Federal Contract # DTFH61-17D00001 – Task Order #2

LONG-TERM BRIDGE PERFORMANCE PROGRAM

PROGRESS REPORT NO. 18

Report Period: March 1, 2019 – March 31, 2019

Prepared For:

Federal Highway Administration

Prepared By:

RUTGERS
Center for Advanced Infrastructure
and Transportation

A. Account of work performed in this period

    1. **Coordination and Meetings Between the Contractor and FHWA LTBP Team**

    Nothing was done during this period.

    2. **Develop LTBP Program bridge performance strategic research matrix**

With the Strategic Research application finalized and deployed to FHWA, work in the month of March focused primarily on using the application to complete Task 2.3.4a and developing the final report that was delivered to FHWA on March 25th. In completing the requirements of Task 2.3.4a, several functional improvements were identified that would improve the quality of the Strategic Research application. All original subtasks of Task 2.3 are 100% complete at this time, however it is suggested that the functional improvements (as described below) be implemented. Subtasks and their percent completion are as follows:

Task 2.3.1 – *Develop/finalize pipeline for automated data retrieval and storage* (100% Complete):

At this time, this task is complete.

Task 2.3.2 – *Create the SRM database schema to store research project data* (100% Complete):

At this time, this task is complete.

Task 2.3.3 – *Populate SRM database using data retrieval/storage pipeline* (100% Complete):

At this time, this task is complete.

Task 2.3.4a – *Identify all known current and planned research efforts related to bridge performance research topic areas* (100% Complete):

At this time, this task is complete.

Task 2.3.4b – *Create frontend interface to visualize and explore the data collected and stored in the SRM database* (100% Complete):

At this time, this task is complete.

Staff Engineer: 29 hours

    3. **Conduct training for all field personnel on LTBP Protocols**

    Nothing was done during this period.

4. **Development of data collection protocols and RABIT-CE operations manual**

   Nothing was done during this period.

5. **Legacy Data Mining data extraction**

   Nothing was done during this period.

6. **Organize, conduct, and participate in LTBP workshops and meetings**

   Nothing was done during this period.

7. **Publications, website, communications, and technical assistance**

   The Rutgers team prepared the electronic version of the monthly progress report and submitted it to FHWA. Moreover, the Rutgers team developed a MS Project file showing the project milestone and submitted it to FHWA.

   During this month, Dr. Babanejad continued worked on enhancing the quality of NDT data and XML files.

   Additionally, the Rutgers team worked on clustering methodology and bridge selection for FHWA.

   Project Engineer: 163 hours

   Technician: 1100

   Project Support: 8 hours

B. Work to be accomplished during the next period

1. **Coordination and Meetings Between the Contractor and FHWA LTBP Team**

   The Rutgers team will reach out to FHWA to set up a meeting for the month of April.

2. **Develop LTBP Program bridge performance strategic research matrix**

   In completing the requirements of Task 2.3.4a, several functional improvements were identified that would improve the quality of the Strategic Research application. With all software applications, updates and improvements can always be made. It is suggested that only high priority updates be made to the application at this time and that is, incorporating functionality that enables the user to manually add research document tags or remove those tags that were placed on the research document by the application in the automated tagging process. With approval by FHWA, work efforts in the coming month will focus on implementing this update.

3. **Conduct training for all field personnel on LTBP Protocols**

   No work is planned under this task for the next reporting period.

4. **Development of data collection protocols and RABIT-CE operations manual**

   No work is planned under this task for the next reporting period.

5. **Legacy Data Mining data extraction**

   No work is planned under this task for the next reporting period.

6. **Organize, conduct, and participate in LTBP workshops and meetings**

   No work is planned under this task for the next reporting period.

7. **Publications, website, communications, and technical assistance**

   The Rutgers team will prepare the electronic version of the monthly progress report and will submit it to FHWA. Moreover, the Rutgers team will submit the updated MS Project file to FHWA.

C. Problems/Recommended Solutions

None.

