RP 286 – *Correlations between CoreLok and AASHTO T-85 for Determining the Specific Gravity and Absorption Properties of Coarse Aggregates in Idaho*

- Project Description:
  Accurate measurements of specific gravity and absorption of coarse and fine aggregates used in hot mix asphalt are essential for proper mix design. The specific gravity and absorption characteristics are often measured in accordance with AASHTO standard methods (AASHTO T-84 and AASHTO T-85). The results from these tests are strongly dependent on the experience and expertise of the technician. Due to the subjective nature of the AASHTO T-85 test and the considerable testing time, ITD is seeking alternative methods to determine these parameters with greater reliability. A recent research study (Project RP 252) developed a correlation between results from a CoreLok device and the generally accepted AASHTO T-84 procedure for fine aggregates. The CoreLok method is quick, reliable, and provides consistent and repeatable results. Tests using the CoreLok device can be completed within 30 minutes, compared to the AASHTO T-84 method, which takes nearly 48 hours. The models from Project RP 252 predict the AASHTO T-84 values of specific gravity and absorption using the CoreLok method for typical fine aggregates used in Idaho. This research project will examine and develop similar correlations between the AASHTO T-85 and CoreLok results for coarse aggregates used in the state. Additionally, rather than establishing separate test procedures for coarse and fine aggregates, it may be more efficient to measure the specific gravity and absorption parameters for aggregates consisting of a mixture of coarse and fine aggregates directly in a single test. This will be examined as part of this study as well.

- Project Objective:
  The objectives of this project include:
  - Evaluate and develop correlations between the CoreLok and AASHTO T-85 results for measuring specific gravity and absorption properties of typical coarse aggregates used in the construction of pavements in Idaho.
  - Evaluate the use of CoreLok for measuring the specific gravity and absorption properties of combined aggregates (i.e., a mixture of fine and coarse).
- Estimated Completion Date: May 1, 2022
- Budget: $123,600
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