NEW ENGLAND TRANSPORTATION CONSORTIUM
QUARTERLY PROJECT PROGRESS REPORT

A. PROJECT NUMBER AND TITLE:

NETC 18-2: Framework of Asphalt Balanced Mix Design (BMD) for New England Transportation Agencies

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

Professor Walaa Mogawer, PhD., PE, F.ASCE -University of Massachusetts Dartmouth

C. WEB SITE ADDRESS (*If one exists***):**

https://www.newenglandtransportationconsortium.org/research/netc-research-projects/netc-18-2/

D. START DATE (*Per NETC Agreement***):** *02/05/2019*

E. END DATE (*Per NETC Agreement***):** *06/30/20*

F. ANTICIPATED COMPLETION DATE: *06/30/20*

G. PROJECT OBJECTIVES:

The objective of this research project is to synthesize existing information and to develop recommendations for a rational BMD approach for use by New England transportation agencies. Gaps in testing and performance data will be identified through this project and an experimental plan for required future work will be developed.

H. REPORT PERIOD: *Quarter 4: October to December 2019*

I. ACCOMPLISHMENTS THIS PERIOD:

1. *The research team submitted two draft technical memorandums to the NETC Technical Committee for review and comments. One technical memorandum was for Task 1 - "Identify typical pavement distresses in each of the New England states" and the other was for Task 2 "Identify candidate performance tests for each identified common distress." All comments and suggestions were addressed in the final copies of each technical memorandum.*

2. *A project update meeting for the project was conducted via web conference on Tuesday December 17th, 2019. The PI and project consultant provided a presentation with the project progress to the NETC Technical Committee. First, based on all the research work conducted to date, the recommended performance tests for NETC agencies were presented for the common distresses experienced (rutting, fatigue cracking, thermal cracking, and moisture damage). Then approaches to developing a performance criterion for each of these tests to be used in a BMD were presented. The recommended approach was to use data from each agencies' pavement management systems (PMS) to establish the field performance of mixtures with known laboratory performance (or have loose mixture/cores available to determine laboratory performance). The second approach presented was to utilize indirect performance relationships with other mixtures known to perform well (i.e. specialty mixtures). The last approach presented, and perhaps least desirable/accurate, was to utilize historical performance of selected mixtures generally known to perform well. It was discussed and understood that each NETC*

agency may utilize a different approach based on the data they have available. At the conclusion of this discussion, the PI and project consultant requested the contact information of an individual at each NETC agency to contact in order to assess what PMS data is available and determine if that data can be used for Task 3 "Collect existing performance test data, available from recent state/regional projects, and related historical field performance data on the representative pavements." Each NETC agency agreed to email the PI the relevant contact information. The research team will be looking for the following in terms of PMS data from each agency:

1. *Minimum of past 5 year of data collection*
2. *Broken out by the following*
   a. *Composite pavements per traffic level (low, medium and high as per each state agency definition)*
   b. *Flexible pavements per traffic level (low, medium and high as per each state agency definition)*
3. *Identification of "non-typical Superpave mixes" (i.e. – SMA, SAMI's, OGFC, etc.)*

The plan is to evaluate the provided pavement distress histories to help identify pavement sections for validating Performance Criteria. Comparing field performance to potentially field cores or representative mix for year 2020+.

J. PROBLEMS ENCOUNTERED (If any): *n/a*

K. TECHNOLOGY TRANSFER ACTIVITIES: *n/a*

L. STATUS BY TASK:

Task Number	Description	Percent Complete
1	Identify typical pavement distresses in each of the New England states.	100%
2	Identify candidate performance tests for each identified common distress.	85%
3	Collect existing performance test data, available from recent state/regional projects, and related historical field performance data on the representative pavements.	25%
4	Analyze test and field performance data in order to develop preliminary recommendations for a BMD approach.	0%
5	Identify gaps in the test and performance data and develop an experimental plan for future research with the goal to further refine the development, validation, and implementation of a BMD approach for New England states.	0%

M. PERCENT COMPLETION OF TOTAL PROJECT: __50_____%

N. ACTIVITIES PLANNED FOR NEXT QUARTER:

1. *Contact the appropriate person at each NETC agency to obtain PMS data.*
2. *Work on Task 3 and 4.*

O. FINANCIAL STATUS:
As of: *December 31st, 2019*
Total Project Budget: $ 127,499.00
Total Expenditures : $ 43,602.26

Note: This report should not require more than 2-3 pages & should be e-mailed to the NETC Coordinator so as to arrive no later than three (3) working days after the end of each calendar quarter.