

**RP 294 – Simplified Analysis Methods of Traffic Speed Deflectometer (TSD) and Falling Weight Deflector (FWD) Data for Effective Pavement Preservation Program**

- Project Description:

The Idaho Transportation Department (ITD) uses a variety of methods to assess pavement conditions in order to recommend and program pavement treatments. The falling weight deflectometer (FWD) is non-destructive tool the department has used at the project planning level to measure the structural capacity and stiffness of pavements. In addition, in recent years the department has obtained pavement structural condition data from the Traffic Speed Deflectometer (TSD) for approximately 3,500 miles of roadway for network level planning. The deflection basins recorded by the FWD and TSD differ due to the difference in the operating conditions of the two devices. The FWD is a stationary device while the TSD measures the deflection under a continuously moving load. The purpose of this study is to conduct a thorough analysis of the collected TSD and FWD deflection data to evaluate and develop simplified deflection indices that can be used to assess the pavement structural conditions and determine the remaining service life of flexible pavements at the network level. The simplified deflection indices will be evaluated, developed, and calibrated based on Idaho conditions. It is anticipated that the indices developed through the research will be used by staff in selecting effective pavement preservation treatments.
- Project Objective:

The objectives of this project include:

  - Evaluating, developing, validating, and calibrating various techniques and models used to analyze the TSD and FWD data to determine the structural capacity and remaining service life. This objective shall focus on the use of a simple methodology that can be used to assist in qualifying the recommended treatments.
  - Developing an Excel-based utility that can utilize the deflection data and other information (e.g., traffic, layer thickness) and calculate the structural capacity and remaining service life of flexible pavements.
  - Developing/documenting a methodology on the use of TSD Data to develop a systematic method/process by which ITD could plan FWD collection.
- Estimated Completion Date: August 31, 2022
- Budget: \$160,000
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