D. How the results of the work performed supports one or more of the FHWA, DOT and LTBP Goals

The following is a summary of how the work performed on the primary tasks of this task order contribute to meeting the FHWA, DOT, and LTBP program goals.

Task 2 - Develop LTBP Program bridge performance strategic research matrix

Fundamentally, the SRMs aim to link the LTBP program to the larger research community. By placing the LTBP efforts in this larger context, the program will be able to identify potential synergies and collaborative opportunities as well as any overlaps that may exist. This will both increase the cost effectiveness of the program as well as the program's impact on bridge engineering practice through clearly showing how the LTBP program contributes to the overall bridge performance research landscape.

Task 3 - Conduct training for all field personnel on LTBP Protocols

At the heart of the LTBP program's data collection effort is the requirement that data be obtained in a consistent and reliable manner across the breadth of the program. Variations in collection techniques or unreliable practices would pollute the data streams and greatly limit the ability of the program to meets its goal of improving our understanding of long-term bridge performance. Activities under this task aim to ensure that the data collection efforts of the LTBP program are executed by teams with the required expertise to obtain consistent and reliable data.

Task 4 - Development of data collection protocols and RABIT-CE operations manual

Similar to the training work being conducted under Task 3, this task is also involved in ensuring consistent and reliable data collection throughout the program. Specifically, this task will develop additional protocols and operations manuals that specify best-practice approaches for data collection.

Task 5 - Legacy Data Mining data extraction

In addition to ensuring consistent and reliable data collection efforts, the overarching goal of the program is also dependent upon the completeness of the data collection efforts. This task contributes to this through the collection of available legacy data. This data not only provides a means to ensure field data collection efforts are carried out efficiently (i.e. on bridges best suited to meeting the program's goals) but also provides context to the data to help explain observed trends and correlations (and thus further our understanding of long-term bridge performance).

E. Purchases and Rentals

Nothing was purchased during this period.

F. Travel Details for Reporting Period

None.

G. Current and Cumulative Expenditures (cost shown includes benefits and overhead)

Institution	Current Expenditures 3/1/2019 – 3/31/2019	Cumulative Expenditures 10/1/2017 – 3/31/2019
Rutgers, the State University of New Jersey	$ 10,736.00	$ 853,422.59
Bridge Intelligence LLC	-	$ 76,576.39
Pennoni Associates	-	$ 34,206.00
Infratek Solutions	-	$ 25,244.00
New Jersey Institute of Technology	-	$ 28,237.18
WJE	$ 20,701.00	$ 20,701.00

H. Subcontractor's Progress Report

Progress Report # 1
02/01/2019 - 03/31/2019
Subaward No: 0863
Principal Investigator: Saeed Babanajad
Contract DTFH6117D00001 (T.O. 2 - Task 7)

A. Accomplishments/Work Performed

During this period, WJE (Dr. Babanajad) performed the necessary steps in order to complete the QA/QC for the NDE data collected through the LTBP Program. He was frequently in contact with Rutgers employees (Dr. Moon, Mr. Mott, Mrs. Gu, Dr. Gucunski, and Mr. Parvardeh) to discuss the details of collected data and any potential troubleshooting. He specifically organized, updated, checked, and fixed the data collected through Mid-Atlantic, North-West, and Pilot Bridges.

B. Work Anticipated During the Next Period

WJE (Dr. Babanajad) will continue the similar activities in order facilitate the progress of project. He would also submit part of the completed data to FHWA.

C. Changes /Problems

None.

D. Participants & Charged Level of Efforts

The table summarizes the participants and charged level of efforts.

Personnel Name	Role/Contribution	Total Hours	Billed Cost
Saeed Babanajad	Project Manager	163	$20,701

E. Purchases and Rentals
None.

F. Travel

None.

G. Charges

Institution	Current Expenditures 02/01/2019 – 03/31/2019		Cumulative Expenditures 02/01/2018 – 03/31/2019	
	Labor	Other Costs	Labor	Other Costs
WJE	$20,701.00	-	$20,701.00	-

Sincerely,

WISS, JANNEY, ELSTNER ASSOCIATES, INC.

Saeed Babanajad
Associate III