

Texas Transportation Pooled Fund Project – Progress Report

Project Title: Florida DOT Bridge Rails	
Project Number: TPF-5(053) / 9-8132	Project Manager – Name & Contact Info: Mark Bloschock, Bridge Division, TxDOT mblosch@dot.state.tx.us
Term of Contract: 9/26/02 – 8/31/04	
Reporting Period: 9/26/02 – 12/31/05	
Work Performed and Progress:	
<p>All tasks have been completed. Following is a summary of results from work conducted under each task:</p>	
<p>TASK 1. FDOT 32-INCH JERSEY-SHAPED RAILING Full-scale testing (crash testing and pendulum testing) were performed. Rail met acceptance criteria.</p>	
<p>TASK 2. 32-INCH KANSAS CORRAL RAILING Comparative analysis with similar rails (Texas T203 and California 80SW) was performed. Rail design was modified based on analysis results.</p>	
<p>TASK 3. DESIGN OF DECK OVERHANG The results of the static tests clearly indicate that the flexural strength of deck, as designed by FDOT and currently used by FDOT in conjunction with the F-Shaped Bridge Parapet, is appropriate. This research indicates that, for safety-shaped bridge parapets, the design moment capacity of the deck can be less than the design moment capacity at the base of the safety shape. This research is contrary to the statement found in A13.4.2 in <i>AASHTO LRFD Bridge Design Specifications</i>, that states "...M_sexceeds M_c of the parapet at its base." At end-of-parapet or expansion joints in the bridge, the deck flexural capacity should be increased and designed to minimize potential deck damage in overload conditions.</p>	
<p>TASK 4. UNI-DIRECTIONAL SLIP BASE PERFORMANCE VERIFICATION Based on the results of the pendulum tests and the high-speed extrapolations, the aluminum slip bases and supports used by FDOT and tested under this project are compliant with the performance recommendation outlined in <i>NCHRP Report 350</i>.</p>	
<p>TASK 5. CONCRETE PARAPETS WITH TxDOT T4 RETROFIT AND PARAPET ORIENTATIONS Using the best available vehicle models and state-of-the-art simulation technology, a high roll angle of 40 degrees was observed for a 10 to 1 cross-slope. Even though this amount of vehicle roll is acceptable in a crash test, given the limitations of current vehicle models, the case should be considered marginal.</p>	
<p>TASK 6. TL-4 TESTING OF TxDOT F411 BRIDGE RAIL The TxDOT F411 bridge rail performed acceptably for the required criteria <i>NCHRP Report 350</i> test 4-12, and may be used where containment of 18,000 lb (8164 kg) single-unit trucks is desired.</p>	

Expenditures Life-to-date: \$ 225,549.76

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