 in St. Charles pose at the project site in 1956. Pictured from left to right are Dan Cane, superintendent, Cameron, Joyce & Company; Chick Sayles, salesman, Alpha Portland Cement; John Latham, District 6 engineer; Charles Tevis, District 6 assistant chief engineer; and Jack and Tinch Gammon, brothers who owned Cameron, Joyce & Company, the contractor on the project.

1970 - Present

1974 – Missouri State Department of Transportation is created.

1980 – Missouri Highway Department and Transportation Department merge to create the Missouri Highway and Transportation Department, later renamed the Missouri Department of Transportation.

2009 – Missouri became the first state in the nation to award a contract and begin construction on an ARRA transportation project. APAC-Kansas City was awarded the contract to replace a depression-era bridge over the Osage River at Tuscumbia, Mo. Ironically Scott Gammon, the lead contractor, is the grandson and great nephew of the Gammon brothers, owners of the contracting company that built the first interstate under the provisions of the new Federal-Aid Highway Act (1956) on what is now I-70 in St. Charles County, Mo.

Then and Now

Revenue versus Construction Costs

Last increase in state fuel tax – 1992

Total Revenue – State Funds

1992 $560 million

2009 $998 million (78.2% increase)

Cost of Asphalt/ton (Most recent information available)

1992 $21.52/ton

2008 $58.47/ton (171.7% increase)

Cost of Concrete/cu yard (most recent information available)

1992 $51.30/cu yard

2008 $136.20/cu yard (165.5% increase)

Safety

Highway safety is an important part of everyone's life and it is a recognized value for all Missourians. Partners across our state have joined together to make a difference in reducing fatal crashes across Missouri to 1950 levels.

Then and Now – How Missouri Life in 1950 Compares with 2009

	1950	2009
Population	3,954,653	5,987,580
Avg. price gal. of gas	$0.20	$2.73
Registered Vehicles	1,261,420	4,865,726
Total miles roadway	112,350	129,715
Vehicle miles traveled	14 billion	68 billion
Traffic fatalities	889	871

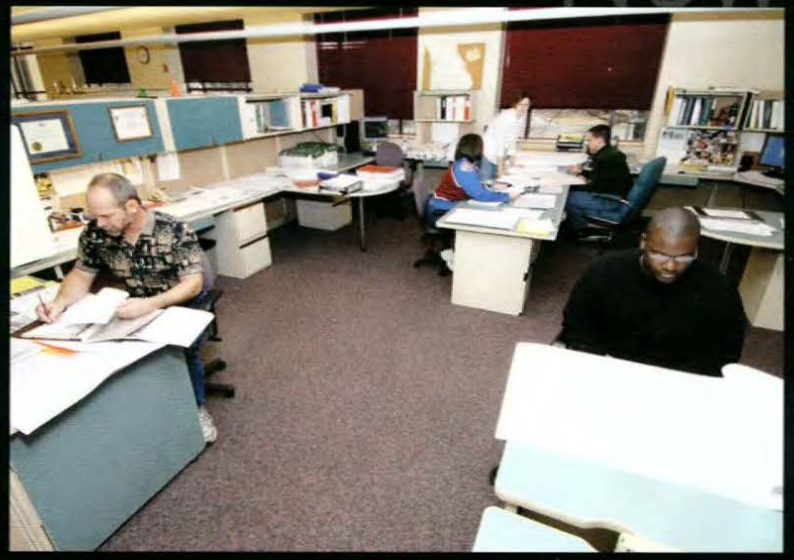
Technology Trends

Then

Now

Then

Now



Notable Missourians in Transportation

As we reflect back on history, one notable Missourian in particular had a significant impact on transportation not only in Missouri, but also in the United States. Many of the issues that Rex Whitton dealt with in his long career are still applicable today.

Whitton began working for the Missouri Highway Department in 1929, 11 days after graduation from the University of Missouri, earning $110 a month as levelman on a 15-mile stretch of road in Johnson County. He moved steadily upward in the department, finally becoming Chief Engineer in 1951. The only interruptions in his steady progress occurred when he decided to stay in two jobs longer than necessary because he wasn't satisfied he had learned enough about those phases of highway construction. He became FHWA Administrator in 1961 and held that position until December 31, 1966.

He was scrupulously honest and occasionally impatient with lobbyists, some of whom referred to him as "that sorehead over in the Highway Department." Possibly no greater tribute could be paid to the head of a highway agency.

Rex Whitton's major passions included:

- Completion of the interstate system - As President of AASHO (now AASHTO), he represented AASHO in the debates on Capitol Hill leading to passage of the legislation that launched the Interstate Highway Program with a few strokes of President Eisenhower's pen on June 29, 1956. Whitton was especially proud of the fact that under his leadership, Missouri let the first contract following approval of the legislation (for paving a section of I-44 in Laclede County, let on August 2).

