



TEXAS DEPARTMENT OF TRANSPORTATION



RAPID RESPONSE TO BRIDGE IMPACTS

Leon Flournoy, PE
Bridge Division



Bridge Division Field Operations Construction & Maintenance Branch

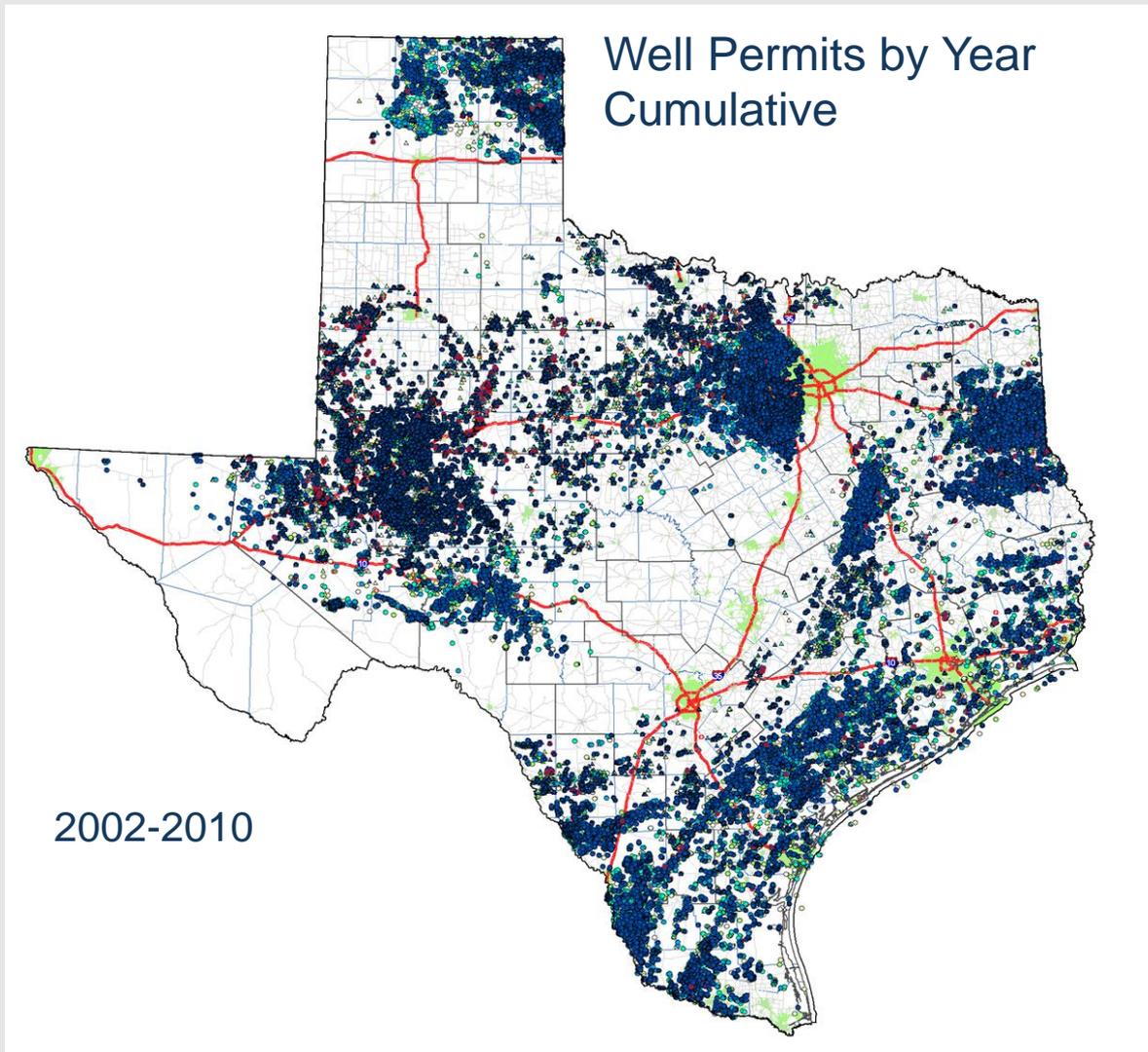
Graham Bettis, P.E. (512)-416-2526
Leon Flournoy, P.E. (512)-416-2493
Lewis Gamboa, P.E. (512)-416-2273
Kevin Pruski, P.E. (512)-416-2306



