



Challenges Faced by the Mississippi Department of Transportation Before, During, and in the Aftermath of Hurricane Katrina

2006 SE Pavement Management & Design Conference

May 08, 2006

Panama City, Florida

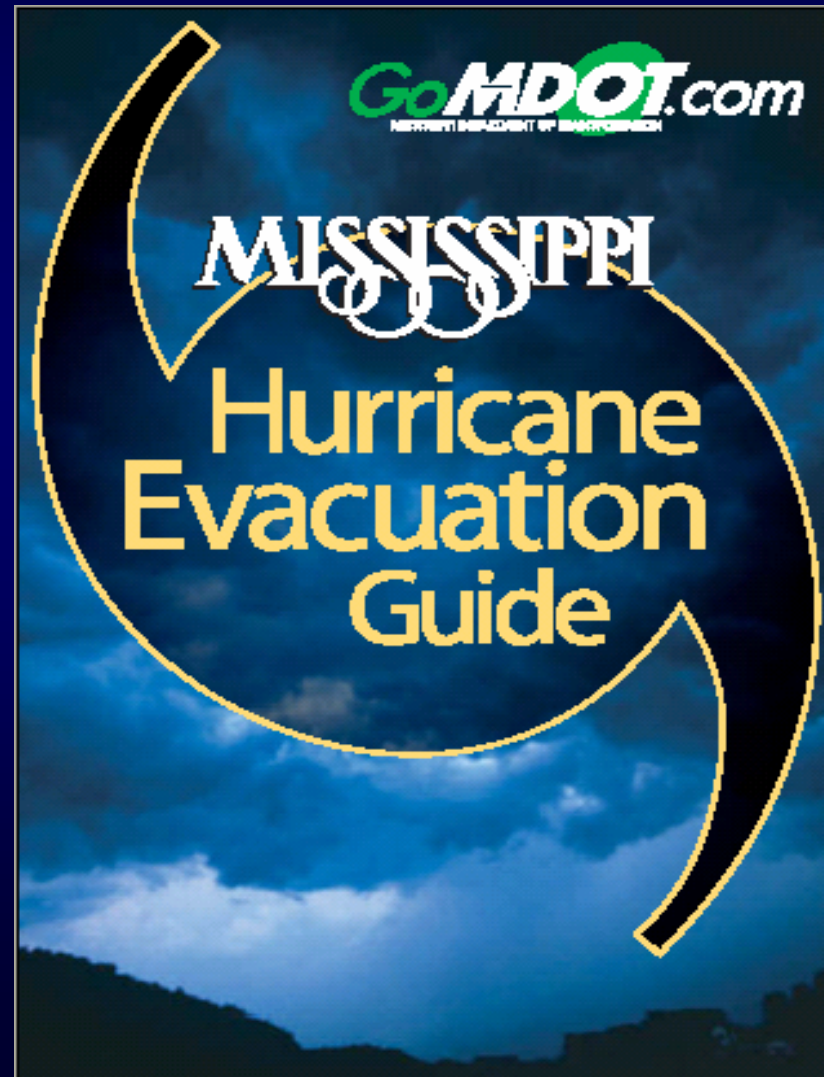


Outline

- Pre-Katrina Events
- Activities Immediately after Landfall
- Rebuilding

Pre-Katrina

- Available in print (500,000+) or on-line
- Disaster Supply Checklist
- “Before you hit the road” Checklist
- Family Communication Plan Tips
- Contraflow Instructions
- Agency Contact Information
- Alternate Routes & Map



