

*Tomorrow's Transportation Solutions Today*



# MTI, UMR, and MoDOT “Bridging the Gap”

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Presentation to SAME, Fort Leonard Wood Post  
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# MTI Mission and Vision

- **Mission:** Harness the richness of knowledge contained within Missouri's universities and research agencies to provide real solutions to the state's transportation issues.
- **Vision:** MTI will be a premier transportation research and technology entity, providing Missouri and the Nation with cutting-edge research while leading transportation policy development as Missouri's Transportation think-tank.



## Roles of MTI

- Help develop a national transportation research presence for the state of Missouri
- Act as the technical and marketing spearhead for MoDOT's Strategic Research Vision
- Identify emerging research trends that impact MoDOT
- Identify research capabilities within MTI member institutions and facilitate the development of research teams in support of MoDOT and National-level transportation research



800  
**Better  
Bridges**

By 2012



# Missouri Bridges

- MoDOT is inspecting 11 state bridges similar in design to the deck arch truss bridge that collapsed in Minnesota
  - Inspections began Aug. 2 and are expected to take five weeks
- A deck arch truss bridge means the truss is below the deck and supports it
  - This is compared to other truss bridges where the truss is on top of the deck
  - Arch refers to the shape of the truss
- The only deck arch truss bridge in Missouri is the Hurricane Deck bridge at Lake of the Ozarks (Route 5 in Camden County)

# Missouri Bridges



Hurricane Deck Bridge located at the Lake of the Ozarks



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# Missouri Bridge Facts

- Missouri has a total of 24,042 bridges
- 10,240 of these bridges are on the Missouri state highway system – 7th largest total nationwide
- There are 55 major river bridges in Missouri – the most in the nation
- 1,093 of MoDOT's bridges are in poor/serious condition
  - The Safe & Sound Initiative will address most of these bridges
- There is at least one bridge in every Missouri county included in the Safe & Sound Bridge Program

# Missouri's Safe and Sound Bridge Program



- The program will replace or rehabilitate more than 800 of MoDOT's most worn-out bridges
- A single team of contractors will be selected to perform the work
  - A large number of local subcontractors will be needed with project sites spread all over the state
- The team will bring all the bridges up to good condition by the end of 2012 and will maintain them in good condition for at least 25 years

# Missouri's Safe and Sound Bridge Program



**Project Map**

# Missouri's Safe and Sound Bridge Program



- Two teams are under consideration:
  - Missouri Bridge Partners
  - Team United
- Both have significant national and international experience with similar types of projects
- Cost is estimated at \$400 million to \$600 million, with MoDOT making no payments until after initial construction period is complete
- MoDOT will dedicate existing federal bridge replacement funds to finance the program

# Missouri's Safe and Sound Bridge Program



- Team selection delayed until this fall
- Current Missouri law requires a performance bond in the amount of the contract and for its duration
- “Performance bonds in the \$400-\$600 million range carried for 30 years are simply not available in the surety market.”
- Lenders who will be financing the successful team want clarification of this issue before they make a commitment
- Legislation to amend Missouri law was introduced in the spring, but did not pass – will be reintroduced

## FHWA Long Term Bridge Performance (LTBP) Program

- Solicitation issued June 13, 2007
- Scope: A 20-year program to inspect, evaluate, and monitor a representative sample of bridges nationwide
- Requirements:
  - Utilize sensing technologies and non-destructive evaluation and testing tools in addition to typical bridge inspection approaches
  - Close collaboration among stakeholders, public agencies, academia, and industry

# FHWA Long Term Bridge Performance (LTBP) Program



- Objective: Support the FHWA National Strategic Plan for improving the infrastructure and operations of the highway system
- Goals: Develop a quantitative database that can be used to solve a variety of bridge condition assessment and management problems – to include:
  - Determining how and why bridges deteriorate
  - Determining the effectiveness of various maintenance, repair, and rehabilitation strategies
  - Determining the effectiveness of materials selected for new bridge construction
  - Enabling improvements in bridge management practices

## FHWA Long Term Bridge Performance (LTBP) Program

- Proposal under development by Dr. Genda Chen, Professor of Civil Engineering at UMR
- Proposed LTBP Program will be managed by two universities and two consulting firms under the leadership of Dr. Chen
- The team is made up of leaders in the fields of bridge management, performance monitoring, and bridge design and construction
- MTI will perform the communications and marketing function of the LTBP Program – if UMR proposal is successful



# Summary

- MTI and the exceptional researchers in the state of Missouri help MoDOT “Bridge the Gap” by bringing the latest research to solve transportation issues
- Missouri’s innovative Safe & Sound Bridge Program will bring attention to the state of Missouri
- MTI and its member universities are well prepared for the upcoming national effort to address urgent issues related to the nation’s failing infrastructure