Outline

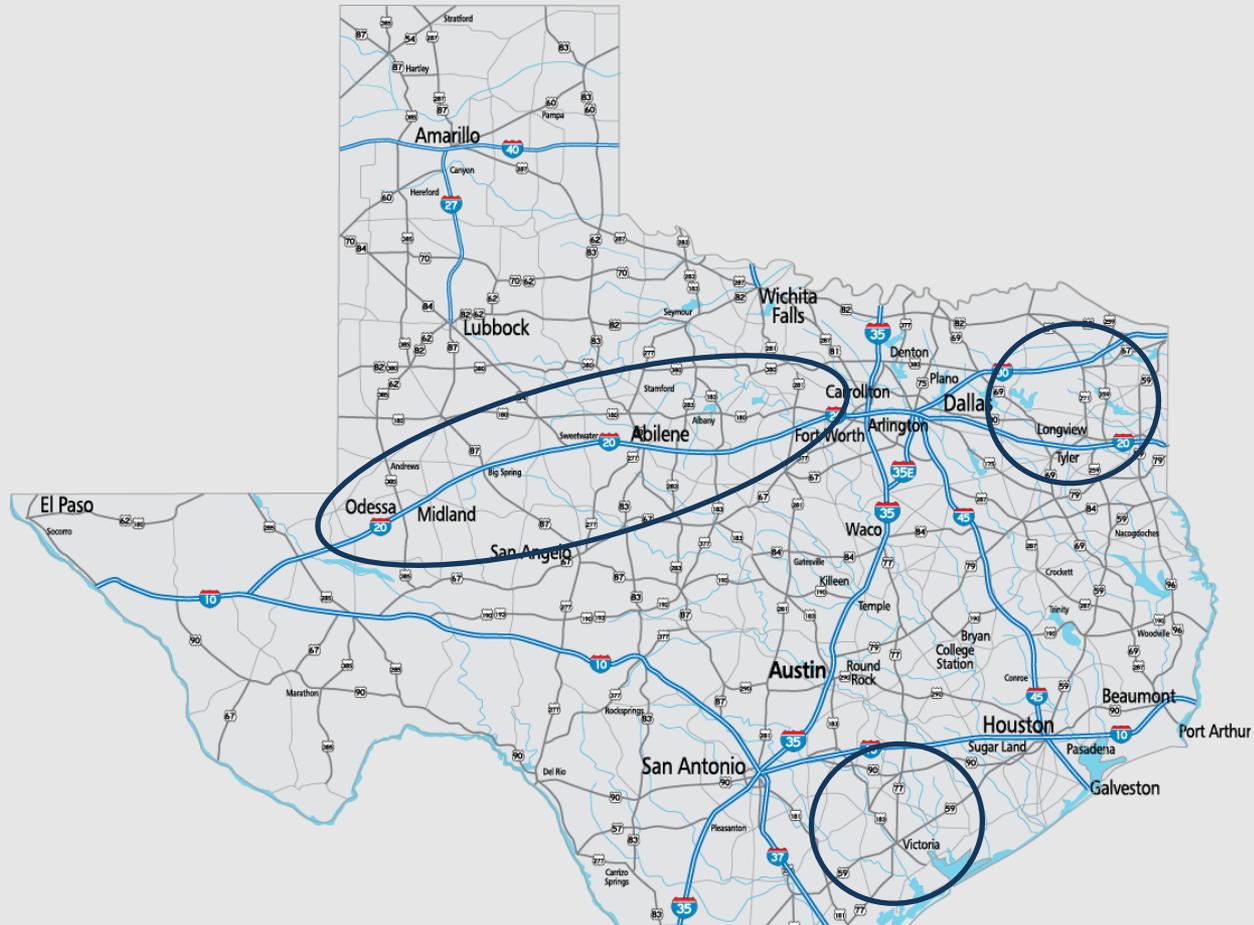
- Introduction
- Background
- Types of Damage
- District's Response
- Bridge Division's
Response
- Examples

Increase in Impact Damage



Source: Texas Railroad Commission

Texas – Transportation System



Since July 2012, there have been 19 overpasses damaged in the 12-county Odessa District. Seven have been hit in Midland County; five have been hit in Ward and Ector counties. Reeves County and Upton County had one overpass each hit.

