

California's Partnered Pavement Research Program

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TRB AFD40 International Alliance
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Summary

- 12 Month Update
 - ATIRC Facility
 - Warm-Mix Asphalt
 - SHRP R21
- Future Plans



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ATIRC Facility

- ATIRC facility now occupied and functioning
- HVS's moved to Davis in July 2009
- West track (Davis, not Nevada)
 - SHRP R21 Composite Pavement completed
- North track
 - R-WMA under construction





North track RWMA-G

West track R21 composite



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WMA Study Objectives

- Determine whether the addition of additives to reduce the production and construction temperatures of asphalt concrete influences performance
- Phase 1 & 2 technologies tested:
 - Three most prominent in 2007
 - Advera WMA®
 - Evotherm™
 - Sasobit®
- Phase 3
 - Seven technologies
 - Three mechanical foam
 - Four additive



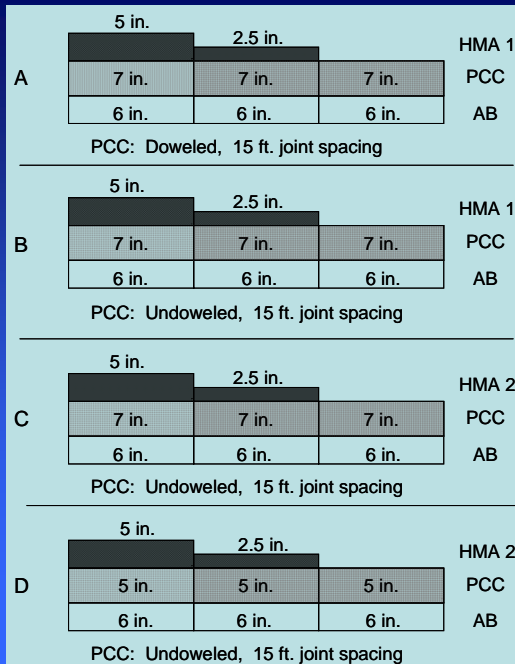
WMA Study Experiment design

- Phase 1: (complete)
 - Heavy Vehicle Simulator (HVS)
 - Rutting at elevated temperatures
 - FMFC Laboratory testing
 - Shear, fatigue, moisture sensitivity
- Phase 2a: (complete)
 - HVS
 - Moisture sensitivity
 - FMLC Laboratory testing
- Phase 2b (pending)
 - LMLC Laboratory testing
- Phase 3: (in progress)
 - Repeat on asphalt rubber mixes



SHRP - R21 Objectives

- Understand thermal, rutting, and load response/cracking performance characteristics of HMA/PCC composite pavements constructed in various structural and material combinations
- Status
 - Instrumentation and construction completed
 - Early data collection (untrafficked)



HVS Test for R21

- Check and monitor all instrumentation: Fall 2009 onward
- Begin HVS loading: 1/19/2010.
 - Rutting Tests - Jan 2010 to May 2010, 4 sections - study thickness, material, load level, temperature effects
 - Cracking Tests - Feb/March 2010 to completion, 11 sections - study thickness, material, load level, temperature effects



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Planned HVS Testing (2010-15)

- Rubberized warm mix asphalt and SHRP-R21
- Validation of new warm mix asphalt technologies that will be proposed to Caltrans over next five years (most likely to be funded by industry)
- Evaluation of rutting performance of new designs for overlays of asphalt and concrete pavements for preservation and rehabilitation using current and rubber asphalt and modified binder asphalt mixes
- Evaluation of extended life benefits of pavement preservation treatments
- Performance evaluation of fully permeable pavements



Proposed HVS Testing (2010-15)

- Evaluation of alternative pavement materials, to increase recycling and reduce green-house gas emissions
- Evaluation of pavement materials made with bio-binders as alternatives to asphalt and cement
- Evaluation of cracking performance of new concrete mixes with recycled concrete materials
- Evaluation of rutting and cracking performance of asphalt mixes with increased recycled asphalt pavement content
- Evaluation of alternative in-place recycling methodologies: depth of recycling, use of light cementation, alternative mix designs



Thank-you!

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