



Virginia Center *for* Transportation
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Asphalt Pavement Research Program Update

Jose Gomez, PhD, PE
Director of Research

VAA 24th ANNUAL FALL ASPHALT CONFERENCE
RICHMOND, VA
October 4, 2011

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Research Project Process

- **Project ideas are presented and discussed at Research Advisory Committee meetings**
 - **PaveRAC, October 20th**
 - **ARAC, October 25th**
- **Project ideas are prioritized by members of the committee and recommended to VCTIR staff**



On-going Research Projects

1. Interstate 81 In-Place Pavement Recycling
2. Asphalt Material Characteristics for the MEPDG
3. Investigation of High RAP Mixtures
4. Pavement Structural-Capacity Requirements for Innovative Pavement Decision-Making & Constr.
5. Quiet-Pavement Implementation Program
6. Best Practices and Performance Comparison of Preventive Maintenance Treatments
7. Thin Wearing Courses – Accelerated Trafficking
8. Warm-Mix Asphalt - Continuing Performance



On-going Research Projects

- 9. SMA 10-Year Performance Review**
- 10. Continuous Deflection Device**
- 11. MEPDG Drainage Layer**
- 12. Friction Management**
- 13. Binder Recovery**
- 14. Rosphalt Overlay**
- 15. Long-Term Pavement Performance**

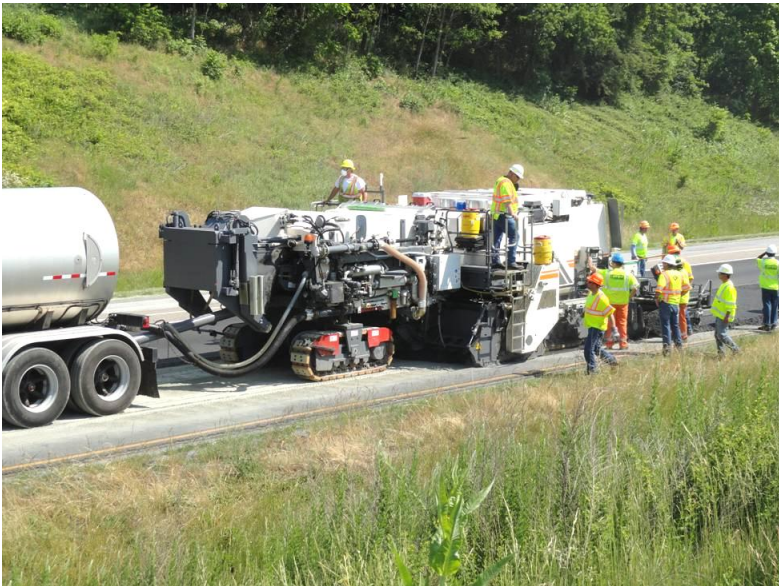


On-going Research Projects

Project	Budget, \$	Project	Budget, \$
I-81 In-Place Pavement Recycling	228,000	SMA 10-Year Review	~80,000
Material Characteristics for MEPDG	174,500	Continuous Deflection Device	300,000
High RAP Mixtures	65,000	MEPDG Drainage Layer	300,000
Quiet-Pavements	574,000	Friction Management	39,000
Best Practices – Preventive Maintenance	419,000	Binder Recovery	39,000
Structural-Capacity Requirements	136,000	Rosphalt Overlay	139,000
Warm Mix Asphalt – Continuing Performance	200,000	Long-Term Pavement Performance	11,000
Thin Wearing Course – Accelerated Trafficking	75,000	15 Total projects = \$2.8 Million FY12 = \$1.2 Million	



I-81 In-Place Pavement Recycling



10/4/2011

The study will help VCTIR gain experience with the laboratory mix design and evaluation procedures for recycling projects and also help VDOT implement these technologies.

