TRANSPORTATION POOLED FUND PROGRAM
QUARTERLY PROGRESS REPORT

Lead Agency (FHWA or State DOT): Iowa DOT

INSTRUCTIONS:
Project Managers and/or research project investigators should complete a quarterly progress report for each calendar quarter during which the projects are active. Please provide a project schedule status of the research activities tied to each task that is defined in the proposal; a percentage completion of each task; a concise discussion (2 or 3 sentences) of the current status, including accomplishments and problems encountered, if any. List all tasks, even if no work was done during this period.

Transportation Pooled Fund Program Project # *(i.e, SPR-2(XXX), SPR-3(XXX) or TPF-5(XXX)* TPF-5(474)	**Transportation Pooled Fund Program - Report Period:** ☐ Quarter 1 (January 1 – March 31) ☑ Quarter 2 (April 1 – June 30) ☐ Quarter 3 (July 1 – September 30) ☐ Quarter 4 (October 1 – December 31)	
Project Title: Bridge Deck Preservation Tool		
Name of Project Manager(s): Mohamed ElBatanouny	**Phone Number:** 8477536395	**E-Mail** melbatanouny@wje.com
Lead Agency Project ID: TPF-5(474)	**Other Project ID (i.e., contract #):**	**Project Start Date:** January 01, 2022
Original Project End Date: December 31, 2024	**Current Project End Date:** December 31, 2024	**Number of Extensions:** 0

Project schedule status:

☑ On schedule ☐ On revised schedule ☐ Ahead of schedule ☐ Behind schedule

Overall Project Statistics:

Total Project Budget	Total Cost to Date for Project	Percentage of Work Completed to Date
648,000	40,000	7%

Quarterly Project Statistics:

Total Project Expenses and Percentage This Quarter	Total Amount of Funds Expended This Quarter	Total Percentage of Time Used to Date
0	0	7%

Project Description:
The Iowa DOT led an initiative to develop the framework for a Bridge Deck Preservation Portal (BDPP) intended to be widely available to engineers across the nation and widely applicable but tailorable to bridge-specific scenarios the engineers encounter. A theoretical framework outlining the logic for selecting an optimized maintenance plan for a bridge deck given its condition, physical characteristics, and exposure conditions as well as user preferences was developed along with a preliminary tool to demonstrate proof-of-concept. The primary objective of this project is to develop a fully-functional, cloud-based Bridge Deck Preservation Tool (BDPT) hosted on the FHWA LTBP InfoBridge web portal that can be used by state bridge engineers to select optimized preventive maintenance action plans for the deck of a given bridge and targeted service life input by a user. A list of supportive sub-objectives for the study are:
1. To finalize the framework for the Bridge Deck Preservation Tool by: a) revising the original framework proposed in the Bridge Deck Preservation Portal - Phase I report to incorporate the findings of recent research on bridge deck preservation (e.g., from AASHTO guidance and ongoing pooled fund project TPF-5(432)); b) developing more refined service life assumptions; and c) developing a source code that carries out all of the functions described in the improved framework;
2. To incorporate the final Bridge Deck Preservation Tool into the FHWA LTBP InfoBridge web portal by translating the PC-based source code into a general-purpose programming language that can be used by the portal and verifying and beta-testing the embedded Bridge Deck Preservation Tool; and
3. To promote the use of the Bridge Deck Preservation Tool by providing training tools (i.e., a manual and webinar) to future users.
The secondary objective of this project is to develop frameworks for equivalent preservation tools for bridge superstructures and bridge substructures. This objective will be achieved by conducting a literature review of preventive maintenance needs, actions, and guidance for superstructures and substructures and then adapting the improved framework of the Bridge Deck Preservation Tool to those elements.

Progress this Quarter (includes meetings, work plan status, contract status, significant progress, etc.):
1. Conducted a second TAC meeting for the project that included the project team members from WJE and iEngineering as well as the project TAC.

2. Gave a progress update presentation during the T-9 Bridge Preservation Committee Meeting - AASHTO COBS 2022 Annual Meeting

3. Distributed web-based questionnaire to TAC states as part of Task 1.2.a. Received and analyzed results from the three states that responded to the questionnaire.

4. Developed a demo for the design of the tool in InfoBridge environment, in conjunction with iEngieering.

5. Worked on the software portion of the tool.

Anticipated work next quarter:

1. Distribute the web-based questionnaire to T-9 states as part of Task 1.2.a.

2. Start to collect maintenance records of example bridges from several states (including TAC states) as part of Task 1.2.b. Collect NBI/NBE Data and Maintenance Records. This data will be used to test, refine and validate the BDPT during Task 1.2. Conduct Parametric Study to Validate Reduction Factors and Estimated Service Life Extension.

3. Continue to work on the software portion of the tool.

4. Conduct a third TAC meeting.

5. Give a progress update presentation during BPETG meeting in July 2022.

Significant Results:

Developed a demo for the design of the tool in InfoBridge environment, in conjunction with iEngieering.

Circumstance affecting project or budget. (Please describe any challenges encountered or anticipated that might affect the completion of the project within the time, scope and fiscal constraints set forth in the agreement, along with recommended solutions to those problems).

None this quarter.

Potential Implementation:

General: The BDPT will be a powerful reference tool capable of aiding users in choosing effective and cost-efficient preventive maintenance actions for specific bridge decks and will fill several needs within the bridge preservation community. To promote its use, the BDPT will be available to the general public, including state and local transportation agency engineers, university faculty and researchers, consultants, and other potential users, through the LTBP InfoBridge web portal. Users will have access to a user manual and recorded training webinar for assistance in navigating the BDPT and interpreting and implementing its output. While the Federal Highway Administration (FHWA) is responsible for overseeing the LTBP program and LTPB InfoBridge web portal, state and local transportation agencies will be responsible for applying the BDPT in support of their maintenance practices and preservation policies.

Specific to this Quarter: Developed a demo for the design of the tool in InfoBridge environment, in conjunction with iEngieering.