I-10 TWIN SPANS REPAIR

GILL GAUTREAU
DOTD BRIDGE MAINTENANCE ENGINEER
- **Hurricane Katrina**: *August 29, 2005*, third strongest ever making U.S. landfall, made landfall in Louisiana in Plaquemines Parish, near Buras, as a category 3 hurricane with maximum sustained winds of 125 mph and a minimum central pressure of 920 mb (3rd lowest of a US land-falling hurricane), after crossing Florida as a category 1 hurricane.

- **Hurricane Rita**: *September 24, 2005*, the fourth most intense Atlantic hurricane ever recorded, the most intense tropical cyclone recorded in the Gulf, made landfall on the Louisiana-Texas border as a category 3 hurricane.
Hurricane Katrina

• “the most destructive hurricane to ever strike the U.S.”

NOAA
• Much work is being done to provide safety from hurricanes to south Louisiana.

• A question often asked is why do so many people live here?
Louisiana’s Economy is Concentrated in the Southern Region of the State

- 73.5% of state employment
- Almost 60% of oil and gas employment
- 77% of construction employment
- 67% of all manufacturing employment in the state.
Every major river must have a port city near where it meets the sea.
POPULATED AREA?

- Over 65% of the population of Louisiana lives within 50 miles of the coast (over 2 million according to 2000 census)
OFF SHORE GAS PIPELINES ARE HEAVILY CONCENTRATED OFF LOUISIANA SHORES AND ARE SERVICED BY THE TRUCKING INDUSTRY.
"The hurricane also disrupted operations at the Port of South Louisiana and the Port of New Orleans…….

Together, these ports account for $150 billion and 20 percent of U.S. import/export cargo traffic annually.”
# Commerce and Trade

## Tonnage for Selected U.S. Ports in 2004

Sorted by Port Tons

<table>
<thead>
<tr>
<th>Rank</th>
<th>Port Name</th>
<th>Total</th>
<th>Domestic</th>
<th>Foreign</th>
<th>Imports</th>
<th>Exports</th>
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<td>New York, NY and NJ</td>
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<td>82,199,554</td>
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<td>70,874,216</td>
<td>65,315,980</td>
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<td>62,515,408</td>
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<td>9,053,993</td>
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Louisiana’s Coastal Harvest is More than Oil, Gas and Seafood

- Sugar Cane
- Rice
- Soybeans
- Cotton
- Cattle
- Citrus
- Timber
- Crawfish
- Alligator

Photo courtesy La Dept. Agriculture & Forestry and others
LOUISIANA RANKS VERY HIGH IN COMMERCIAL FISHERY LANDINGS IN THE UNITED STATES
Louisiana cattle ranching has a $1/2 billion annual value

“Modern scholarship places the birth of the Texas ranching industry in the southeast Texas-southwestern Louisiana area, from where cattle raisers drove herds to market in New Orleans.”

Texas State Historical Association

photos courtesy La Dept. Agriculture & Forestry and others
LOUISIANA HIGHWAYS CARRY A LARGE VOLUME OF TRUCKS
Total Combined Truck Flows (1998)

NEW ORLEANS

Network Flows (Tons):
- 0 - 2,000,000
- 2,000,000 - 5,000,000
- 5,000,000 - 10,000,000
- 10,000,000 - 25,000,000
- More Than 25,000,000

BEA to State Flows (Tons):
- 0 - 1,000,000
- 1,000,000 - 2,000,000
- 2,000,000 - 3,000,000
- 3,000,000 - 5,000,000
- More Than 5,000,000

U.S. Department of Transportation
Federal Highway Administration
Office of Freight Management and Operations
Freight Analysis Framework
The I-10 Twin Spans bridge is a major link for truck traffic.
I-10 TWIN SPANS REPAIR

• BEFORE THE STORM
  – PREPARATIONS FOR INSPECTIONS
  • FLYOVERS
    » HEADQUARTERS & DISTRICT MAINTENANCE ENGINEERS
I-10 TWIN SPANS REPAIR

• PRE-STORM PREPARATIONS
  • ARRANGE FLYOVERS
    » HQ & DISTRICT MAINTENANCE ENGINEERS
    » HQ DESIGN AND MAINTENANCE ENGINEERS AND FHWA ENGINEERS
I-10 TWIN SPANS REPAIR

PRE-STORM PREPARATIONS

REQUEST FOR OTHER DISTRICT’S BRIDGE INSPECTOR’S ASSISTANCE
THE DAY AFTER THE STORM

HELICOPTER OVERVIEW OF THE DAMAGE

FLEW FROM THE HAMMOND AIRPORT EARLY a.m.

