

TXDOT'S RESEARCH AND TECHNOLOGY IMPLEMENTATION OFFICE  
RESEARCH SUPERVISOR SEMI-ANNUAL PROGRESS REPORT

Fiscal Year 2002

Date of This Report August 2, 2002 Project Number 0-4569 RMC 5

Period Covered by This Report March 1 – August 31, 2002

Project Title Design of Bridges for Security

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Project Start Date March 18, 2002

Approved End Date May 31, 2004

1. REQUESTED CHANGES FOR POSSIBLE PROJECT MODIFICATION

Project Duration: A modification for this project has been submitted. The total duration of the project has not been changed, but an extension of two weeks was requested for Phase I of the research in order to allow for an additional meeting to present the research results to an audience with national representation.

Project Personnel: No changes.

Funding Needs: A modified budget has been submitted. Additional funds were requested to cover travel costs for a meeting at TxDOT that will be attended by other state DOT employees, associated administrative costs, and a small increase in the subcontractor cost to account for a change in the scope of work as well as the need to attend an additional meeting that was not originally planned.

Work Plan: A modified work plan has been submitted, and the revised work plan introduces an additional task. The purpose of the new task is to conduct an example analysis of a “typical” Texas highway overpass bridge subjected to blast loading.

Deliverables Table: A modified Deliverables Table has been submitted. The new table has an additional deliverable: Example Calculations of a Typical Texas Overpass Bridge Subjected to Blast Loads.

2. PROGRAM DEVELOPMENT INFORMATION

*Continuation Estimate for FY04:* \$83,412

### 3. EQUIPMENT

No equipment was purchased during the time period covered by this report.

### 4. PROGRESS TO DATE, BY TASK

#### **Task 1: Literature Review.**

A complete draft of the literature review has been developed and circulated to the project Advisory Panel. Currently, researchers on the project are editing the initial draft and incorporating review comments from the panelists. This task will be completed on schedule.

In addition to the literature review, sample calculations for a typical Texas highway overpass bridge have also been carried out under this task. All necessary modeling issues have been resolved, and all required calculations have been completed. Further work is required to document the analysis procedure, but this work is expected to be completed before the August 15, 2002 presentation to TxDOT personnel (see item 6).

#### **Task 2: Develop a Plan to Investigate Cost-Effective Measures to Improve Bridge Security**

A draft of this Plan has been developed and circulated to the project Advisory Panel. As with Task 1, modifications to Task 2 will be implemented based on the feedback received from the outside reviewers. Work completed under Task 1 and Task 2 will be completed on schedule and will be included in a single document.

#### **Task 3: Present Literature Review Results**

Results from the research completed under Phase I of the project will be presented at two separate meetings. The first meeting is scheduled for August 15, 2002, and the audience will consist of TxDOT personnel only. Following the presentation of the Phase I results, TxDOT personnel will provide feedback on the work completed to date, and all recommendations will be integrated into the documentation describing Tasks 1-2.

A second meeting to present the results of the Phase I research is scheduled for September 10, 2002. Personnel from various state DOTs will be present. The purpose of this second meeting is describe the research completed on the project and to solicit input and funding from other states that are interested in the current research. It is expected that Phase II of the project will go into a "pooled fund" status, and various states will provide financial support for the research. Accordingly, the specific tasks to be completed under Phase II of the research are yet to be determined, but guidance will be sought from TxDOT and all other states that are participating in the research.

#### **Task 4: Develop Guidelines to Implement Cost-Effective Measures to Improve Bridge Security**

Because Task 4 is associated with Phase II of the research, and approval to begin Phase II has not yet been received, no work was completed on this task during the current reporting period. It is expected that preliminary design guidelines will be developed during the next reporting period.

#### **Task 5: Reporting**

No research reports were submitted during the current reporting period. However, documentation describing the literature review, example calculations, and the plan to investigate cost-effective security measures for bridges has been developed. An interim report containing this information will be submitted to TxDOT during the initial stages of the next reporting period.

5. PROGRESS ON DEVELOPMENT OF CURRENTLY APPROVED “PRODUCT” DELIVERABLES

As discussed above, preliminary versions of product P1 (International Literature Review of Research Related to Bridge Security) and P2 (Work Plan to Implement Phase II Research) have been completed. The researchers on this project are currently awaiting feedback from the Advisory Panel for possible modifications to the existing versions of P1 and P2.

6. MEETINGS/CONFERENCES

On April 15, 2002, a project kick-off meeting was held at the TxDOT offices in Austin. In attendance were personnel from TxDOT, the project Advisory Panel, and researchers on the project.

Two meetings with members of the Advisory Panel were held during this reporting period. One meeting with Kirk Marchand, Eric Williamson, and David Winget was held in San Antonio on July 3, 2002. Another project meeting was held in Fayetteville, Arkansas on July 16, 2002. In attendance at this meeting were Norm Dennis and Eric Williamson.

During the next reporting period, two meetings have been planned to present the results of the Phase I research. Both meetings will be held in Austin at the TxDOT offices. The first meeting is scheduled for August 15, 2002, and the second meeting is scheduled for September 10, 2002.

7. POSSIBLE CANDIDATES FOR FORMAL PRESENTATIONS AT THE UPCOMING RMC MEETING

Because Phase I of the project will be completed before the next RMC meeting, a presentation could be made describing the initial findings of the research. In addition, the topic of this investigation is currently of great concern to the engineering community and is likely to be of interest to many of those in attendance at the RMC meeting.

8. MISCELLANEOUS

As described earlier, a modified work plan, deliverables table, and budget have been submitted for this project. These modifications reflect a change in the scope of work that was carried out under Phase I as well as an increase in administrative responsibilities.