

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

LONG-TERM BRIDGE PERFORMANCE PROGRAM

PROGRESS REPORT NO. 19

Report Period: April 1, 2019 – April 30, 2019

Prepared For:

Federal Highway Administration

Prepared By:



A. Account of work performed in this period

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

The Rutgers team had a web-meeting with the FHWA team to discuss the format of pre-RABIT-CE data for transfer to InfoBridge on April 11th.

Co-PI: 5.5 hours

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. Last Month it was suggested that the functional improvements be implemented. In the month of April, a workplan was developed for implementation of the improvements proposed last month, and work on implementing these improvement has begun.

Subtasks and their percent completion are as follows:

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

This task is complete.

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

This task is complete.

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

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):

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):

This task is complete.

Staff Engineer: 132 hours

3. Conduct training for all field personnel on LTBP Protocols

During this period, Mr. Parvardeh compiled the videos and materials from the 2016 LTBP Protocol video training to the FHWA server. Furthermore, Mr. Parvardeh developed a document which provided timestamp for the beginning of each protocol within the videos recorded from the event.

Co-PI: 20.5 hours

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. Details is explained in the Subcontractors progress report.

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

Lastly, the Bridge Intelligence team worked on converting Impact Echo raw data to XML format.

Co-PI: 71 hours

Project Engineer: 80.5 hours

Technician: 50 hours

Project Support: 10 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 May.

2. Develop LTBP Program bridge performance strategic research matrix

Last month it was suggested that only high priority updates be made to the application at this time and that was, 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. In the month of May, these updates will be finalized and the latest version of the Strategic Research application will be uploaded to Docker Hub as a docker image for FHWA to download at their convenience.

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 meet 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 4/1/2019 – 4/30/2019	Cumulative Expenditures 10/1/2017 – 4/30/2019
Rutgers, the State University of New Jersey	\$ 16,384.00	\$ 880,542.59
Bridge Intelligence LLC	\$ 12,998.00	\$ 94,904.39
Pennoni Associates	-	\$ 34,206.00
Infratek Solutions	-	\$ 25,244.00
New Jersey Institute of Technology	-	\$ 28,237.18
WJE	\$ 10,465.00	\$ 31,166.00

H. Subcontractor's Progress Report

Sub-recipient Name: Bridge Intelligence LLC

Subaward No: 00000286

Principal Investigator: Hooman Parvardeh

LTBP TSSC

Federal Contract # DTFH61-17-D00001

PROGRESS REPORT NO. 14

For the Period from 4/1/2019 through 4/30/2019

A. Accomplishments/Work Performed

The following is a complete account of all accomplishments and work performed on each task during this reporting period.

Task 1: (Coordination and Meetings between the Rutgers and FHWA LTBP Team)

During this period, Mr. Parvardeh attended a web-meeting on 4/11 to discuss the transfer of bridge data collection to InfoBridge. Furthermore, Mr. Parvardeh worked with Dr. Babanejad to prepare the agenda and the presentation for this meeting.

Number of hours during this period: 5.5 hours

Task 2: (Develop LTBP Program Bridge Performance Strategic Research Matrix)

Nothing was done during this period.

Task 3: (Conduct Training on Proper Use and Application of LTBP Field Assessment Protocols)

During this period, Dr. Zobel requested the videos and data previously generated to be transferred to FHWA file server. Moreover, Mr. Zobel requested to timestamp each protocol for the training based on the video. Mr. Parvardeh transferred the videos and materials to the FHWA server and worked on developing timestamp for each protocol based on the video and provided it to Mr. Zobel.

Number of hours during this period: 20.5 hours

Task 4: (Development and Refinement of Data Collection Protocols)

Nothing was done during this period.

Task 5: (Legacy Data Mining Data Extraction and Upload)

Nothing was done during this period.

Task 6: (Organize, Conduct, and Participate in LTBP Workshops and Meetings)

Nothing was done during this period.

Task 7: (Publication, Website, Communication, and Technical Assistance)

During this period, the Bridge Intelligence team performed the following tasks:

- Prepared and submitted monthly progress report for January, February, and March 2019 including updated MS project
- Worked on converting Impact Echo raw data from Pilot Bridges to XML format. This task is under progress and will be finished in May 2019.
- Assisted the Rutgers team with the bridge selection task.

Number of hours during this period: 71 hours

B. Work Anticipated During the Next Period

For the next period, the Bridge Intelligence team will work with the Rutgers team to satisfy the FHWA requirements.

C. Changes /Problems

None.

D. Participants & charged Level of Efforts

Personnel Name	Role/Contribution	Total Hours	Billed Cost
Hooman Parvardeh	Principal	97	\$ 12,998

Below is a breakdown of level of effort per task:

Task 1	Task 2	Task 3	Task 4	Task 5	Task 6	Task 7	Total
5.5 hrs	0	20.5 hrs	0	0	0	71 hrs	97 hrs

E. Travel

None.

Progress Report # 2
04/01/2019 - 04/30/2019
Subaward No: 0863
Principal Investigator: Saeed Babanajad
Contract DTFH6117D00001 (T.O. 2 - Task 7)

May 15, 2019

Franklin Moon, Ph.D
Center for Advanced Infrastructure and Transportation (CAIT)
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Re: Progress Report # 2 (04/01/2019 - 04/30/2019)

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 updated, checked, and fixed the data collected through Mid-Atlantic, North-West, and Pilot Bridges. The focus was more on addressing the problematic files.

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 (such as XSD files and Pilot Bridges) to FHWA. WJE will also work on the creation of FFT spectrum files for IE tests.

C. Changes /Problems

None.

D. Participants & Charged Level of Efforts

The table summarizes the participants and charged level of efforts.

Headquarters & Laboratories—Northbrook, Illinois

Atlanta | Austin | Boston | Chicago | Cleveland | Dallas | Denver | Detroit | Honolulu | Houston | Indianapolis | Los Angeles | Minneapolis | New Haven
New York | Philadelphia | Pittsburgh | Portland | Princeton | Raleigh | San Antonio | San Francisco | Seattle | South Florida | Washington, DC

Personnel Name	Role/Contribution	Total Hours	Billed Cost
Saeed Babanajad	Project Manager	80.5	\$130/hour

E. Purchases and Rentals

None.

F. Travel

None.

G. Charges

Institution	Current Expenditures 04/01/2019 – 04/30/2019		Cumulative Expenditures 02/01/2018 – 04/30/2019	
	Labor	Other Costs	Labor	Other Costs
WJE	\$10,465.00	-	\$31,166	-

Sincerely,

WISS, JANNEY, ELSTNER ASSOCIATES, INC.



Saeed Babanajad
Associate III