

## 0-7106: Quantify Maximum Accumulated Seal Coat Layers for Stability

### Background

The Texas Department of Transportation (TxDOT) invests over \$250 million in seal coats on various roadway sections annually. Ensuring that seal coats are applied to good candidate pavement sections lowers TxDOT's risks and leads to better performing pavements.

Because of TxDOT's strong preventive maintenance program, many roadways in Texas are performing well with multiple seal coats. Others, however, are exhibiting issues related to wheel path chatter, shoving, build-up at longitudinal joints, etc. (Figure 1). During seal coat training, TxDOT employees continue to ask, "How many seal coats are too many?" This research project is the first to investigate this valid question, striving to answer, "How many seal coats can be added before the surface becomes unstable and is therefore not a good candidate for an additional seal coat?"



**Figure 1. Potential Issues with Multiple Seal Coats on Pavement Sections.**

### What the Researchers Did

The research team performed laboratory and field studies to evaluate the performance of seal coat layers. The team then developed a simple-to-follow, cost-effective draft test procedure intended to determine if an existing pavement is suitable for another layer of seal coat. The team developed a complementary procedure to ensure good candidate seal coat projects are selected.

### What They Found

The research team found that the seal coat must be constructed with well-designed application rates because the combined binder/aggregate matrix is critical to its stability. Too little binder will not hold the aggregate and too much binder will lead to flushing. The team developed a procedure to use pavement hardness as an indicator of new seal coat suitability. Figure 2 shows an example ball penetration testing apparatus.

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## What This Means

TxDOT personnel now have a method to determine if a pavement section is a viable candidate for an additional seal coat layer. Implementation of these research recommendations may reduce the risk of premature failure on pavement sections deemed to be good candidates.

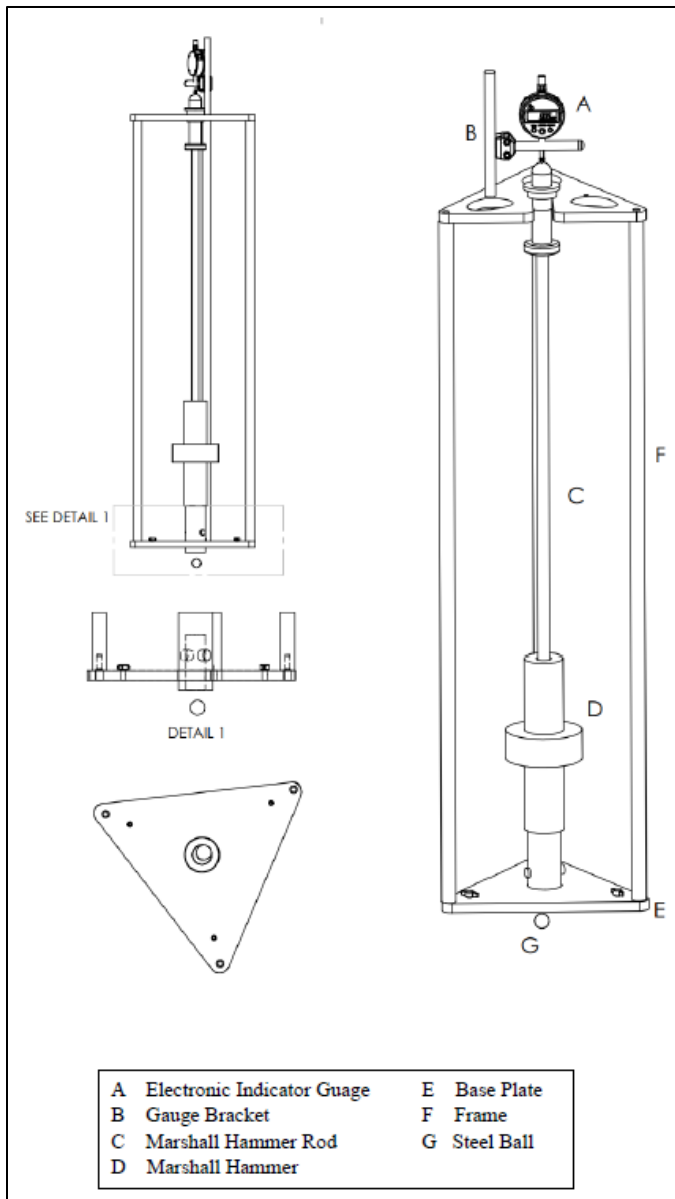


Figure 2. Example Ball Penetration Testing Apparatus.

## For More Information

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