

ALDOT Progress Report for the State Planning and Research Program

PROJECT TITLE: Accelerated Performance Testing on the 2009 NCAT Pavement Test Track		
PROJECT MANAGER(S): R. Buzz Powell, PhD, PE Ph. #: (334) 844-6857	SPR Project No: TPF-5(208) ALDOT Research Project No. 930-754P	Project is: <input type="checkbox"/> PLANNING <input checked="" type="checkbox"/> RESEARCH & DEVELOPMENT
Annual Budget	Multi Year Project Total Budget for Project: \$5,781,000.00 Total Cost to Date for Project: \$0.00	

Background

The Pavement Test Track is a full-scale accelerated performance test (APT) facility managed by the National Center for Asphalt Technology (NCAT) at Auburn University. The project is funded and directed by a multi-state research cooperative program in which the construction, trafficking, and pavement evaluation are carried out on 46 different 200-foot test sections around the 1.7-mile oval test track. Each test section is constructed utilizing the asphalt materials and design methods used by individual sponsors. A fleet of heavy trucks is operated on the track in a highly controlled manner in order to apply a design life-time of truck traffic (10 million equivalent single axle loads, or ESALs) in two years. The current project represents the fourth three-year research cycle of the NCAT Pavement Test Track.

Objectives

The primary objectives of the pooled fund project are as follows:

1. Constructing 200 ft test sections on the existing 1.7 mile NCAT test oval that are representative of in-service roadways on the open transportation infrastructure;
2. Applying accelerated performance truck traffic in 2 years following the construction;
3. Assessing/comparing the functional and structural field performance of trafficked sections on a regular basis via surface and subsurface measures;
4. Validating the M-E approach to pavement analysis and design using both surface and subsurface measures;
5. Calibrating new and existing M-E approaches to pavement analysis and design using pavement surface condition, pavement load response, precise traffic and environmental logging, and cumulative damage;
6. Correlating field results with laboratory data; and
7. Answering practical questions posed by research sponsors through formal (i.e., reports and technical papers) and informal (e.g., one-on-one responses to sponsor inquiries) technology transfer. For example, can high RAP content mixes provide the same level of performance as virgin mixes? If so, can they be used in both deep and shallow layers? Although warm mix is better for the environment, will it provide the same level of rut and moisture damage resistance as conventional mixes?

Design and Construction of Test Sections

When each research cycle is completed, test sections are either left in place for the application of additional traffic or rebuilt in the manner that best meets the needs of sponsors. The fourth research cycle includes: 18 sections built in 2009 (13 structural sections, four mix performance sections, and one surface treatment section), nine sections built in 2006 (one structural section and eight mix performance sections), 13 sections built in 2003 (two structural sections and 11 mix performance sections), and six sections built in 2000 (all mix performance sections). Mix performance sections are perpetual pavements in which distresses are confined to various combinations of experimental surface mixes. Structural sections are typically thinner, highly instrumented pavements that are intended to provide information for the MEPDG.

The reconstruction of the test track for the fourth research cycle is underway. Figure 1 shows a tentative reconstruction schedule as of July 13, 2009. It is anticipated that the initiation of fleet operations will begin in early August, 2009.