SURVEYED

THE NORTH SHORE TO MISSISSIPPI
US 11 BRIDGE
I-10 TWIN SPANS
RIGOLETES BRIDGE
CHEF MENTEUR PASS BRIDGE
NEW ORLEANS EAST
SOUTH SHORE
METAIRE
DOWNTOWN
ST BERNARD
LULING
I-55
I-55
I-10 TWIN SPANS REPAIR
THE DAY AFTER THE STORM - HELICOPTER OVERVIEW OF DAMAGE

THE NORTH SHORE US 11 BRIDGE
I-10 TWIN SPANS REPAIR
THE DAY AFTER THE STORM - HELICOPTER OVERVIEW OF DAMAGE

THE NORTH SHORE R.R. BRIDGE
I-10 TWIN SPANS REPAIR
THE DAY AFTER THE STORM - HELICOPTER OVERVIEW OF DAMAGE

THE NORTH SHORE. TWIN SPAN BRIDGE IN BACKGROUND
I-10 TWIN SPANS REPAIR
THE DAY AFTER THE STORM - HELICOPTER OVERVIEW OF DAMAGE

THE NORTH SHORE. TWIN SPAN, US 11 & RR BRIDGES IN BACKGROUND
THE NORTH SHORE. APPLIANCES & RESIDENCES DEBRIS
I-10 TWIN SPANS REPAIR
THE DAY AFTER THE STORM - HELICOPTER OVERVIEW OF DAMAGE

US 90 PEARL RIVER BRIDGE
I-10 TWIN SPANS REPAIR
THE DAY AFTER THE STORM - HELICOPTER OVERVIEW OF DAMAGE

THE NORTH SHORE. RIGOLETES BRIDGE
I-10 TWIN SPANS REPAIR
THE DAY AFTER THE STORM - HELICOPTER OVERVIEW OF DAMAGE

THE NORTH SHORE. RIGOLETES BRIDGE
I-10 TWIN SPANS REPAIR
THE DAY AFTER THE STORM - HELICOPTER OVERVIEW OF DAMAGE

THE NORTH SHORE. RIGOLETES BRIDGE
I-10 TWIN SPANS REPAIR
THE DAY AFTER THE STORM - HELICOPTER OVERVIEW OF DAMAGE

THE NORTH SHORE. RIGOLETES BRIDGE
I-10 TWIN SPANS REPAIR
THE DAY AFTER THE STORM - HELICOPTER OVERVIEW OF DAMAGE

THE NORTH SHORE. RIGOLETES BRIDGE
I-10 TWIN SPANS REPAIR
THE DAY AFTER THE STORM - HELICOPTER OVERVIEW OF DAMAGE

THE NORTH SHORE. RIGOLETES BRIDGE
I-10 TWIN SPANS REPAIR
THE DAY AFTER THE STORM - HELICOPTER OVERVIEW OF DAMAGE

THE NORTH SHORE. BETWEEN RIGOLETES & CHEF BRIDGES
I-10 TWIN SPANS REPAIR
THE DAY AFTER THE STORM - HELICOPTER OVERVIEW OF DAMAGE

THE NORTH SHORE. CHEF BRIDGE
I-10 TWIN SPANS REPAIR
THE DAY AFTER THE STORM - HELICOPTER OVERVIEW OF DAMAGE

NEW ORLEANS EAST - JAZZLAND
I-10 TWIN SPANS REPAIR
THE DAY AFTER THE STORM - HELICOPTER OVERVIEW OF DAMAGE

NEW ORLEANS EAST
I-10 TWIN SPANS REPAIR
THE DAY AFTER THE STORM - HELICOPTER OVERVIEW OF DAMAGE

NEW ORLEANS LAKEFRONT AIRPORT
I-10 TWIN SPANS REPAIR
THE DAY AFTER THE STORM - HELICOPTER OVERVIEW OF DAMAGE

I-10 ‘HIGHRISE’ & L&N RAILROAD
I-10 TWIN SPANS REPAIR
THE DAY AFTER THE STORM - HELICOPTER OVERVIEW OF DAMAGE

RESIDENTIAL FLOODING
I-10 TWIN SPANS REPAIR
THE DAY AFTER THE STORM - HELICOPTER OVERVIEW OF DAMAGE
I-10 TWIN SPANS REPAIR
THE DAY AFTER THE STORM - HELICOPTER OVERVIEW OF DAMAGE

