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Update on VDOT's Asphalt Research Activities

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Director of Research

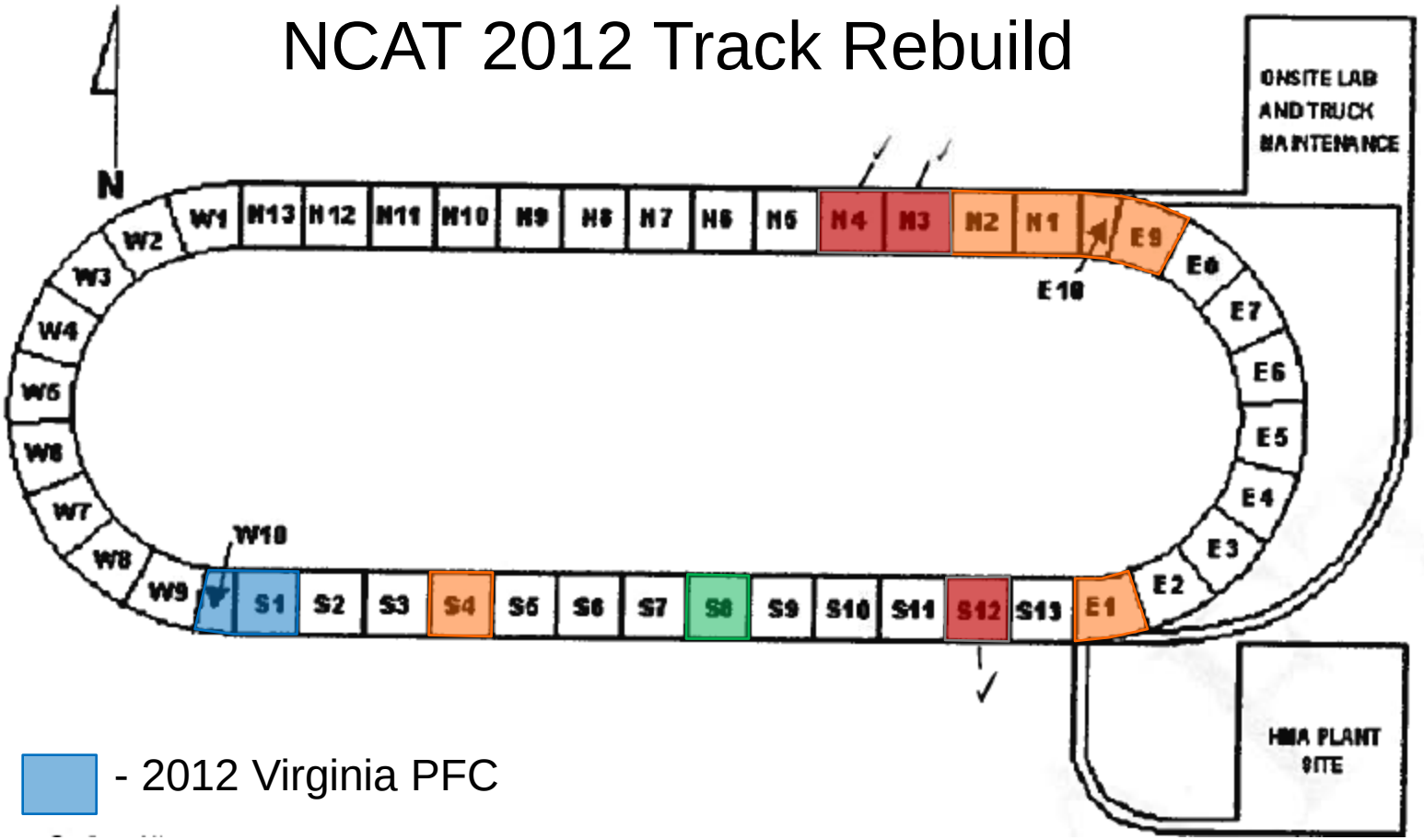
Virginia Asphalt Association Fall Meeting
October 2, 2012

NCAT Test Sections

- Goal
  - Gain a better understanding of long-term performance under heavy truck loading

- Five test sections (3 recycling, 2 quiet pavement)
  - Construction completed in August
  - Test sections include instrumentation
  - 2 years of traffic = 10 million ESALs

NCAT 2012 Track Rebuild



- 2012 Virginia PFC
- 2012 Other PFC
- 2009 Other PFC
- 2012 Virginia Recycle

NCHRP 09-51

- *Material Properties of Cold In-Place and Full-Depth Reclamation Asphalt Concrete for Pavement Design*
- Investigators
  - PI, Charles Schwartz, University of Maryland
  - Co-PI, Brian Diefenderfer, VCTIR
- Objective
  - Propose material property inputs, test methods, and distress models for predicting the performance of CIR and FDR using asphalt-based materials

High RAP Efforts

- High RAP Mixtures (VTTI contract)
  - Goal: Address binder contents of high RAP mixes
- In-Service Binder Aging and Performance: RAP Mixtures (Stacey and Hari)
  - Goal: Investigate binder aging and performance of RAP mixtures
- TPF-5(230) Evaluation of Plant Produced High Percentage RAP Mixtures in the Northeast (pooled fund)
  - Goal: Understand how RAP interacts with the virgin materials in a mixture so that the proper techniques and procedures can be developed and used to design and construct RAP mixtures with equal or better performance than all-virgin mixtures

In-Service Binder Aging and Performance: RAP Mixtures

- How does RAP content influence binder grade and mixture performance?
  - How do binder grades change over time? Is this influenced by the presence of RAP?
  - How does the depth within the surface layer affect aging of the binder?
  - Is there a relationship between deterioration and in-service binder grade?
- Evaluate performance of early high RAP sections constructed in 2007
- Evaluate additional RAP sections (new and existing)

Very High RAP Demos

- Will support all RAP projects
- Two sites - Fredericksburg
- SM12.5A mixes
- RAP contents: ~15%, 30%, and 40%+
- Low RAP design may use PG70-22
- Other designs will use PG64-22

New Design and Materials Researchers

- Mary Robbins
  - B.S. University of Toledo
  - M.S. Auburn University
  - Ph.D. Auburn University

Expertise:

- NCAT Test Track – pavement and instrumentation, installation and analysis, development of predictive models.
- Evaluating in-place properties of asphalt concrete in relation to field measured pavement responses.
- Analyzing pavement materials for MEPDG implementation
- Previous experience as transportation engineer for Ohio DOT.

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For more information:

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