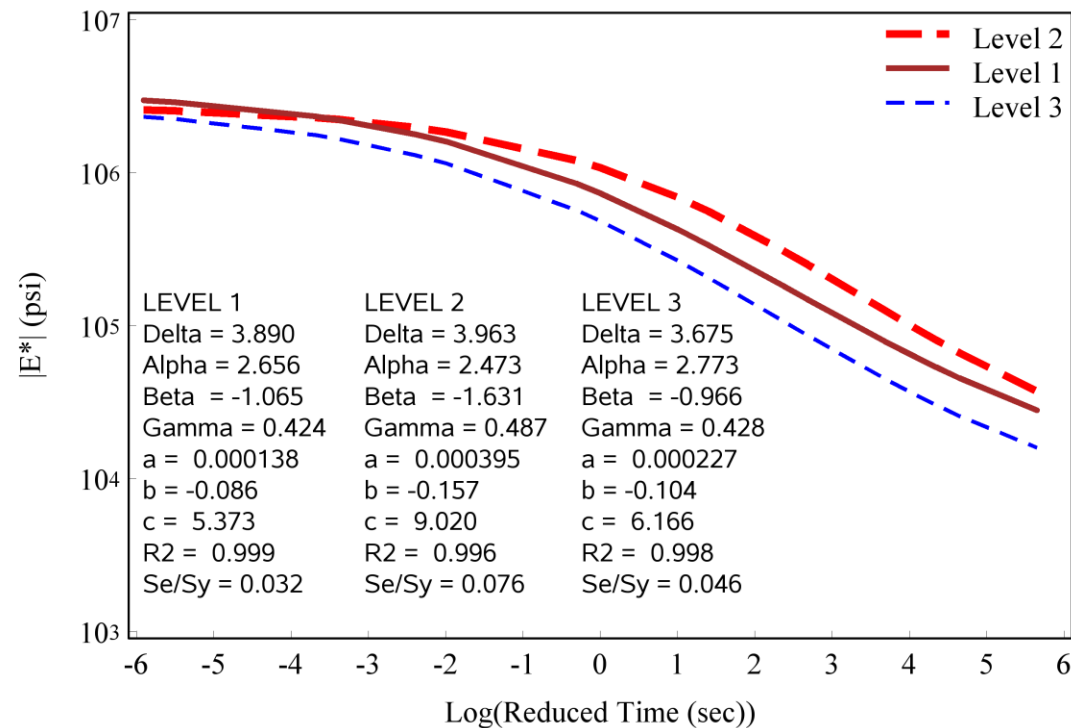
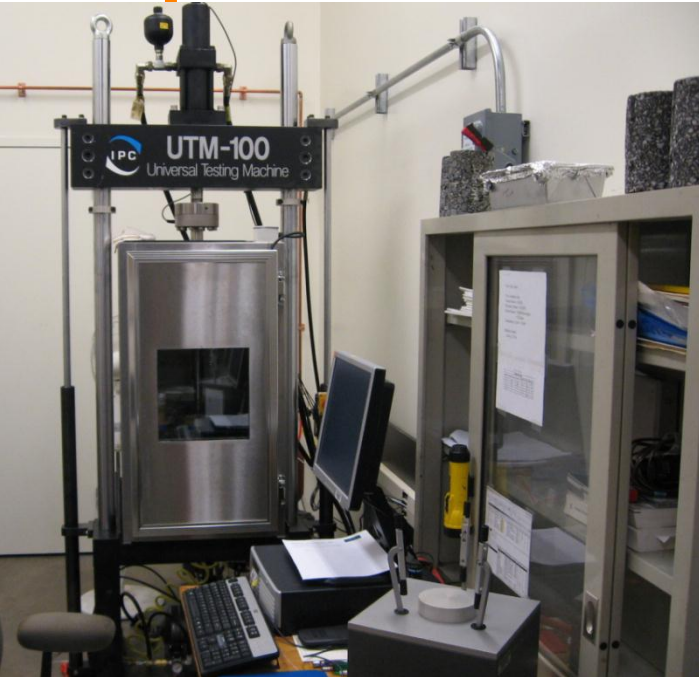
Construction completed,
monitoring by VCTIR on-going



Asphalt Materials Characteristics for MEPDG

Develop a comprehensive catalog of MEPDG design input parameters for pavement design in Virginia.

Final Report to be published soon.



Lab Investigation of High RAP Mix

In 2006, the use of higher RAP percentages with locally available binders was adopted by VDOT. VDOT engineers were concerned with the performance of the higher RAP mixtures especially with regard to excessive stiffness increases.

Preliminary results showed the use of RAP amounts up to 30% did not result in excessive mixture stiffening in majority of the mixtures tested.

Final VCTIR report being prepared.