LULING BRIDGE
I-10 TWIN SPANS REPAIR
THE DAY AFTER THE STORM - HELICOPTER OVERVIEW OF DAMAGE

RAILROAD ALONG I-10 TOWARDS LAPLACE
I-10 TWIN SPANS REPAIR
THE DAY AFTER THE STORM - HELICOPTER OVERVIEW OF DAMAGE

US 90 MISSISSIPPI RIVER BRIDGES
I-10 TWIN SPANS REPAIR
THE DAY AFTER THE STORM - HELICOPTER OVERVIEW OF DAMAGE

SHIP PARTLY ON MISSISSIPPI RIVER LEVEE
I-10 TWIN SPANS REPAIR
THE DAY AFTER THE STORM - HELICOPTER OVERVIEW OF DAMAGE

DAMAGED CRESCENT CITY CONNECTION FERRY LANDING
I-10 TWIN SPANS REPAIR
THE DAY AFTER THE STORM - HELICOPTER OVERVIEW OF DAMAGE

BAYOU BARATARIA BRIDGE AT JEAN LAFITE
I-10 TWIN SPANS REPAIR
THE DAY AFTER THE STORM - HELICOPTER OVERVIEW OF DAMAGE
### August 2005

<table>
<thead>
<tr>
<th>Sun</th>
<th>Mon</th>
<th>Tue</th>
<th>Wed</th>
<th>Thu</th>
<th>Fri</th>
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<td>30</td>
<td>31</td>
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<td>2</td>
<td>3</td>
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</table>

- Katrina Strikes
- Helicopter fly-over
- Strategy meetings @ DOTD HQ

#### September 2005

<table>
<thead>
<tr>
<th>Sun</th>
<th>Mon</th>
<th>Tue</th>
<th>Wed</th>
<th>Thu</th>
<th>Fri</th>
<th>Sat</th>
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<tbody>
<tr>
<td>4</td>
<td>Labor Day 5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
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- Scope Of Work and Bid Documents prepared working 16 -18 hr/day
- Completed Documents, Held Pre-bid Meeting
- Bidders prepared proposals
- Bids Received, Contract Signed

<table>
<thead>
<tr>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
<th>16</th>
<th>17</th>
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- Official Start

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<th>18</th>
<th>19</th>
<th>20</th>
<th>21</th>
<th>22</th>
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- Rita demobilization
- Rita
- Rita

<table>
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<tr>
<th>25</th>
<th>26</th>
<th>27</th>
<th>28</th>
<th>29</th>
<th>30</th>
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</thead>
</table>

- Rita
# Calendar of Events

<table>
<thead>
<tr>
<th>Sun</th>
<th>Mon</th>
<th>Tue</th>
<th>Wed</th>
<th>Thu</th>
<th>Fri</th>
<th>Sat</th>
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<tr>
<td>Day 21</td>
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<tr>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>13</td>
<td>14</td>
<td>15</td>
</tr>
<tr>
<td>Day 28</td>
<td>Columbus Day</td>
<td></td>
<td></td>
<td></td>
<td>Eastbound Bridge Opened – Phase 1 Complete.</td>
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<tr>
<td>16</td>
<td>17</td>
<td>18</td>
<td>19</td>
<td>20</td>
<td>21</td>
<td>22</td>
</tr>
<tr>
<td>Day 35</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>23</td>
<td>24</td>
<td>25</td>
<td>26</td>
<td>27</td>
<td>28</td>
<td>29</td>
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<tr>
<td>Day 42</td>
<td></td>
<td></td>
<td></td>
<td>Day 45 – Completion Deadline pre- Rita</td>
<td></td>
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</table>

**October 2005**

- Day 21
- Day 28: Columbus Day
- Day 35
- Day 42: Day 45 – Completion Deadline pre- Rita
THE LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

ACQUISITION OF
ENGINEERING & CONSTRUCTION SERVICES
EMERGENCY REQUEST FOR PROPOSAL

For

INTERSTATE 10 TWIN SPANS OVER LAKE PONCHARTRAIN
ORLEANS AND ST. TAMMANY PARISHES

STATE PROJECT NUMBERS
Phase 1, 450-17-0022, 450-18-0097 AND 450-90-0195
Phase 2, 450-17-0023
Phase 3, 450-17-0024
FEDERAL AID PROJECT NUMBER ER-360S(513)

