

RP 280 – Development of a Gyratory Stability Index to Evaluate Variation of RAP Content and Rutting Resistance of Asphalt Mixtures

- Project Description:

This project seeks to develop a modified mathematical algorithm for Gyratory Stability (GS) index applicable to the Pine Gyratory compactor with model AFG2AS which is being used at all ITD district, field, and central labs. The GS index can then be used to evaluate the resistance of HMA mixtures to rutting during the mixture design stage. Furthermore, the researchers will examine the sensitivity of this index to the RAP content in asphalt mixtures. If found sensitive, the GS index can then be used as a quick indirect indicator of variation of RAP content in asphalt mixtures when placed in the field and as a tool to determine if the RAP content in a given mixture exceeds the allowable percentage. The study will investigate the applicability and sensitivity of AASHTO T 283, Lottman procedure, as a quality control tool during asphalt mixture production in the field.
- Project Objective:

The main goal of this study to investigate the possibility of using Gyratory Stability and or other gyratory compaction indicators to detect the variability of RAP content in HMA mixes. Specific objectives include:

 1. Developing Gyratory Stability index for asphalt mixtures using Pine compactor.
 2. Evaluating the sensitivity of the developed index to the variation of the RAP content in the mix.
 3. Evaluating the use of the GS index to evaluate the resistance of asphalt mixture to rutting.
 4. Evaluating the Lottman procedure to assess moisture damage of asphalt mixtures and use it as indicator for quality control during asphalt mixture production in the field.
- Estimated Completion Date: December 31, 2020
- Budget: \$160,000
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