



Moisture Induced Stress Testing (MIST) to Evaluate Stripping Potential of HMA Pavements

AASHTO RAC/TRB
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Why was the research performed?

- MaineDOT uses Hot Mix Asphalt pavement only – AND IT'S FALLING APART!!!




Why was the research performed?

- HMA pavements pass the Superpave criteria
 - Concerns with aggregate quality, excessive dust & liquid asphalt quality
 - Existing method for moisture susceptibility AASHTO T283, doesn't catch our poor performers
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Why was the research performed?

- *Existing method for moisture susceptibility AASHTO T283, doesn't catch our poor performers*
- **And did I mention our HMA pavements are FALLING APART!!!**

What We Did

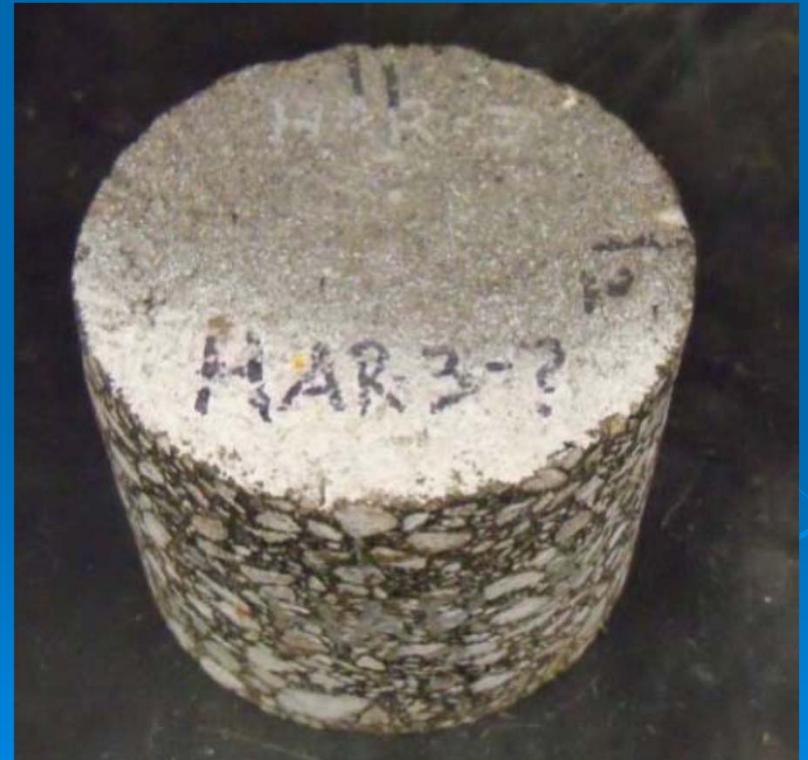
- **Sampled Cores from one and two year old HMA projects**
 - **Condition core samples in MIST**
 - **Visual observations and testing on non-conditioned cores and conditioned cores**
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What we found...

MIST equipment provides a better tool for helping to ID poor performers.



RESULTS



RESULTS

Project Name	Visual Sample Degradation*	TSR	BSG (Absolute percent change)	Resilient Modulus (Net percent change)
Abbot Monson	Severe	0.89	1.71	-43.1
Dover Foxcroft	Minor	0.9	0.95	-11.9
Ellsworth	Minor	1.09	0.5	9.7
Harrison	Very Minor	0.97	0.57	14.3
South Portland	Moderate	0.92	0.54	-25.0
Turner	Very Minor	1.06	0.94	-36.7

CONCLUSIONS AND RECOMMENDATIONS

- **1. MIST conditioned samples can ID poor performers**
- **2. The effects of MIST conditioning should be studied further to develop standards**

Benefits

- **MIST equipment can be used immediately to help ID potential poor performers**
- **MaineDOT to consider adopting MIST and save taxpayers \$\$\$'s**