REQUEST FOR PROPOSALS (DRAFT)
I-10 TWIN SPANS REPAIR

THE FOLLOWING ARE SOME OF THE SLIDES THAT WERE PRESENTED TO THE PROSPECTIVE PROPOSERS DURING THE PRE-BID CONFERENCE
INTERSTATE 10 TWIN SPANS
OVER LAKE PONTCHARTRAIN

• ACQUISITION OF ENGINEERING & CONSTRUCTION SERVICES
• EMERGENCY REQUEST FOR PROPOSAL
• STATE PROJECT NUMBERS
  • Phase 1, 450-17-0022, 450-18-0097 AND 450-90-0195
  • Phase 2, 450-17-0023
  • Phase 3, 450-17-0024
• FEDERAL AID PROJECT NUMBER ER-3605(513)
I-10 Twin Spans

View from the South end of the bridge, the direction from which plans and project information are numbered.
I-10 Twin Spans

Note missing bent in center of photo.
I-10 Twin Spans

Two spans missing, 12 clearly misaligned, 4 rails missing.
I-10 Twin Spans

Four spans misaligned, one of them very severely. One rail missing.
I-10 Twin Spans

Looking towards the North shore.
I-10 Twin Spans

Note that the seven spans at the top are all uniformly misaligned, as indicated by the cap end being obscured.
I-10 Twin Spans
12 spans misaligned, 7 rails missing.
I-10 Twin Spans

View looking towards North end.
I-10 Twin Spans

North end of bridge. Note span off to side.
I-10 Twin Spans

Looking Southwest from North end.
I-10 Twin Spans

Spans missing, bearing base plates in place.
I-10 Twin Spans

Note how movement was arrested by the risers. This caused the cracks noted at girders 2 & 5.
I-10 Twin Spans

View looking to South end of bridge. Spans on the left are off at least one cap. Spans on the right are shifted.
I-10 Twin Spans

Two spans wedged against one cap.
I-10 Twin Spans

Spalling at girder ends of two spans.
I-10 Twin Spans

Damaged railing and misalignment at North end crossover spans.
I-10 Twin Spans

Displacements (by one riser spacing) and debris at north shore. Note uniformly exposed portion of caps.
I-10 Twin Spans Detailed Damage Report

Hurricane Katrina Damage Assessment
I-10 Bridges over Lake Pontchartrain
Bridge Nos. 4501700001 & 4501700002

By

VOLKERT
ASSOCIATES, INC.

September 2-4, 2005
## Transmittal

**Project [7032] - I-10 Twin Spans over Lake Pontchartrain**

**View Date**: 9/13/2005

**SP#**: 450-17-0022  
**FAP#**: ER-3605(513)

### Transmittal No. 7032-

**Boh Bros. Construction Co., LLC**  
P.O. Box 53266  
730 South Tonti Street  
New Orleans, LA 70163  
Phone: (504) 821-2400  
Fax: (504) 821-0714

### To

Clay Harms  
Volkert  
1113 West I-65 Service Rd. N  
Mobile, AL 36618  
Phone: (251) 342-1070  
Fax: (251) 342-7962

### From

Mr. G.I. Sheremayter (BOH BROS. CONSTRUCTION CO., L.L.C.)

### Subject

Saddle Beam Submittal Rev.

### Date

9/13/2005

### Items listed are being sent

- [ ] Enclosed  
- [ ] Under Separate Cover  
- [ ] Via  
- [x] Fax

### We are transmitting the following to you:

- [ ] Product Data  
- [x] Samples  
- [x] Architectural Drawings  
- [x] Letters  
- [ ] Engineering Drawings  
- [ ] Change Orders  
- [ ] Shop Drawings  
- [ ] Claim Manuals  
- [ ] Plans  
- [ ] Specifications  
- [ ] Prints  
- [ ] Addenda  
- [ ] Submittal

### Remarks

Acceptable Pending Successful Field Performance

**Received By**

[Signature]

**Printed Name**

[Signature]

**Date**

9/13/05 19:03 hrs.
DESIGN APPROVAL PROCESS
DESIGN APPROVAL PROCESS
## DESIGN APPROVAL PROCESS

### Global

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<td>AISI: ASD 9th</td>
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<tr>
<td>Cold Formed Steel Code</td>
<td>AISC: ASD</td>
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<tr>
<td>Wood Code</td>
<td>NDS 91/97: ASD</td>
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<tr>
<td>Concrete Code</td>
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### General Material Properties