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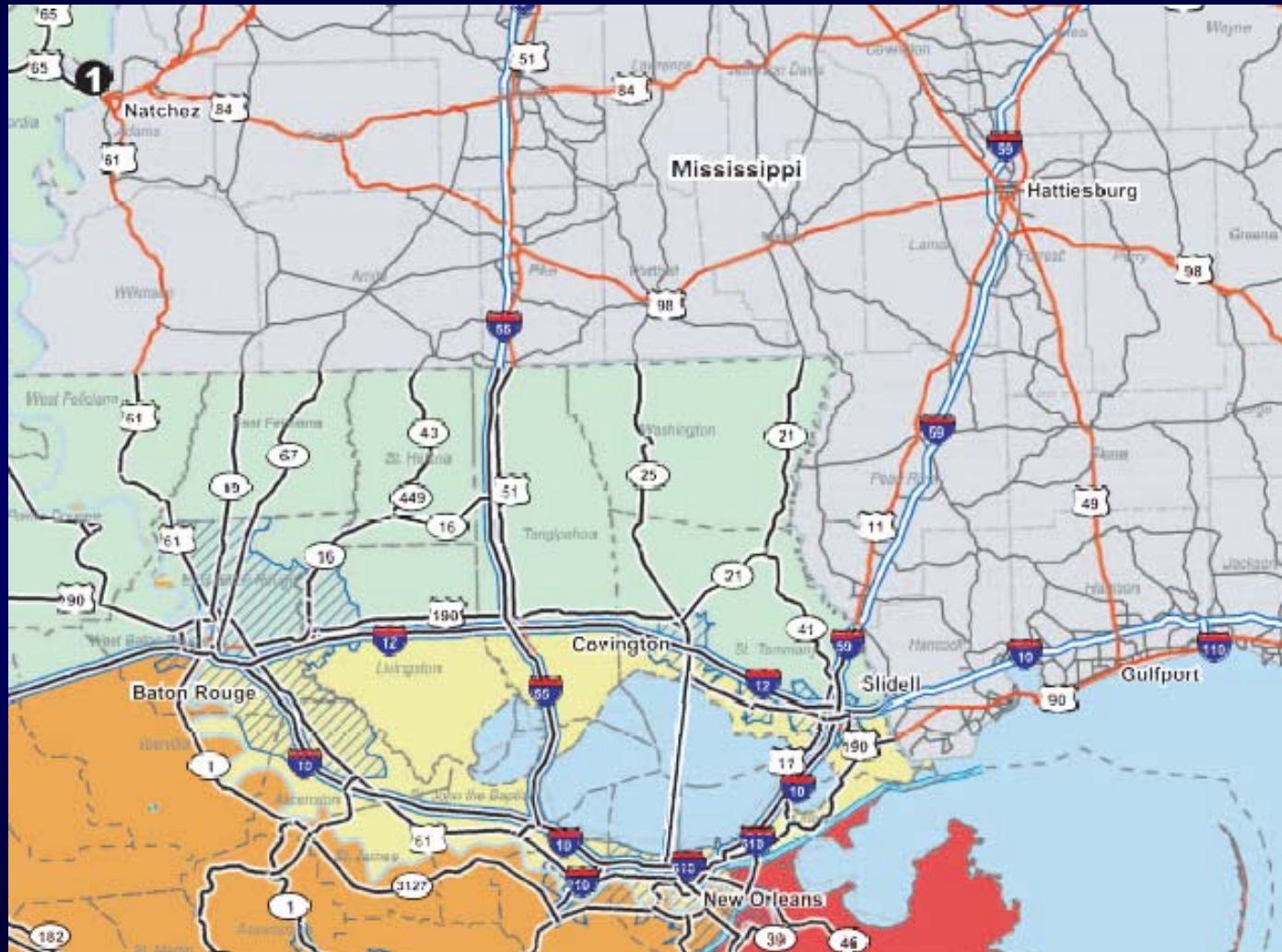
MAP OF MAINE
ESPACATION MAP



Go **MDOT**.com
MISSISSIPPI DEPARTMENT OF TRANSPORTATION

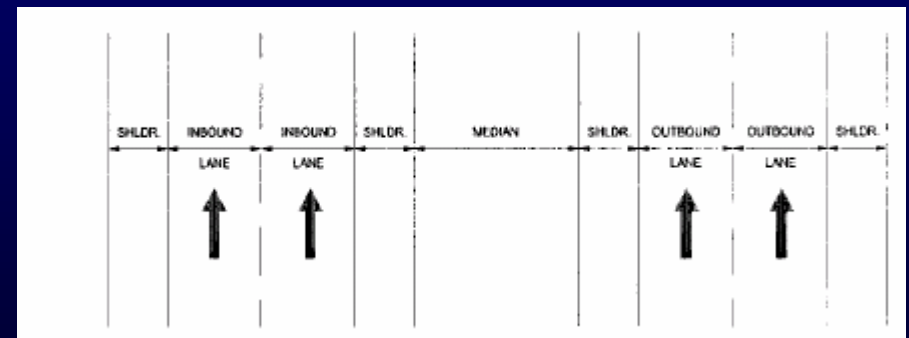
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Contraflow



Contraflow

- 31 miles of I-55
- 21 miles of I-59
- North/South routes for over 1.4 million SE Louisiana residents
- Ideal implementation 72 hours prior to landfall
- Implemented upon receiving request from Louisiana





Contraflow Requirements

- 250+ Construction & Maintenance Personnel (2 – 12 hour shifts)
- 70 MDOT Law Enforcement Officers
- Mississippi Highway Patrol & Emergency Operations Center Personnel
- 20 Interchanges
- 100+ Barricades, 80+ Triton Barriers, 40+ Variable Message Boards & too many drums/barrels to count!

