

## Research Project Title

Mitigating Stripping in Asphalt Mixtures

## Purpose of the Project

The purpose of the project is to: 1) evaluate asphalt stripping on a number of materials with a known history of stripping: including crushed glass, natural sands, gravels, granites, siliceous limestone and other material identified by TDOT; 2) identify countermeasures to reduce stripping that may be utilized by TDOT in Asphalt Mix; 3) identify the chemistry of aggregates and asphalts and the mechanisms for stripping potential; and 4) identify various tests for aggregates and mixtures to determine stripping potential in place of the boiling test.

## Scope and Significance

The scope of the research project includes: 1) to complete a synthesis of literature review on moisture damage in asphalt mixtures and DOT survey on measures in their specifications and mix design requirements to mitigate moisture damage; 2) to identify aggregate type potentially susceptible to moisture damage and poor-performing Tennessee asphalt mixtures in terms of moisture resistance in Tennessee and sample the materials; 3) to measure the surface energy of asphalt binders and aggregate in the laboratory; 4) to conduct a series of laboratory performance tests on asphalt mixtures to evaluate the moisture susceptibility of asphalt mixtures; 5) to conduct a statistical analysis on the test results and correlate the fundamental properties (chemistry) of asphalt binder and aggregate to moisture susceptibility of asphalt mixtures; 6) to identify or develop simple field aggregate (or loose mixture) tests other than the boiling test for evaluating moisture susceptibility of asphalt mixtures and aggregates susceptible to moisture damage.

## Expected Outcomes

This research will significantly benefit the economy of the state of Tennessee through mitigating stripping in asphalt mixtures. Reduction of stripping will prove immediate benefits to the life of pavements and lowered cost of maintenance. Specifically, the benefits include: 1) Improved resistance of asphalt mixture to stripping; 2) Long service life of asphalt pavements through use of asphalt mixtures resistant to stripping; 3) Significant cost savings for maintenance, rehabilitation, or reconstruction of asphalt pavements; 4) Increased public satisfaction through improved pavement rideability.

## Time Period

The time period for the project is from January 06, 2020 to November 30, 2020.

## Contact Information

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