NEW ENGLAND TRANSPORTATION CONSORTIUM
QUARTERLY PROJECT PROGRESS REPORT

A. PROJECT NUMBER AND TITLE: NETC 15-3

B. PRINCIPAL INVESTIGATOR(s) & UNIVERSITY(s): Eshan V. Dave, University of New Hampshire

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

D. START DATE (*Per NETC Agreement***): 8/1/2016**

E. END DATE (*Per NETC Agreement***): 7/31/2018**

F. **ANTICIPATED COMPLETION DATE: 7/31/2018**

G. PROJECT OBJECTIVES:

1. Evaluate good and poor performing asphalt mixtures in New England and determine mechanisms responsible for poor performing mixtures
2. Determine impacts of remedial measures (anti-stripping additives and hydrated lime) in reducing moisture susceptibility of poor performing mixtures
3. Assess impacts of moisture induced-damage on pavement performance and service life
4. Recommend an evaluation framework consisting of appropriate test procedure(s), specification, analysis procedure verified with field performance data that is reliable and suitable for moisture susceptibility testing of asphalt mixtures used in New England

H. REPORT PERIOD: 7/1/2018 – 9/30/2018

I. ACCOMPLISHMENTS THIS PERIOD:

During this quarter the final report for the project as well as the final project recommendations were prepared and submitted to the project technical advisory panel for their review and comments. Reviews and comments from the panel were received and the changes to final report have been made. Also, during this past quarter project PI travelled to Montpelier VT to present the findings of the study at VTrans research symposium.

The main recommendations from this project are as follows:

- As a mixture design/screening test for routine usage to ensure adequate resistance to moisture damage in the field, the Hamburg Wheel tracker shows the most promise. Results from the Hamburg consistently showed the clear distinction between good and poor materials as well as materials with and without moisture treatments. In addition to this, the equipment required to conduct the Hamburg test is affordable, simple to understand and operate, and more readily available for agencies in New England. Both the traditional stripping inflection point based analysis and the Texas Transportation Institute analysis methods were successful in distinguishing good and poor materials.
- If a performance-based design/specifications type approach is desired, it is recommended that the dynamic modulus paired with MiST conditioning approach is used. The main advantage of this approach compared to Hamburg is that dynamic modulus is a fundamental material property that can

be used to predict pavement responses, and subsequently pavement performance, in pavement analysis tools such as PavementME. This type of approach allows life predictions and life cycle cost analysis to be conducted to gain a more complete understanding of the implications of material choice in the context of moisture damage.

- If a non-destructive approach is desired, the UPV is recommended. This approach allows designers to quickly and simple determine the reduction in stiffness (through seismic modulus measurements) due to moisture damage. Non-destructive approaches such as UPV do not require extensive amounts of materials and specimen preparation as well as any expensive lab equipment to perform. Design modulus for elastic analysis can also be obtained using this approach.

J. PROBLEMS ENCOUNTERED (If any):

No significant problems were encountered during this quarter.

K. TECHNOLOGY TRANSFER ACTIVITIES:

Participation in VTrans research symposium, preparation of project final report, development of project fact sheet and development of project summary poster for purposes of dissemination.

L. STATUS BY TASK:

Task 1: State of the Practice and Literature Review: All work for Task 1 has been completed. A report for this task was submitted with a previous quarterly report.

Task 2: Identify and Inspect Moisture Susceptible Mixes and Develop Testing Plan: All of the work for Task 2 has been completed.

Task 3: Laboratory Testing: All of the work for Task 3 has been completed.

Task 4: Final Report and Recommendations: Final recommendations and final report for the project have been completed. An editorial review of final report is currently being completed prior to submission of all the final deliverables to NETC.

M. PERCENT COMPLETION OF TOTAL PROJECT: ____100_____%

N. ACTIVITIES PLANNED FOR NEXT QUARTER:

- Submission of revised final report, project fact sheet and project summary poster to NETC for dissemination purposes.

O. FINANCIAL STATUS:

As of: *9/30/2018*
Total Project Budget: $ 150,000
Total Estimated Expenditures: $ 149,700

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.