  During his initial months in office as FHWA Administrator, Whitton was involved in securing new legislation to restore order to the Interstate Program. After considerable debate, Congress rejuvenated the program by passing the Federal-Aid Highway Act of 1961. It increased revenue for the Highway Trust Fund and assured development would proceed on a pay-as-you-go basis. President Kennedy signed the bill on June 29. Whitton said:

On February 10, 1961, Secretary of Commerce Luther H. Hodges (left) administers the oath of office to Rex Whitton (right) as he becomes the third Federal Highway Administrator. Carlton Hayward, Director of Personnel Management for the Commerce Department, is the middle man.

I have among my proudest possessions today one of the pens used by the President in signing the Federal-Aid Highway Act of 1961 . . . It is not an expensive pen but it is the most important one I ever owned for it was an instrument of writing a solution to the highway financing crisis which has bothered so many of us for several years.

Although he was dedicated to completion of the Interstate System on schedule, he used freeways only when he was in a hurry. "We take the back roads," he explained. "That's the finest way to travel unless you're in a big hurry to get somewhere." He and his wife collected antique glass and said "...you don't find antique shops on the big new interstate highways."

- Urban Congestion - Here's what Whitton said about urban congestion in 1966:

  There is every prospect that the demands for new and expanded highway facilities will continue to increase... [However, the] fact is that all of the additional urban freeway mileage it might be possible to build . . . would probably not be enough to accommodate the tremendous traffic loads of future years. We will need all the help we can get from other modes of transportation to serve our cities. And often, even that will not be enough.

  Construction of our urban highway networks didn't solve the problem, but it didn't create it, either. As Whitton pointed out, "Even ancient Rome had to ban chariots from parts of the city for certain hours because of congestion."

  In addition to planning, Whitton supported efforts to find practical solutions to urban transportation problems. He searched for what he called "street stretchers" and what we think of today as transportation system management. He backed traffic light synchronization, joint development, and early experiments in traffic surveillance and metered traffic inputs to increase operational efficiency

- Safety was another of Whitton's major concerns. In 1964, 47,800 people were killed on our roads, which amounted to 5.7 deaths per 100 million miles of travel. "No nation–least of all one as generally affluent and skillful as ours–can tolerate such a senseless toll."

  He refused to be satisfied with programs aimed only at driver skills. He believed highway officials should also seek to improve the vehicle and the road to reduce the toll. Although he emphasized safe highway design and safety research, his best known effort was the Spot Improvement Program to identify low cost, high-payoff safety improvements that could reduce hazards by removal of such roadside obstacles as trees and poles, installation of guardrails, improvement of lighting, and flattening of side slopes.

In one of Whitton's last speeches as FHWA Administrator, he said, "...it is sometimes useful in getting a clear perspective on the road ahead to take a quick look at the road behind."

When Whitton retired at the end of 1966, *Engineering News-Record* summed up his career this way:

He was a prime salesman of uniform design and construction standards, traffic safety, beautification, and the recognition of the human and esthetic values involved in highway location, design, and construction. His greatest contribution may have been in persuading the state highway departments... to come to grips with urban highway problems...

Engineering News-Record summed up Whitton's tenure by saying, "Always he stood for economy and sound engineering, while trying to serve esthetic and human needs as well."

Whitton became a consultant in the Kansas City office of Howard Needles Tammen and Bergendoff. In his spare time, he supervised three farms, totalling 281 acres, including one 25-acre plot that his great-grandfather had settled in 1840.

Rex Whitton passed away on July 7, 1981, in Kansas City.

"I have never seen a problem that did not present an opportunity; nor an opportunity that did not present problems. In any sector of human striving it has always been true that problems and challenges are the bedfellows of progress."

Rex Whitton, 1962

Also as we reflect on our past, we want to remember Jim Minton who died in an explosion at the Highway Engineers conference at The Lodge of the Four Seasons in 1991. Jim had been an employee of the Missouri State Highway and Transportation Department since 1962, and was the Maintenance and Traffic Engineer for District 7 in Joplin. Jim was 52 years old at the time of his death. Nineteen other people were injured in the explosion.

Did you know?

The first speed limit in Missouri was set in 1903 at 9 miles per hour.

Missouri Interstate Facts

I-70 - 5th longest interstate, from Cove Fort, Utah, to Baltimore, Maryland, a distance of 2,153.13 miles

I-70 crosses 10 states: Utah, Colorado, Kansas, Missouri, Illinois, Indiana, Ohio, West Virginia, Pennsylvania, and Maryland

All but five state capitals are directly served by the Interstate System. Those that aren't are Juneau, Alaska; Dover, Delaware; Jefferson City, Missouri; Carson City, Nevada; and, Pierre, South Dakota.

Credits:

Mary Bellis – About.com Guide to Inventors
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Eads Bridge - From Everybody's Cyclopedia, Vol. IV., Syndicate Publishing Company, New York, 1912
Rex Whitton–the Man from Missouri - Administrator's Note, Volume 2, Number 10, November 16, 1990, by Thomas D. Larson
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Association of Missouri