Source: Odessa American June 25, 2013

Brownsville

Superstructure Impacts



Substructure Impacts



Damage caused by debris



Fire Damage



Take all impact damage seriously:

- Get photos and the location to the Bridge Division as soon as possible (more on this).
- If any substructure elements are severely damaged, close the bridge. Close the lanes above damaged beams.
- Remove loose debris if the damage is over a roadway and tie exposed strand with tie wire; do not cut the hanging strand. Chicken wire or hardware cloth, can be used to keep loose rocks from damaging vehicles if roadway is to remain open.
- Don't worry about getting plans and the bridge folder just yet.

District's Response to Bridge Impacts: Photos and Information

Photos: Try and send overall damage first



Overall Damage



All areas of damage





Pictures to avoid



District's Response to Bridge Impacts: Photos and Information

Additional information: Lane configuration & other pertinent information:

- Photos on top of the bridge are useful if showing the lane and shoulder configuration
- Collect additional information if the bridge is subject to heavy loads: namely 18 wheelers & concrete trucks.



Notifications: Administration, FHWA & Maintenance Division

We often make immediate arrangements for a site visit.
Bridge Impacts take priority

While one of us is on the road, we usually will start a preliminary analysis with what we know

After Reporting Initial Damage

District Bridge Engineer/Coordinator should locate the Bridge folder. Send the NBI # (if not included with the photos), PDF's of As-Builts if they are available including layouts, beam details that show beam type, and beam design details.

The Bridge Division can begin an immediate load rating analysis to determine if the bridge needs to be load restricted.

Contact the District Permit Coordinator in order to get the bridge removed from routes for Super Heavy vehicles.

Site Visit: Common Requests

Traffic Control may be required to inspect the damage safely.

Bucket-truck access is almost always required

- Count Severed Strand
- Check for composite action
- Look for additional damage



Severed Strand: Flame Cut



GRAB-IT Strand Splicing System



Strand Splicing System



Special Consideration for Steel Beams & Girders



Special Consideration for Steel Girders & Beams



Availability of Maintenance Sections



Additional Damage



Extreme Case



No Apparent Deflection



We will talk with the District about the next course of action:

- Repair Details
- Replacement Details
- Continue to monitor

We can help develop a repair cost estimate:

- Traditionally Let Contracts
- Emergency Maintenance Contracts

Webinar Website

The screenshot shows a Windows Internet Explorer browser window displaying the Texas Department of Transportation website. The address bar shows the URL: <http://www.txdot.gov/inside-txdot/division/bridge/webinar.html>. The website header includes the Texas Department of Transportation logo and navigation links such as "A - Z Site Index", "Contact Us", and "Español". The main navigation bar lists various sections like "Careers", "Get Involved", "Media Room", "Projects", "Forms & Publications", "Administration", "Districts", "Divisions", and "Offices". A sidebar on the left lists "Divisions" including Aviation, Bridge, Communications, Construction, Design, Environmental Affairs, Finance, General Services, Human Resources, Information Technology, Maintenance, Maritime, Occupational Safety, Public Transportation, Rail, Right of Way, Strategic Projects, Toll Operations, Traffic Operations, Transportation Planning/Programming, and Travel Information. The main content area is titled "Bridge Webinar Presentations" and includes a breadcrumb trail: "Home > Inside TxDOT > Divisions > Bridge". The content is organized by date, with a section for "Feb. 27, 2013" and a section for "July 30, 2012". Each section contains a table of webinar presentations with columns for "Title", "Presenter", and "Format".

Bridge Webinar Presentations

Home > Inside TxDOT > Divisions > Bridge

Feb. 27, 2013

Title	Presenter	Format
Surface Finishes for Concrete	Tom Schwerdt, CST	
Revisions to Design Policy and Practices	John Holt, P.E., BRG	
Information Sheet for Bridge Railing Upgrades, Retrofits, & Repairs	Thomas Stout, P.E., BRG	
Use of Bridge Division Consultant Contracts	Jeff Tomkins, P.E., BRG	
MSE Retaining Wall Standards	Marcus Galvan, P.E., BRG	
Structural Spec Changes 2014 Specifications: Info for Bridge Designers	Brian Merrill, P.E., BRG	

July 30, 2012

Title	Presenter	Format
Accommodating for ROW on Bridge Projects	Tommy Abrego, E.I.T, BRG	
Phased Construction Recommendations for Bridges	Taya Retterer, P.E., BRG	

Bridge Division

Construction & Maintenance Branch

Graham Bettis, P.E. (512)-416-2526

Leon Flournoy, P.E. (512)-416-2493

Lewis Gamboa, P.E. (512)-416-2273

Kevin Pruski, P.E. (512)-416-2306