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<th>G (ksi)</th>
<th>Nu</th>
<th>Therm (115°F)</th>
<th>Dens (pcf)</th>
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<td>15</td>
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<tr>
<td>3</td>
<td>gen. Conc NW</td>
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<td>901</td>
<td>15</td>
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<td>gen. Conc NW</td>
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<td>901</td>
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### Hot Rolled Steel Properties

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<th>G (ksi)</th>
<th>Nu</th>
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<th>Density (pcf)</th>
<th>Yield (ksi)</th>
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<td>2</td>
<td>A572 Gr 50</td>
<td>29000</td>
<td>11154</td>
<td>3</td>
<td>65</td>
<td>49</td>
<td>36</td>
</tr>
</tbody>
</table>

Risa-3D Version 5.5 [C:\Risa\10saddle.r3d]
Broken girder end with exposed strands (bearing on left)
Broken girder end with exposed strands
Scanning sonar image of a sunken vessel showing the detail resolution capabilities of the instrumentation.
I-10 TWIN SPANS RECONSTRUCTION
- REPAIR PROCESS
  - SPAN REMOVAL AND DEMOLITION
I-10 TWIN SPANS RECONSTRUCTION
- REPAIR PROCESS
  - SPAN REMOVAL AND DEMOLITION
I-10 TWIN SPANS RECONSTRUCTION

- REPAIR PROCESS
  - SPAN REMOVAL AND DEMOLITION
I-10 TWIN SPANS RECONSTRUCTION

- REPAIR PROCESS
- SPAN REMOVAL AND DEMOLITION
I-10 TWIN SPANS RECONSTRUCTION

- REPAIR PROCESS
  - SPAN REMOVAL AND DEMOLITION
I-10 TWIN SPANS RECONSTRUCTION

- REPAIR PROCESS
  - SUBSTRUCTURE REPAIRS
I-10 TWIN SPANS RECONSTRUCTION

- REPAIR PROCESS
  - SUBSTRUCTURE REPAIRS
I-10 TWIN SPANS RECONSTRUCTION

- REPAIR PROCESS
- SUBSTRUCTURE REPAIRS
I-10 TWIN SPANS RECONSTRUCTION

- REPAIR PROCESS
  - SUBSTRUCTURE REPAIRS
I-10 TWIN SPANS RECONSTRUCTION

- REPAIR PROCESS
  - SUBSTRUCTURE REPAIRS
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- SUBSTRUCTURE REPAIRS
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  - SUBSTRUCTURE REPAIRS
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  - SUBSTRUCTURE REPAIRS
I-10 TWIN SPANS RECONSTRUCTION

- REPAIR PROCESS
  - SUBSTRUCTURE REPAIRS
I-10 TWIN SPANS RECONSTRUCTION

- REPAIR PROCESS
  - SUBSTRUCTURE REPAIRS
I-10 TWIN SPANS RECONSTRUCTION

- REPAIR PROCESS
  - SUBSTRUCTURE REPAIRS
I-10 TWIN SPANS RECONSTRUCTION

- REPAIR PROCESS
- SPAN REALIGNMENT
I-10 TWIN SPANS RECONSTRUCTION

- REPAIR PROCESS
- SPAN REALIGNMENT
I-10 TWIN SPANS RECONSTRUCTION

- REPAIR PROCESS
- SPAN REALIGNMENT
I-10 TWIN SPANS RECONSTRUCTION
• REPAIR PROCESS
  – SPAN REALIGNMENT
I-10 TWIN SPANS RECONSTRUCTION

- REPAIR PROCESS
- SPAN REALIGNMENT
I-10 TWIN SPANS RECONSTRUCTION

- REPAIR PROCESS
- SPAN REALIGNMENT
I-10 TWIN SPANS RECONSTRUCTION

- REPAIR PROCESS
- SPAN REALIGNMENT
I-10 TWIN SPANS RECONSTRUCTION

- REPAIR PROCESS
- SPAN REALIGNMENT
I-10 TWIN SPANS RECONSTRUCTION

- REPAIR PROCESS
- SPAN REALIGNMENT
I-10 TWIN SPANS RECONSTRUCTION

GOVERNOR BLANCO AND SECRETARY BRADBERY, WITH PROJECT ENGINEER JOHN HORN
I-10 TWIN SPANS RECONSTRUCTION

SECRETARIES CAPKA, BRADBERRY, AND MINETA WITH PROJECT ENGINEER JOHN HORN
SECRETARY BRADBERY, AND IT WAS HOT
I-10 TWIN SPANS RECONSTRUCTION

