

Texas Transportation Pooled Fund Project – Progress Report

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| Project Title: Guidelines for Designing Bridge Piers and Abutments for Vehicle Collisions | |
| Project Number: TPF-5(106) / 9-4973 | Project Manager – Name & Contact Info: Gregg Freeby, Bridge Division, TxDOT gfreeby@dot.state.tx.us |
| Term of Contract: 3/26/07 to 3/31/09 | |
| Reporting Period: 3/1/07 to 5/31/07 | |
| Work Performed and Progress: | |
| Progress to Date, by Task | |
| <p>This project will develop warrants for design requirements and design loads for vehicle collisions with bridge piers. Warrants will be based on the results of accident analyses performed in task 1c and risk analysis methodology from task 1d. Design loads will be developed on the basis of information from the literature review, computer simulations of collisions, analysis of highway crashes, and full-scale vehicle crash tests.</p> | |
| <u>Phase 1:</u> | |
| <u>1a. Literature review-</u> | |
| <p>The literature search has been completed and applicable documents have been collected and reviewed by the researchers.</p> | |
| <p>Researchers will continue to monitor literature for any new publications.</p> | |
| <u>1b. Computer simulations of vehicle/bridge column and abutment collisions-</u> | |
| <p>Researchers have used a single-unit truck finite element model to simulate a collision with a rigid bridge pier. The model is working properly.</p> | |
| <p>Additional simulations will be performed during the next reporting period.</p> | |
| <u>1c. Accident survey and analysis study-</u> | |
| <p>Researchers, assisted by TxDOT personnel have identified six accidents that have occurred in Texas where heavy vehicles have collided with bridge piers. Detailed information has been collected on two of them.</p> | |
| <p>Accidents from other states will be identified and detailed information on them will be collected.</p> | |
| <u>1d. Development of a risk analysis methodology for vehicle/bridge column and abutment collisions (analogous to AASHTO LRFD vessel impact requirements)</u> | |
| <p>No work has been performed on this task.</p> | |

1e. Detailed justification and work plan for research (if any) to be conducted under Phase 2 of the project-

No work has been performed on this task.

1f. Provide facilities and host a meeting to present Phase 1 results to project sponsors, including pooled fund project contributors from other state DOT's-

No work has been performed on this task.

Phase 2:

No work has been performed on Phase 2.

Expenditures Life-to-date: \$3254

Report prepared by: Tom Yarbrough, P.E., TxDOT – RTI