

**NEW ENGLAND TRANSPORTATION CONSORTIUM
QUARTERLY PROJECT PROGRESS REPORT**

A. PROJECT NUMBER AND TITLE:

NETC 13-1: Development of High Early-Strength Concrete for Accelerated Bridge Construction Closure Pour Connections

B. PRINCIPAL INVESTIGATOR(s) & UNIVERSITY(s):

Sergio F. Breña (PI) – University of Massachusetts Amherst
Scott A. Civjan (Co-PI) – University of Massachusetts Amherst

C. WEB SITE ADDRESS (If one exists):

D. START DATE (Per NETC Agreement): September 01, 2014

E. END DATE (Per NETC Agreement): April 02, 2016; August 31, 2018 (amended)

F. ANTICIPATED COMPLETION DATE: August 31, 2018

A request to extend the project (cost and time) was discussed with the Project Technical Advisory Committee as described in Section J. Their positive recommendation was sent to NETC for approval and the formal extension request process was initiated with NETC on June 2017. The amendment to the project contract was issued in early August 2017, and project activities restarted in September 2017.

A second request to have a no-cost extension to the project was submitted to NETC for approval on 22 January 2018 and was approved by the NETC AC and the TAC for the project on 28 February 2018. Project activities restarted after this date. A third no-cost extension has recently been granted to 31 August 2018.

G. PROJECT OBJECTIVES:

To develop and validate concrete mixtures capable of developing high early strength without detrimentally affecting their long-term durability. The mixtures are for use in projects using accelerated bridge construction methods.

H. REPORT PERIOD: October 1, 2018 – December 31, 2018

I. ACCOMPLISHMENTS THIS PERIOD:

Task 1: Literature Search

- Task Complete.

Task 3: Develop Mix Design

- Task Complete

Task 4: Test Mixture

- Task complete

The mix used for the first panel closure pour (see last quarterly report) was used to fabricate two prisms that were cycled in the freeze-thaw chamber owned by MassDOT. The prisms were exposed to 300 freeze-thaw cycles.

J. PROBLEMS ENCOUNTERED (If any):

The research team reinitiated project activities at the end of February 2018 after approval of the no-cost extension to 31 May 2018. Another no-cost extension was awarded during this reporting period to complete the project on 31 August 2018.

The freeze-thaw prisms were transported to the MassDOT testing facility for cycling in early October 2018. The results of this testing were incorporated into the final project report since the project team was waiting for comments from the advisory panel.

K. TECHNOLOGY TRANSFER ACTIVITIES:

The research team participated in the VTrans Symposium that took place on September 12, 2018. For this symposium a poster and fact sheet were prepared in coordination with NETC.

L. STATUS BY TASK:

Task 1: Literature Search – 100% complete

Task 2: Develop Mixture Design Specification – 100% complete

Task 3: Develop Mix Design – Trial batches – 100% complete

Task 4: Test Mixture – 100% complete

Draft Project Report – The draft project report was prepared and sent to the NETC Coordinator for review by the Advisory Panel of the project. It is under review at the time of writing of this quarterly report. These comments will be considered for incorporation into the final project report when the review period closes as determined by the NETC Coordinator.

Final Deliverables – The final project report, a poster, and the project fact sheet were submitted to the NETC Coordinator on 19 December 2018. The final report includes information to address comments after review of the draft project report by the advisory panel. The final report was adjusted to comply with required formatting after feedback from the NETC Coordinator.

M. PERCENT COMPLETION OF TOTAL PROJECT: 100%

N. ACTIVITIES PLANNED FOR NEXT QUARTER:

O. FINANCIAL STATUS:

As of: December 31, 2018

Total Project Budget: \$ 174,923; \$191,710 (Amended)

Total Expenditures: \$ 189,411