

Quarterly Progress Report

To the

National Cooperative Highway Research Program
(NCHRP)

On Project 22-28

CRITERIA FOR RESTORATION OF LONGITUDINAL BARRIERS, PHASE II

Limited Use Document

This Quarterly Progress Report is furnished only for review by members of the NCHRP project panel and is regarded as fully privileged. Dissemination of information included herein must be approved by NCHRP

For period
January 1 to January 15, 2012

From
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Introduction

The objective of this research is to develop a field guide to assist maintenance personnel in determining the extent of damage to semi-rigid longitudinal barriers that affects operational performance. The guidance may cover additional strong steel post W-beam guardrail failure modes or other types of longitudinal barriers. It is expected that this research will continue the work begun under NCHRP Project 22-23 and may involve a combination of component testing, pendulum testing, and computer simulation. Full-scale crash testing may be considered to validate the other methods of analysis, but is not the focus of this research.

This report will describe the progress achieved in this project in the previous quarter with respect to the eight tasks identified in the work plan. The following sections will describe the task-by-task progress identifying work items accomplished and any problems encountered in the research. A section describing the contractual status of the project (i.e., funding, schedule, etc.) appears at the end of the report and the progress summary tables and plots appear in [Attachment A](#).

Panel comments and research team's responses on the originally proposed work plan are included as [Attachment B](#). This quarterly report and attachments as well as all future quarterly reports can be found on the World Wide Web at <http://www.roadsafellc.com/NCHRP22-28/QPR/>. In order to comply with the NCHRP Limited-Use document policy, all the documents on the project webpage have been password protected such that they are accessible only to the project research team and panel. All the documents are password protected PDFs and the password for all documents in this project is "fieldguide"

Task 1: Literature Review and Survey of Practice

Statement of Work

Review the work undertaken in NCHRP Project 22-23, as well as recently completed and ongoing relevant research. Survey the state and provincial transportation agencies to determine their plans for implementing NCHRP Report 656 and to identify damage modes and other system elements (e.g., wood posts, transitions, end treatments) that should be added to those covered by the report. Augment the survey results with input from the AASHTO Technical Committee on Roadside Safety; TRB Standing Committee AFB20, Roadside Safety Design; AASHTO/AGC/ARTBA Task Force 13; and the American Traffic Safety Services Association's Guardrail Committee.

Task 1a. Literature Review

This task has recently been initiated and thus no results are available at this time. A comprehensive review of the literature is being conducted to help identify the damage modes and system elements that should be investigated in this study.

Task 1b. Survey of Practice

In several recent projects, the research team has used the website SurveyMonkey.com to conduct internet-based practitioner surveys. The advantage to using a facility like Survey Monkey is that very sophisticated surveys can be developed and easily disseminated to recipients by email. Since the survey is an on-line survey, the participant base can be expanded to include a wide variety of transportation agencies, researchers, policy makers, engineers and consultants. From other recent NCHRP projects the research team already has a large email address database which includes about 2,100 roadside safety practitioners. The distribution list was compiled from the ITE database, ATSSA training course participants, members of TRB AFB20 and AASHTO-ARTBA-AGC TF13 and from a list of people who have purchased the Roadside Design Guide from AASHTO. The research team will also distribute the survey to the American Traffic Safety Services Association's Guardrail Committee to gain the input of this group and the AASHTO Technical Committee on Roadside Safety.

In addition to electronically distributing the survey, the research team will coordinate with AFB20 and Task Force 13 to arrange presentations of the survey results at the semi-annual meetings of these groups and obtain additional input from these groups. This semi-annual meeting is scheduled for July 29, 2012. The survey, therefore, should be distributed soon in order to collect results and coordinate meeting presentation time slot availability. The results of the survey will be reported in the Interim Report developed as a part of Task 3.

The draft survey is available on-line at www.surveymonkey.com/s/NCHRP22-28 to allow the panel to provide any comments or suggestions. The survey is "live" so panel members can actually take the survey and provide comments about the survey in the last question of the survey. Once all the panel members have taken the draft survey and provided comments, we will address the comments and re-set the survey results prior to distributing it to the survey recipients. The survey has internal logic to allow for respondents to avoid irrelevant questions. For example, if a respondent indicates he has implemented NCHRP Report 656, he will be asked about the challenges he has faced. Whereas, if someone indicates that he has not implemented NCHRP Report 656, he will be directed toward questions about the perceived obstacles or concerns.

[Attachment C](#) contains a copy of the draft e-mail cover letter and [Attachment D](#) contains the draft survey with all the text of the questions. The research team requests that the panel members take the draft survey and provide comments on the survey form as soon as convenient for them so that it can be distributed as soon as possible. If there are only few or minor comments on the draft survey the research team would like the panel's approval to disseminate the survey. The results of the survey will be reported in the Interim Report.

Task 2. Prioritize Damage Modes and System Elements

For each damage mode and system element identified in Task 1, analyze the importance of addressing it and the research methods that could be used for evaluation. Prioritize the damage modes and system elements for inclusion in the research plan to be carried out in Task 4.

This task has not been initiated.

Task 3. Interim Report and Panel Meeting

Within 4 months of contract execution, prepare an interim report summarizing the work performed in Tasks 1 and 2 and recommending a research plan to qualitatively and quantitatively assess the highest-priority damage modes and system elements described in Task 2. The plan should describe and estimate costs for analyses, supporting tests, and validation tests that will be used to develop metrics for assessing the operational performance of a damaged barrier (per NCHRP Report 350, Test Level 3). The research plan should provide options totaling approximately 150% of the budget for Task 4; the excess is intended to give the project oversight panel discretion in selecting the research to be conducted. The interim report should also include a preliminary outline for additions to Chapter 16, "A Field Guide for the Restoration of Longitudinal Barriers," of NCHRP Report 656.

This task has not been initiated.

Task 4. Execute Plan

Execute the research plan for assessing damage modes and system elements as approved by the panel at the interim meeting.

This task has not been initiated.

Task 5. Prepare Draft Field Guide Materials

Develop additional material for the field guide for the damage modes and system elements addressed in Task 4. The material should be consistent with Chapter 16 of NCHRP Report 656.

This task has not been initiated.

Task 6. Field-Test Draft Field Guide Materials

Field-test and fine-tune the field guide material developed under this project with maintenance personnel from at least one state DOT approved by the panel.

This task has not been initiated.

Task 7. Assemble Field Guide

Prepare a field guide combining Chapter 16 of NCHRP Report 656 and the additional material from Tasks 5 and 6.

This task has not been initiated.

Task 8. Final Report

Submit a final report documenting the entire research effort, describing future research efforts (e.g., additional damage modes, further validation of the field guide), and including the Task 7 field guide as a stand-alone appendix. The field guide should also be provided as an independent electronic document suitable for downloading and printing by transportation agencies.

This task has not been initiated.

Contractual

A summary of the progress and fiscal status of the project is shown in [Attachment A](#). The contract was signed on December 27, 2011 with a contract start date of January 2, 2012.

Sincerely,



Malcolm H. Ray, P.E., Ph.D.

- Attachment A: [Fiscal and Schedule Summary](#)
- Attachment B: [Research Team's Response to Panel Comments on Work Plan](#)
- Attachment C: [Draft E-Mail Letter to Survey Participants](#)
- Attachment D: [Draft Survey](#)