Quiet Pavements - Virginia

2011 Season

- PFC 9.5 @ 1 inches
- PFC 12.5 @ 2 inches
- AR-PFC @ 1 inch
- SMA 9.5 @ 1.5 inches (control)



Best Practices – Preventive Maintenance

- 1. Summarize national/international current practice**
- 2. Identify most promising alternatives and review performance of current Virginia strategies**
- 3. Develop guidelines/construction practices**
 - Methods**
 - Timing**
 - Functional class**



Thin HMA – Scaled Accelerated Trafficking



Full-Scale Testing – FHWA ALF



Model Mobile Load Simulator – VTTI

10/4/2011



SMA 10 Year Performance Review

Phase 1 – Network Review

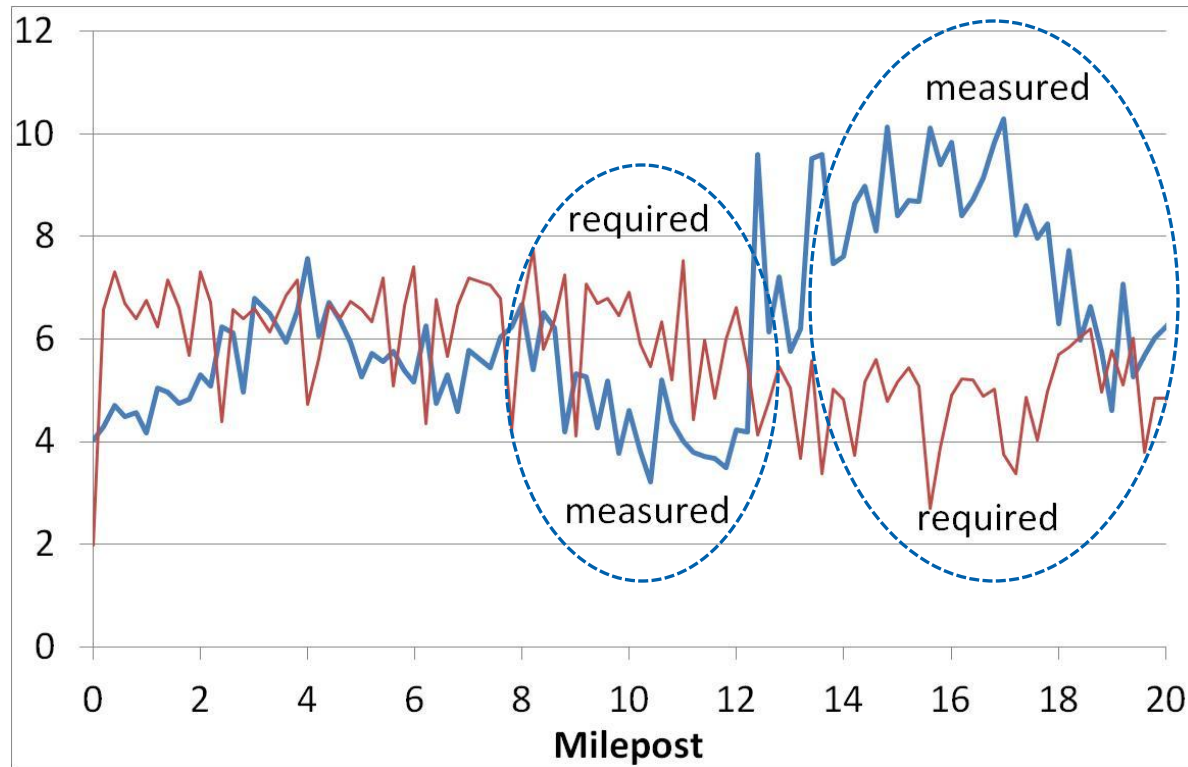
- PMS Data – material life projections
- Field Study – project level performance

Phase 2 – Laboratory Forensics

- Sampling/conventional testing and characterization
- Laboratory performance testing – E^* , flow number, Hamburg?



Development of Pavement Structural-Capacity Requirements for Innovative Pavement Decision-Making and Construction



- Currently, sections identified as either “strong” or “weak”
- Project to establish a required structural value that could be compared with the in-situ condition



Warm Mix Asphalt – Continuing Performance

- Since first trial sections in 2007, WMA use has grown and technology has evolved.
- It is estimated that >75% of asphalt mixes placed use WMA technology for either temperature reduction or improved placement.
- Initial WMA sites are 5 years old and performing comparably to HMA controls. These sites will continue to be monitored.
- Additional WMA sites – particularly using foam technology - will be selected and monitored over their lifetime to assess performance.



Concluding Remarks

- Implementation Focus per 2010 Performance Audit
- Continued efforts to partner with our University colleagues to expand the research program and seek additional funding sources
- Continued efforts in pushing a proactive, applied research program





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Acknowledgements:

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- **Project Review Panel Members**

Thank you!

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