Contraflow Timeline

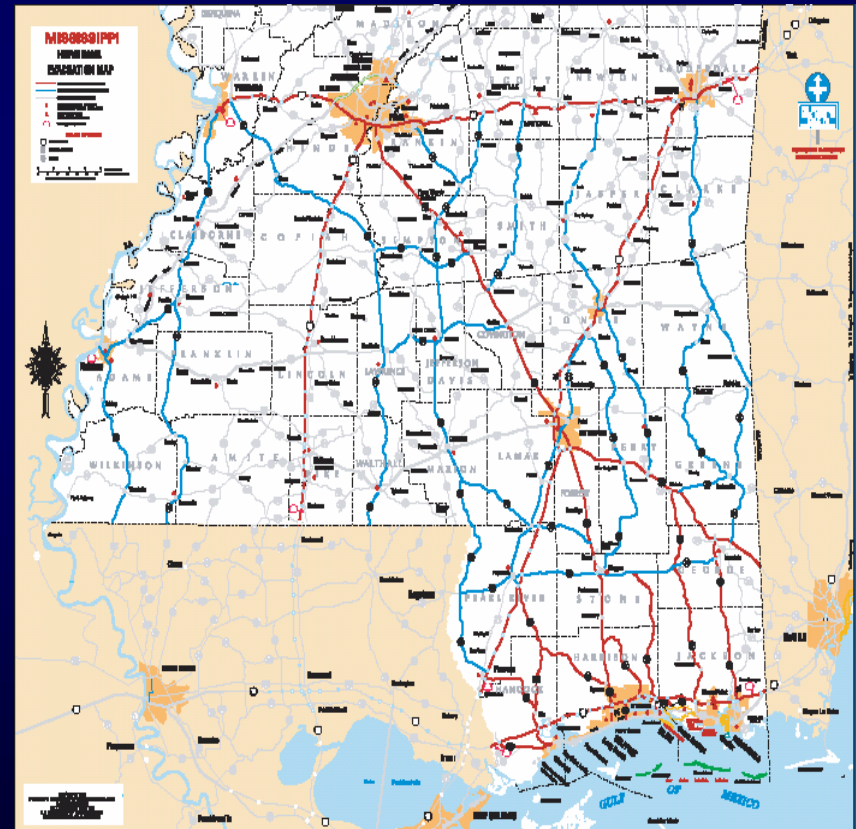
- Received request from Louisiana on Saturday morning (8/27) to begin contraflow at 4pm
- Governor Haley Barbour approved contraflow at 9am on Saturday (8/27)
- Implemented contraflow at 5:30pm on Saturday(8/27)
- Contraflow ended at 5pm on Sunday (8/28) in Louisiana and 9pm in Mississippi
- Hurricane Katrina made landfall on Monday morning (8/29)

Contraflow Observations

- Overall it would have to be considered successful
- Hurricane Dennis “false alarm” earlier in the season, prepared us for Katrina
- Staffing must be evaluated and revised

Clearing the Road

- MDOT began clearing 4pm Monday (8/29)
- One lane open on US 49 South by 11pm Monday (8/29)
- One lane open on I 59 South from Meridian to Hattiesburg by 6pm Tuesday (8/30)





Initial Debris Removal (Phase I)

- Debris on every highway in the southern half of the state
- Most routes were not passable immediately after the storm.
- MDOT had every highway passable by Wednesday (8/31) evening.
- All lanes were open by Friday (9/2) evening.
- Personnel reallocation was required.

Debris Removal



Debris Removal





Debris Removal (Phases 2 & 3)

- In Phase II, MDOT forces & 8 highway contractors pushed all debris off of the shoulders
- Phase III, MDOT contracted with 20+ contractors to haul debris off of state highways to approved landfills. MDOT personnel were monitors in the field.