• REPAIR PROCESS
  – SPAN REALIGNMENT
I-10 TWIN SPANS RECONSTRUCTION
• REPAIR PROCESS
  – SPAN RELOCATION
Hurricane Rita
“Rita was the third most intense hurricane ever in the Atlantic Basin behind Hurricane Gilbert in 1988 and the 1935 Labor Day Hurricane…”
Hurricane Rita
Southwest Louisiana

photos LA DOTD
Hurricane Rita

photo courtesy La Dept. Agriculture & Forestry

photos LA DOTD
Hurricane Rita

photos LA DOTD
Hurricane Rita
I-10 TWIN SPANS RECONSTRUCTION
• REPAIR PROCESS
  – SPAN RELOCATION
I-10 TWIN SPANS RECONSTRUCTION
• REPAIR PROCESS
  – SPAN RELOCATION
I-10 TWIN SPANS RECONSTRUCTION
• REPAIR PROCESS
  – RAILING AND CONCRETE REPAIR
I-10 TWIN SPANS RECONSTRUCTION

- REPAIR PROCESS
  - RAILING AND CONCRETE REPAIR
I-10 TWIN SPANS RECONSTRUCTION

• REPAIR PROCESS
  – RAILING AND CONCRETE REPAIR
I-10 TWIN SPANS RECONSTRUCTION
PHASE ONE OPENS – OCTOBER 14, 2006
I-10 TWIN SPANS RECONSTRUCTION
• REPAIR PROCESS
  – RAILING AND CONCRETE REPAIR
I-10 TWIN SPANS RECONSTRUCTION
• REPAIR PROCESS
  – ACROW TEMPORARY BRIDGING
I-10 TWIN SPANS RECONSTRUCTION

• REPAIR PROCESS
  – ACROW TEMPORARY BRIDGING
I-10 TWIN SPANS RECONSTRUCTION
• REPAIR PROCESS
  – ACROW TEMPORARY BRIDGING
I-10 TWIN SPANS RECONSTRUCTION
  • REPAIR PROCESS
   – ACROW TEMPORARY BRIDGING
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I-10 TWIN SPANS RECONSTRUCTION

- REPAIR PROCESS
  - ACROW TEMPORARY BRIDGING
I-10 TWIN SPANS RECONSTRUCTION

• REPAIR PROCESS
  – ACROW TEMPORARY BRIDGING
I-10 TWIN SPANS RECONSTRUCTION

• REPAIR PROCESS
  – ACROW TEMPORARY BRIDGING
I-10 TWIN SPANS RECONSTRUCTION

• REPAIR PROCESS
  – ACROW TEMPORARY BRIDGING
### PHASE I WORK

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of Work Days Allowed</strong></td>
<td>45</td>
<td>100% completed in 64% of time</td>
</tr>
<tr>
<td><strong>Number of Work Days Used</strong></td>
<td>29</td>
<td></td>
</tr>
<tr>
<td><strong>Number of Spans to Be Realigned</strong></td>
<td>170</td>
<td>101.1%</td>
</tr>
<tr>
<td><strong>Number of Spans Realigned</strong></td>
<td>172</td>
<td></td>
</tr>
<tr>
<td><strong>Number of Spans to Be Removed and Disposed</strong></td>
<td>38</td>
<td>103%</td>
</tr>
<tr>
<td><strong>Number of Spans Removed and Disposed</strong></td>
<td>39</td>
<td></td>
</tr>
<tr>
<td><strong>Number of Spans to Be Relocated</strong></td>
<td>38</td>
<td>105%</td>
</tr>
<tr>
<td><strong>Number of Spans Relocated</strong></td>
<td>40</td>
<td></td>
</tr>
</tbody>
</table>

Phase 1 opened to traffic on Friday, October 14, 2005 – 16 days early.
## PROGRESS REPORT

