

PROJECT OVERVIEW REPORT

1. UTC Identifying Number
DTRT13-G-UTC28
2. Center Identifying Number
CAIT-UTC-NC50
3. Project Title
Refined Load Rating through Rapid Modal Testing
4. Principal Investigator & Contact Information
Franklin Moon, Ph.D.
Professor
Center for Advanced Infrastructure and Transportation
100 Brett Road
Piscataway, NJ 08854
5. Rutgers/CAIT Project Manager
Patrick Szary, Ph.D.
6. Customer Principal
Nagnath (Nat) Kasbekar, P.E.
Director, Bridge Engineering & Infrastructure Management
New Jersey Department of Transportation
1035 Parkway Ave
Trenton, NJ 08625

7. Project Description

The overarching goal of the proposed research is to validate an emerging technology for rapid load testing and rating of highway bridges. To accomplish this goal, the following more specific objectives have been identified:

(1) Compare and identify the cause of any differences between the modal parameters identified by THMPER with those identified through 'best practices' multiple input, multiple output (MIMO) modal impact testing.

(2) Compare and identify the cause of any differences between the finite element model calibration using THMPER data from the calibration based on responses obtained during a 'best practice' truck load test.

(3) Compare and identify the cause of any differences between the Load and Resistance Factor Rating (as per the AASHTO Manual for Bridge Evaluation (MBE)) obtained by THMPER with the rating obtain through truck load testing.

8. Implementation of Research Outcomes (or why not implemented)

The intended outcome of the project is for the THMPER System to provide owners with an additional, cost-effective tool to address bridges that do not rate based on simplified procedures. The research team anticipates marketing the use of THMPER to perform rapid load rating of such bridges, and plans to provide webinars to help disseminate the results of this project and promote the use of THMPER.

9. Impacts/Benefits of Implementation (actual, not anticipated)

To Be Determined

10. Dates and Budget

Start date: 6/1/2017

End date: 9/30/2017

UTC (CAIT) Dollars: \$38,039

Cost Sharing: \$0.00

Total Dollars: \$38,039

11. Keywords

Load Rating, Load Testing, Dynamic Testing, Modal Parameters

12. Web Links (Reports and Project Website)

cait/research/refined-load-rating-through-rapid-modal-testing