Developing Implementation Strategies for Risk Based Inspection

**Progress Report –** 12/31/2022

**Project Number:** TR201910

**Principal Investigator (PI):** Glenn Washer

**Co-PI(s):** Henry Brown

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| **Award date:** | 11/1/2018 |
| **Scheduled completion date:** | 6/30/2023 | **% of project completed to date:** | 65% |
| **Total budget:** | $850,000 | **% of budget expended to date:** | 64.3% |
| **Draft report due:** | 3/31/2023 | **Final report due:** | 5/31/2023 |

*Dates should match those listed in the contract. If unsure, contact your MoDOT project manager.*

**Noteworthy items achieved this quarter.** *Provide a 4-5 sentence summary of work completed this quarter. Include meetings, work plan status, significant progress, etc. Additional details can be included in “Additional project information” below.*

Risk models for states were modified to include new information/requirements associated with the SNBI and NBIS requirements. A senstivity study of the risk models is ongoing, and backcasting based on the risk models is being repeated considering updates in the models that were implemented in the last quarter. Analysis of the NBI data for consequence factor attributes (ADT, feature under, deteour length, etc.) has been completed, and consequence draft attribute criteria have been developed. The revised TICR data from the LTBP data update have been documented for each participating state. The risk models and backcasting of the risk models is being completed. Work on risk analysis data and attributes for NSTMs is also ongoing.

**Anticipated work for next quarter.** *Provide a 4-5 sentence summary of work planned for next quarter.*

The primary focus for the coming quarter is to finalize draft risk models to share with participating states for review and comment. A project update presentation in planned for January. The objective for the quarter is to circulate the draft risk models for comment on the data sources for the revised models. Backcasting activities will also be continuing. Work on the final report and the handbook for RBI implementation will continue in the coming quarter. Additional analysis of element-level data that impact risk criteria will also be ongoing.

**Identify any circumstances or issues that may need to be addressed.** *Provide a summary of issues that are important for the TAC to know. For example, staffing difficulties or supply chain delays.*

The project was delayed by the pandemic. The research team has been working toward completing work in as timely a manner as possible. There have been staffing issues due a student leaving the project due to unavoidable circumstances. Recent changes in FHWA policy required updates to the analysis that have been more time consuming than expected. A RAP meeting needs to be held for one remaining state; early attempts to coordinate the meeting were not successful, in part because of the pandemic and its unpredictable logistics. A no-cost extension for 9 months will be requested to allow for the work to be completed and provide participating states sufficient time to consider research results.

**Deadline for next deliverable.** *For example, quarterly report, draft report, presentation, etc.*

Quarterly report **3/31/2023**

**Additional project information that MoDOT and technical committee should know.**

The research team has also been working on methods for calculating quantitative POF from deterioration modeling to support the RBI process. New attributes and results from the research are being documented for the final report and handbook.

The project is behind schedule due to the pandemic, recent changes in FHWA policy, and staffing issues. Policy changes had to be considered in the risk models and backcasting repeated. The staffing issues have also presented significant delays in project progress, since students required retraining, and access to graduate students overall has been impacted by the immigration delays, which is a broad issue across the academic community. Efforts are being made to advance as quickly as possible. A no-cost extension for nine months will be requested.

As noted previously, the re-analysis of NBI data consumed a lot of time and contributed to the project falling behind schedule. The issue was related to data LTBP bridge portal. A significant amount of work had to be discarded and the models re-completed. Participating states should be aware the there are errors in the analysis of results in the interim report for this project as a result of this issue - revised data is available upon request and will be included in future reports.

Abbreviations

SNBI: Specifications for the National Bridge Inventory

NBI: National Bridge Inventory

RAP: Reliability Assessement Panel

TICR: Time in Condition Rating

NSTM: Nonredundant Steel Tension Members