Mississippi River Bridges

Intelligent Transportation Systems for:

• Incident Management
• Freight Movement
• Security

2013 Louisiana Transportation Conference
February 20, 2013
What is this?
What about this?
What does the towing industry think?
If the towing industry had their say...
Grade separated intersection
Bridge and Highway Detour Locations

Vicksburg Bridge from the eastern shore.

Approach to Helena Bridge.
The Mississippi River is a critical national marine highway corridor.
So what’s the problem?
Vicksburg
Vicksburg
Luling Bridge
Numerous ports exist along the Mississippi River and are impacted by highway and river incidents.
So what can we do about it?

Mississippi River Intelligent Transportation System (MSRITS)
US 49 MS River Bridge @ Helena
US 82 MS River Bridge, Greenville
I-20 MS River Bridge, Vicksburg
US 84 MS River Bridge, Natchez
What will MSRITS do for us?

Help to Prevent, Detect & Manage...

Traffic incidents on crossing highways

River incidents at four bridges
How will it do that?
By Creating...

• Better informed DOTs
• Better informed marine navigation
• Better informed drivers
Better informed DOT’s

• Surveillance Cameras (above and below)
  – (Above) View vehicle traffic conditions
  – (Below) View marine navigation
  • Catch “hit and run” towboats
Better informed DOT’s

• Video detection
  – Traffic volume
  – Speed
  – Classification
Better informed DOT’s

• Deck sensors
  – Pavement conditions
  – Deck temperatures
Better informed marine navigation

• Real-time river current data
  – Current speed in navigation channel
  – River levels
  – Maritime advisory radio
Better informed drivers

• Dynamic message signs to better inform drivers
  – Located before critical detour points and approaches
  – Incident/Emergency detection & management
  – Construction and/or routine maintenance
  – Highway advisory radio
What’s it going to cost?

<table>
<thead>
<tr>
<th>Grant Funds Requested</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natchez-Vidalia Bridge</td>
<td>$1,336,300</td>
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<tr>
<td>Vicksburg Bridge</td>
<td>$2,265,250</td>
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<td>Greenville Bridge</td>
<td>$2,572,850</td>
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<td>Helena Bridge</td>
<td>$2,343,800</td>
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<tr>
<td>System-wide</td>
<td>$1,296,500</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>$9,814,700</strong></td>
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<tr>
<td>Private Partner Funds</td>
<td>$919,750</td>
</tr>
<tr>
<td><strong>Total Project Cost</strong></td>
<td><strong>$10,734,450</strong></td>
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</tbody>
</table>
Project Benefits

**Economic Competitiveness**
Saves $94,808,181 in travel time and freight and logistics costs, increases freight reliability.

**Innovation**
Uses advanced technologies to monitor highway and bridge marine incidents for more effective traveler and freight mobility.

**Partnership**
Creates an ongoing partnership among three states and freight entities with common interests in mobility and safety.

**Livability**
Demonstrates a commitment to improved accessibility and economic opportunity for the approximately 230,000 residents of the project area, all of which is designated an economically-distressed area (EDA).

**Safety**
Enhances safety by decreased response time to crashes and incidents; reduced congestion caused by incidents and reoccurring capacity bottlenecks; and active traffic demand management during times of restricted travel conditions.

**Sustainability**
Reduces greenhouse gas emissions and the nation’s dependence on foreign oil and assists states in attainment of federal clean air standards; eliminates 86,636 tons of carbon dioxide emissions; reduces 24 tons of nitrogen oxides.

**State of Good Repair**
Allows agencies to better maintain and operate this critical infrastructure to provide users with real-time information needed to make informed travel decisions and facilitate mobility of people and freight in the region.
Is ITS worth the money?

Table 10. MS Bridges Benefit Cost Analysis ($ - 20 year life cycle)

<table>
<thead>
<tr>
<th>Long-Term Outcomes</th>
<th>Total Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economic Competitiveness</td>
<td>94,808,181</td>
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<tr>
<td>Safety</td>
<td>2,928,066</td>
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<tr>
<td>Sustainability</td>
<td>1,547,793</td>
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<tr>
<td>Total Benefits</td>
<td>99,284,041</td>
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<tr>
<td>Total Costs</td>
<td>9,814,700</td>
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<tr>
<td>BCA Score</td>
<td><strong>10.1</strong></td>
</tr>
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</table>
When is it going to happen?

- **August 22, 2012** – Advertise Design
- **November 15, 2012** – MDOT issues NTP
- **March 1, 2013** – Final 100% Design Plans to MDOT
- **April 3, 2013** - Advertise Construction
- **April 3, 2013** – Advertise Systems Integration
- **August 2014** - Construction completed
- **August 2014** – Systems Integration Completed
- **November 2014** – Project Closeout/Final Vouchers
Next Steps

Complete Final Design
Advertise Construction
Notice to Proceed June 1st
Mississippi River Bridges Incident Management, Freight Movement and Security Project

innovating the "weakest link" of our Nation's critical links - improving Mississippi River's rural crossings

Mississippi River and River Crossings: An Interactive Network

The Mississippi River serves as a major north-south passageway for river barge haulers and barges carrying millions of tons of materials, grain, freight and manufactured goods every year. Because of its broad width and wide flood plains, it is also a barrier to east-west ground transportation. The States of Tennessee, Mississippi, Arkansas and Louisiana are all keenly aware of the need to work together and have done so many times with regard to the Mississippi River and its effect on the individual states. The most recent flooding experienced in 2011 demonstrated both the power of the river and highlighted the need to work cooperatively for the safety and well-being of the citizens.

The number of roadway and rail crossings over the Mississippi River are limited and are all critical links in the national transportation network. There are only four major river crossings in Mississippi, all of which are US or Interstate Highway routes. All of these locations are critical parts of the nation's transportation network, enabling intercity commerce and east-west travel that, if disrupted, could strain or paralyze parts of the network with significant economic, safety and mobility impacts. Avoidable delays if these bridges are shut down due to major planned and unplanned incidents, such as traffic crashes, lane closures, flooding, or even if one is damaged by a passing barge, are very long. Further, any limitation of traffic capacity on any of these bridges affects the traffic volume on the adjacent bridges due to the diversion of traffic to those facilities. Therefore, the system of bridges is without question an interactive network.

In addressing the needs of this interactive network, this project was proposed to design and construct an active bridge monitoring system at the four Mississippi River crossings in Mississippi.

The locations include:
- US 43 bridge in Lula, Mississippi / Helena, Arkansas
- US 62 bridge in Greenville, Mississippi / Lake Village, Arkansas
- I-20 bridge in Vicksburg, Mississippi / Tallulah, Louisiana
- US 84 bridge in Nations, Mississippi / Farmby, Louisiana
Project Facebook Page
Questions?

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