### PHASE II WORK

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Work Days Allowed</td>
<td>120</td>
<td>92%</td>
</tr>
<tr>
<td>Number of Work Days Used</td>
<td>110</td>
<td></td>
</tr>
<tr>
<td>Number of Spans to Be Realigned</td>
<td>265</td>
<td>100%</td>
</tr>
<tr>
<td>Number of Spans Realigned</td>
<td>265</td>
<td></td>
</tr>
<tr>
<td>Number of Spans to Be Removed</td>
<td>26 (revised to 22)</td>
<td>100%</td>
</tr>
<tr>
<td>Number of Spans Removed and</td>
<td>22</td>
<td></td>
</tr>
<tr>
<td>No. of Spans to Be Relocated West to West</td>
<td>21</td>
<td>100%</td>
</tr>
<tr>
<td>No. of Spans Relocated West to West</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>Linear feet of Acrow Panel Bridge to be installed</td>
<td>4,160</td>
<td>100%</td>
</tr>
<tr>
<td>Linear feet of Acrow Panel Bridge installed*</td>
<td>4,160</td>
<td></td>
</tr>
</tbody>
</table>

*Installation began Nov 05, 2005. The North portion was completed on Nov 18, 2005. The South portion was completed on January 4, well ahead of the January 14, 2006.*
OPENING CEREMONY
JANUARY 5, 2006
OPENING CEREMONY
JANUARY 5, 2006
BRAND NEW ACROW BRIDGE
OPENING CEREMONY
JANUARY 5, 2006
BRAND NEW ACROW BRIDGE
• WHAT HAPPENED?
  – The following illustration is from DesRoches and Rix at Georgia Tech
  – A detailed report was prepared for design of the replacement bridge by Moffatt & Nichol along with TRC Engineers.
1. The Lifting

Storm surge rose to 14 to 16 feet above sea level beneath the bridge decks, where beams captured air beneath them, increasing the upward force to 900,000 pounds.
2. The Founding

At the same time, waves of 13 feet atop the surge hit the sides of the bridge decks with 700,000 pounds of force every 6.5 seconds at the height of the storm.
3. The Breaking

The water’s lifting and pounding broke the connections between 150-foot-deep pilings and piers supporting the bridge decks, allowing the decks to slide sideways or fall into the water.
HOPEFULL PREVENTATIVE
HOPEFULL PREVENTATIVE
Construction is Underway for a New Interstate 10 Twin Span Bridge

Now, through the dedicated efforts of its citizens and with the cooperation of state and federal governments, construction of a new Twin Span Bridge is underway. The approximately $800 million project is a testament to the strength, hope and resiliency of a grand state and strong nation.

http://www.twinspanbridge.com/

This website will feature the latest information about the Twin Span Bridge replacement project. If you have questions or comments please visit the “Contact Us” section and e-mail them to the construction team.
THE FUTURE

http://www.twinspanbridge.com

Twin Span Bridge News

DOTD breaks ground for new Twin Span Bridge

Largest public works project in Louisiana history
Preliminary construction activities continue

An expert team of civil and geotechnical engineers and scientists continue to investigate subsurface conditions on Lake Pontchartrain. The team is working with the Louisiana Department of Transportation and Development and the Federal Highway Administration to construct the new $650 million Twin Span Bridge.

Last week, tests were conducted on the pilings using a combination static and dynamic testing process known as statnamic testing. In statnamic testing, a device similar to a small rocket is ignited within a pressure chamber atop the test pile. As the pressure increases, an upward force is exerted on a set of weights while an equal and opposite force pushes downward on the test pile. The weight increases to a maximum before being released by venting the pressure. Built-in instrumentation provides engineers and scientists with information on the test pile's capacity to withstand the loads required for major bridge structures.

Statnamic testing is regarded as an accurate and cost-effective method for determining load-bearing capacity. It is also safe because the fuel-cell ignition that triggers the process is contained within the pressure chamber.

Thus far, four test piles have been driven to depths ranging from 103 to 119 feet. A total of 13 test piles will be driven before this phase of construction concludes in the fall.

Bridge maintenance

The existing Twin Span Bridge suffered major damage last year from Hurricane Katrina. The westbound bridge was repaired using prefabricated metal panels that require continuous monitoring and maintenance to ensure safety. Much of the repair work is accomplished without impacting the 55,000 drivers who travel the bridge each day, but sometimes daytime lane closures and full overnight closures are needed.

"Looking for damaged bolts and deck panels is best done during daylight hours and we try to close only one lane at a time for that work," said Steve Henry, P.E., of Volker Construction Services. "Certain repairs, like welding or removing and replacing deck panels, require closing the bridge and we try to do that at night when traffic demand is lower."

