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

LONG-TERM BRIDGE PERFORMANCE PROGRAM

PROGRESS REPORT NO. 16

Report Period: January 1, 2019 – January 31, 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

No work was done under this task.

2. Develop LTBP Program bridge performance strategic research matrix

In the month of January, work on the Strategic Research application (Task 2.3) presented to and approved by FHWA on June 20th, 2018 focused primarily on finalizing features and functionality as described below. It is estimated that Task 2.3 is 90% complete at this time. Subtasks and their percent completion are as follows:

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

A working pipeline for data retrieval from the TRID database was developed in previous months. In the month of January, this tasked was finalized with the addition of a feature which allows the user to initiate the automated data retrieval and storage process from the frontend user interface.

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

At this time, this task is complete. It is anticipated that any additional work on this task will include the refinement of database schema for any additional data sources that may be requested.

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

At this time, this task is complete. It is anticipated that any additional work on this task will include the refinement of database schema for any additional data sources that may be requested.

Task 2.3.4a – *Identify all known current and planned research efforts related to bridge performance research topic areas* (Ongoing, 30% Complete):

This sub-task progresses concurrently with the development of the Strategic Research application. It is anticipated that this subtask will be completed in the following month now that the application and all requested features has been finalized.

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. In the month of January, several functional features were added to the application including: (1) automated data retrieval via the frontend interface, (2)

the ability to “flag” research documents with LTBP Objectives, (3) the ability to bookmark research activities, and (4) an added table to the Analyze View which shows both flagged and bookmarked documents.

Staff Engineer: 103.5 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.

   Additionally, during this month, Dr. Babanejad worked on enhancing the quality of NDT data, which was collected throughout the LTBP program. This includes recreating the XML files and reprocessing the problematic Test Results – Some of the NDT test results were skeptical.

   Lastly, due to FHWA request, the Rutgers team worked on bridge selection.

   Staff Engineer: 20 hours

   Technician: 97

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 February.

2. Develop LTBP Program bridge performance strategic research matrix

Work efforts in the month of February will focus on identifying and implementing a strategy for deployment (as requested by FHWA on January 16th). Once the application is deployed to FHWA, it is anticipated that work will then focus primarily on completing Task 2.3.4a and developing the final report.

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 1/1/2019 – 1/31/2018	Cumulative Expenditures 10/1/2017 – 1/31/2019
Rutgers, the State University of New Jersey	$ 17,808.00	$ 842,343.59
Bridge Intelligence LLC	-	$ 81,906.39
Pennoni Associates	-	$ 34,206.00
Infratek Solutions	-	$ 25,244.00
New Jersey Institute of Technology	-	$ 28,237.18

H. Subcontractor's Progress Report