Debris Quantity & Cost to Date

- Over 6 million yd³ required for 1st pass removal
- Total cost (FHWA 1st pass) = \$149.4 million
- Completed with first pass on Jan 31
- Estimate \$29 Million for FEMA 2nd pass (2.8 million spent as of 5/02/06)





Other Issues Immediately After Landfall

- Supply Chain
- Fuel
- Communications

Damage Assessment Teams

- **Bridge Crew** – Construction, Materials, District & FHWA
- **US 90** – Construction, Roadway Design, District & FHWA
- **Debris** – District, Roadway Design, District & FHWA
- **City Crew** – Construction, District & FHWA
- **City Crew** – Construction, District & FHWA
- **City Crew** – Construction, District & FHWA
- **Signal** – Roadway Design, Traffic Engineering & FHWA

Damage Assessment Teams

- Documented Estimated Quantities for Repair & Cost
- Submitted by County & Route
- Items Covered such as Pavement Damage, Debris (1st pass), Signals, Signs, Guardrails, etc.
- Required for FHWA Emergency Relief funding





Emergency Bridge Repair I-10 @ Pascagoula River



Emergency Bridge Repair I-10 @ Pascagoula River





Emergency Bridge Repair I-10 @ Pascagoula River





Emergency Bridge Repair I-10 @ Pascagoula River





Emergency Bridge Repair I-10 @ Pascagoula River

Barge struck the bridge during storm surge.

Replaced 300' of bridge – out of alignment

Contractor – T L Wallace

Cost - \$5,200,000 Incentive \$100,000/day

Began work – September 10

Completed – October 1 – 10 days early!





Emergency Bridge Repair I-110 @ Back Bay of Biloxi



AUG 31 2005



Emergency Bridge Repair I-110 @ Back Bay of Biloxi





Emergency Bridge Repair I-110 @ Back Bay of Biloxi

Damage to an outside pile

Drove two additional piles & extended cap.

Contractor – T L Wallace

Cost - \$2,500,000

Work Began – September 20

Work Completed – October 8





US 90 Bridge @ Henderson Point



US 90 Bridge @ Henderson Point





US 90 Bridge @ Henderson Point

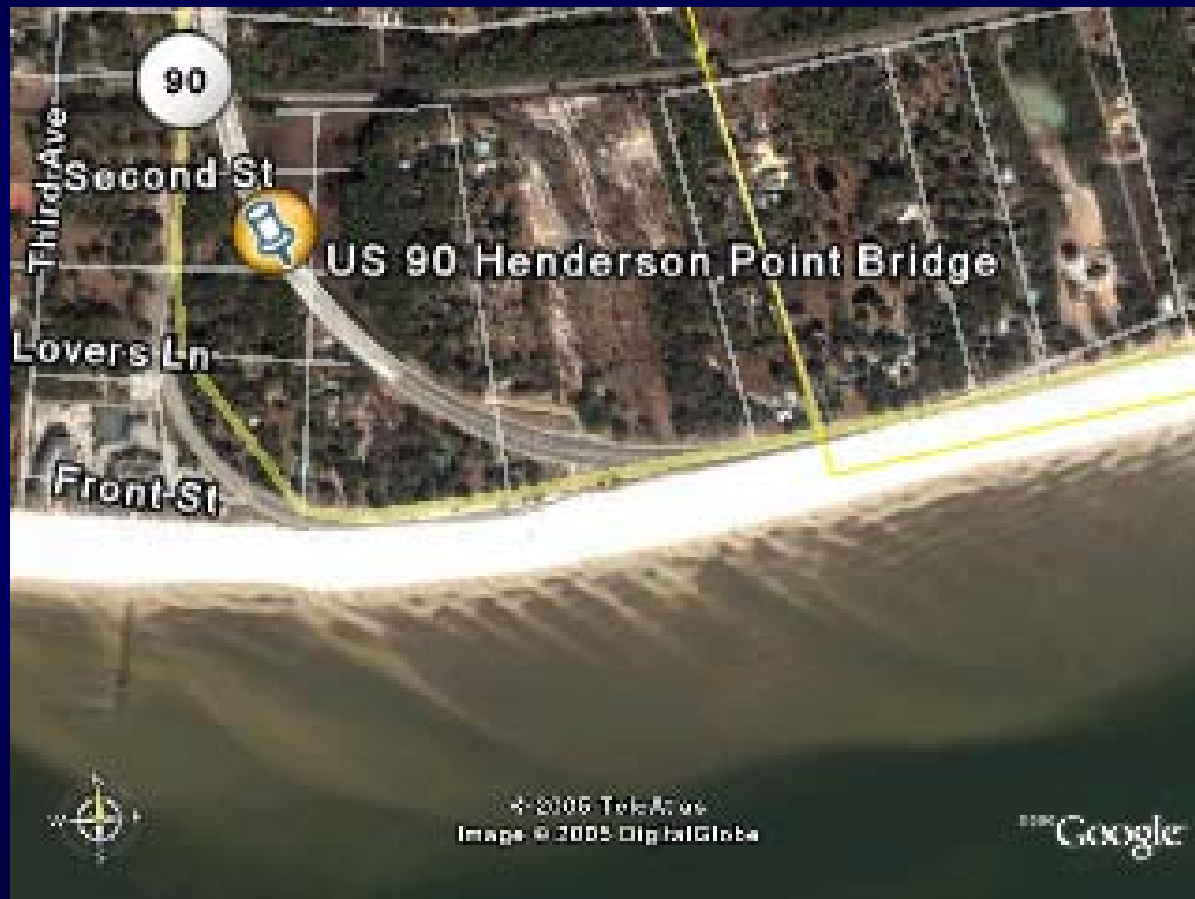
Replace six spans total.