When the westbound bridge is closed for maintenance, drivers are advised to use the Causeway or Interstate 55 for access to New Orleans. Motorists can do their part to minimize damage to the bridge by obeying speed limits and weight restrictions. Both spans are closed to oversize and overweight rail loads. The westbound span has a 70,000-pound weight limit for tractor-trailer combinations and a single vehicle weight limit of 40,000 pounds. The speed limit on the westbound span is 45 mph, while the eastbound span has a 60 mph speed limit.

Maintenance schedule

<table>
<thead>
<tr>
<th>DATE</th>
<th>TIME</th>
<th>CLOSURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tues., Sept. 19</td>
<td>9:00 a.m.-1:00 p.m.</td>
<td>Westbound bridge, alternating lanes</td>
</tr>
<tr>
<td>Sun., Sept. 24</td>
<td>9:00 a.m.-1:00 p.m.</td>
<td>Westbound bridge, single closure</td>
</tr>
<tr>
<td>Tues., Sept. 29</td>
<td>9:00 a.m.-1:00 p.m.</td>
<td>Westbound bridge, alternating lanes</td>
</tr>
<tr>
<td>Wed., Sept. 27</td>
<td>9:00 a.m.-1:00 p.m.</td>
<td>Westbound bridge, alternating lanes</td>
</tr>
<tr>
<td>Thurs., Sept. 28</td>
<td>9:00 a.m.-1:00 p.m.</td>
<td>Westbound bridge, alternating lanes</td>
</tr>
</tbody>
</table>

*The Causeway and Interstate 55 are available as detour routes.*
I-10 Twin Spans Replacement
I-10 Twin Spans Replacement
The following weekly summary of the construction of the I-10 Twin Spans for the week of February 11, 2008 thru February 17, 2008:

### WORK COMPLETED DURING WEEK ENDING February 17, 2008:

- Contractor drove 27 piles for 5 Bents, S-77 EB (5 Piles), S-81 EB (7 Piles), S-85 EB (5 Piles), S-92 WB (5 Piles), S-103 WB (5 Piles).
- Contractor continued concrete pouring operations which included Pile Fill, Risers, Diaphragms, and Precast Cap Closures.
- Set 2 Precast Caps at Bent S-30 EB and S-31 WB

### SUMMARY OF WORK COMPLETED TO DATE:

- 1442 of 2240 Piles driven for 241 of 430 Bents
- 13 – Deck units poured
- 117 – Caps in place (Cast-in-place and precast caps)

**Percent Time Used:** 29.89%

**Percent Project Complete:** 34.67%

*(Through Estimate No. 37, February 15, 2008)*
I-10 TWIN SPANS CONSTRUCTION WEEKLY SUMMARY
State Project Nos. 450-17-0025 & 450-17-0028  Week Ending: February 17, 2008
ENGINEER’S WEEKLY SUMMARY OF EVENTS, OBSERVATIONS AND REMARKS
STATE PROJECT 450-17-0028

The following weekly summary of the construction of the I-10 Twin Spans for the week of February 11, 2008 thru February 17, 2008:

**WORK COMPLETED DURING WEEK ENDING February 17, 2008:**

<table>
<thead>
<tr>
<th>Contractor placed concrete for the Cap at M-16 WB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contractor placed concrete for the Footing at M-13 WB.</td>
</tr>
<tr>
<td>Contractor placed concrete for the Risers at M-16 WB.</td>
</tr>
<tr>
<td>Contractor placed concrete for the Intermediate Diaphragms at M-24 WB</td>
</tr>
<tr>
<td>Contractor drove 7 Pile for Bent M-12 WB.</td>
</tr>
</tbody>
</table>

**SUMMARY OF WORK COMPLETED TO DATE:**

<table>
<thead>
<tr>
<th>380 of 1016 Piles driven</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 – Footings poured</td>
</tr>
<tr>
<td>14 – Columns poured</td>
</tr>
<tr>
<td>13 – Pier caps poured</td>
</tr>
</tbody>
</table>

**Percent Time Used:** 29.92%

**Percent Project Complete:** 34.03% *(Through Estimate No. 20, February 15, 2008)*
Driving 36” Pile at Bent S-81 Eastbound.
Crossover Bents N-10C thru N-13C.
Span N-6 Eastbound looking towards Bent N-1 Eastbound.
Driving 36” Pile at Bent M-12 Westbound.
Placing Concrete for the Footing at M-13 Westbound.
Placing Concrete for the Pier Cap at M-16 Westbound.