2009 NCAT Pavement Test Track

Tentative Reconstruction Schedule

7/13/2009

<u>Projected Date</u>	<u>Sublot</u>	<u>Sponsor</u>	<u>Description</u>	<u>Construction Notes</u>
6/29/2009	N1-3	FL	2006 N1-2	Good match with N1-1 from 2006
6/29/2009	N2-3	FL	2006 N1-2	Good match with N1-1 from 2006
6/30/2009	N1-2	FL	2006 N1-2	Good match with N1-1 from 2006
6/30/2009	N2-2	FL	2006 N1-2	Good match with N1-1 from 2006
7/1/2009				Trial Mixes and Inside Lane Leveling
7/2/2009				Trial Mixes and Inside Lane Leveling
7/3/2009	S8-3	GE	GE Control	3.6% VTM!
7/3/2009	S9-3	GE	GE Control	4.0% VTM!
7/3/2009	S10-3	GE	Foamed WMA	Astec Foamer, 4.1% VTM!
7/3/2009	S11-3	GE	Additized WMA	Plant blended Evothorm DAT, 3.0% VTM
7/6-10/09				Contractor off for annual July 4th vacation week
7/13/2009				Rained out. Weather may be a problem all week.
7/14/2009	S8-2	GE	GE Control	
7/14/2009	S9-2	GE	GE Control	
7/14/2009	S10-2	GE	Foamed WMA	Astec Foamer
7/14/2009	S11-2	GE	Additized WMA	Plant blended Evothorm DAT
7/15/2009	N1-1	FL	Bonded FC-5	Placed with spray paver
7/15/2009	N2-1	FL	Tacked FC-5	Trackless tack
7/15/2009	S8-1	GE	Tacked FC-5	Trackless tack
7/15/2009	S9-1	GE	GE Control	
7/15/2009	S10-1	GE	Foamed WMA	Astec Foamer
7/15/2009	S11-1	GE	Additized WMA	Plant blended Evothorm DAT
7/16/2009	N10-3	GE	GE RAP	50% RAP
7/16/2009	N11-3	GE	GE RAP-WMA	50% RAP with Astec Foamed WMA
7/17/2009	N10-2	GE	GE RAP	50% RAP
7/17/2009	N11-2	GE	GE RAP-WMA	50% RAP with Astec Foamed WMA
7/20/2009	N5-4	SH	GE+Thiopave30-2.0	Sulfur pellets replace some liquid asphalt in WMA
7/20/2009	N6-3	SH	GE+Thiopave30-2.0	Sulfur pellets replace some liquid asphalt in WMA
7/20/2009	N7-3	KE	GE+Kraton	Highly polymer modified with thinner structure
7/20/2009	N10-1	GE	GE RAP	50% RAP
7/20/2009	N11-1	GE	GE RAP-WMA	50% RAP with Astec Foamed WMA
7/21/2009	N5-3	SH	GE+Thiopave40-3.5	Sulfur pellets replace some liquid asphalt in WMA
7/21/2009	N5-2	SH	GE+Thiopave40-3.5	Sulfur pellets replace some liquid asphalt in WMA
7/21/2009	N6-2	SH	GE+Thiopave40-3.5	Sulfur pellets replace some liquid asphalt in WMA
7/21/2009	N7-2	KE	GE+Kraton	Highly polymer modified with thinner structure
7/22/2009	N7-1	KE	GE+Kraton	Highly polymer modified with thinner structure
7/23/2009	N8-2	OK	2006 N8-2	Match Superpave binder mix from 2006
7/24/2009	N8-1	OK	2006 N8-1	Match surface SMA from 2006 with geotextile fabric
7/24/2009	S2-2	MS	RAP Binder	High RAP content using 2000 Track millings
7/27/2009	S2-1	MS	RAP Surface	High RAP content using 2000 Track millings
7/27/2009	N5-1	SH	GE Control	
7/27/2009	N6-1	SH	GE Control	
7/28/2009	S6-1	MO	SBS-modified	SBS-modified PG76-22
7/28/2009	S7-1	MO	GTR-modified	GTR-modified PG76-22
7/29/2009	N12-1	GA	5:1 SMA	Performance of Flat/Elongated SMA
7/30/2009	S12-3	TL	GE+Special	Sponsor to be announced in the near future
7/31/2009	S12-2	TL	GE+Special	Sponsor to be announced in the near future
8/3/2009	S12-1	TL	GE+Special	Sponsor to be announced in the near future

Notes:

Change is inevitable! Check back often.

Sublots numbered in top-down manner.

(greatest number = lowest paved lift)

(lowest paved lift = base in GE)

FL = Florida DOT

GE = Group Experiment

SH = Shell Thiopave

KE = Kraton Polymers

MO = Missouri DOT

OK = Oklahoma DOT

MS = Mississippi DOT

GA = Georgia DOT


 = Work that has been completed (unshaded is planned only)

Figure 1. Tentative Reconstruction Schedule for 2009 NCAT Pavement Test Track

STATUS AND COMPLETION DATE

Percentage of work completed to date for total project 10 %

Project is:
X on schedule behind schedule, explain:

Expected Completion Date: 5/14/2012

Please note that this project has continued with renewed requests for services and additional funding obligations and may be extended beyond the current Expected Completion Date listed above.