Contactor – Hill Brothers

Cost - \$1,900,000

Work Began – November 7, 2005

Completion Date - February 17, 2006





US 90 Bridge @ Bay St. Louis



8. 30. 2005

US 90 Bridge @ Bay St. Louis



US 90 Bridge @ Bay St. Louis





Draw Span Removal @ Bay St. Louis

Contractor - Esco Marine

Cost - \$2,100,000

Took two weeks to remove the spans.

US 90 Bridge @ Bay St. Louis





US 90 Bridge @ Bay St. Louis

Design Build Contracting

Vertical clearance in channel – 85'

1.9 miles in length

4 lane X-section w/shoulders & bike/ped path

Cost - \$268 Million (Granite Archer Western)

Estimated Completion Date - Fall 2007 with 2
lanes open Spring 2007

Interim Ferry Service (Target Memorial Day)³⁹





US 90 Bridge @ Biloxi Bay (BK)



8/27/2001

UB 60



ASPEN AERIALS



US 90 Bridge @ Biloxi Bay



8. 30. 2005



US 90 Bridge @ Biloxi Bay



US 90 Bridge @ Biloxi Bay





US 90 Bridge @ Biloxi Bay





US 90 Bridge @ Biloxi Bay

Design Build Contracting

New RFQ on 3/8 & Short listed to 3 on 4/5

Issue notice to proceed by 6/16

New Prop. Vert. Clearance of 95'

1.6 miles in length

2 lanes open by September 2007

Complete by March 2008

Estimated Cost – \$300-\$325 Million

Interim Ferry Service (Target Memorial Day)⁴⁶



I-10 Widening (I-110 to MS 609)





I-10 Widening I-110 & MS 609

Contractor – Warren Paving, Inc.

Add one lane each direction for 3.2 miles

Cost - \$2,000,000

Work began – October 10

Completed – October 18 – 13 days early





US 90 Grand Casino @ Gulfport



US 90 Grand Casino @ Gulfport





US 90 Grand Casino @ Gulfport





US 90 Grand Casino @ Gulfport

Grand Casino Barge Removal Contract

Tony Parnell Construction

Cost - \$1,150,000

Started – September 8, 2005

Completed – September 17, 2005





US 90 Harrison County



US 90 Harrison County



US 90 Harrison County



US 90 Harrison County



US 90 Harrison County



SEP 7 2005

US 90 Harrison County



SEP 7 2005



US 90 Harrison County



SEP 7 2005



US 90 Harrison County



US 90 Storm Drain Cleanout



US 90 Storm Drain Cleanout





US 90 Storm Drain Cleanout





US 90 Storm Drain Repair





US 90 Pavement Repair



US 90 Pavement Repair





US 90 Harrison County

“Spot reconstruct” over 116 lane miles of pavement

3 paving contractors at a total cost of approximately \$25 Million

Work Began September 10, 2005

Completion Date – December 17, 2005

Traffic Signals



Traffic Signals



Traffic Signals

- All signals up and running by September 19.
- MDOT forces, B & B Electric, C & L Const.
- MDOT also repaired 33 intersections for cities





20,000'+ of Guardrail Damage



12,000+ Signs Damaged





Projected Costs

Authority received to date from FHWA =
\$1.013 Billion

Spent to date = \$253 Million (thru 5/02/06)

Reimbursed to date = \$240 Million

Additional FEMA funds required

Other Long-Term Issues

- Population shift (temporary or permanent?)
- Never ending debris
- Balancing aesthetics and functionality in a timely manner



Contact information for my Daddy:
Randy Battey, P.E.
Director of Research
Mississippi Department of Transportation
601-359-7650
randyb@mdot.state.ms.us

