

Period Covered: Through June 30, 2005 (Quarterly Report)

ALDOT Progress Report
for the

State Planning and Research Program

PROJECT TITLE: NCAT Pavement Test Study		
PROJECT MANAGER: Mr. Raymond Powell (334) 844-6857	SPR Project No: TPF-5(072) ALDOT Research Project No. 930-595	Project is: <input type="checkbox"/> PLANNING <input checked="" type="checkbox"/> RESEARCH & DEVELOPMENT
Annual Budget	Multi Year Project Total Budget for Project 3,698,238.00 Total Cost to Date for Project 3,416,316.58	
Project Overview <p>The Pavement Test Track is an accelerated performance test facility managed by the National Center for Asphalt Technology (NCAT) at Auburn University. The project is funded and directed by a 10 state (+ FHWA) research co-ops such that each sponsoring entity provides local hot-mix asphalt for placement on the Track. Forty-five different 200 ft sections have been built around the 1.7-mile oval to facilitate field performance comparisons in an identical climate where traffic conditions are precisely monitored. The primary objectives of the project are to identify mixtures with lower life cycle costs and investigate mechanistic pavement response. The Track was originally constructed in 2000, with many sections replaced in the summer of 2003 after the first cycle of truck traffic had been completed. All 2000 sections survived, but half were replaced to facilitate new research in the 2003 experiment. The application of 10 million ESALs to the surface of the 2000 Track was successfully completed on December 17, 2002. Induced rutting on the 2000 Track was relatively minor, ranging from 0.5 mm to 7.3 mm with an overall average of 2.4 mm. Practical models have been developed that utilize output from various types of laboratory performance tests to predict these subtle differences in field performance over time as a function of traffic and temperature. Reconstruction activities at the Pavement Test Track were completed in September of 2003. The 2003 experiment required milling and inlaying 14 sections with new rutting study mixes, deep removal of 8 sections to facilitate a small (instrumented) structural experiment, and continuing traffic on the remaining sections to extend the original 2000 experiment over a second application of design traffic (i.e., another 10 million ESALs). The reconstruction project was again funded via a multi-state research co-op, with pooled fund management and construction contract administration provided by the Alabama Department of Transportation.</p>		

Field Performance

Every Monday, trucking is suspended so that vehicle maintenance can be performed and pavement performance can be quantified. An inertial profiler equipped with a full lane width dual scanning laser "rutbar" is run weekly around the entire Track in order to determine individual wheelpath roughness, right wheelpath macrotexture and individual wheelpath rutting for every experimental section. Additionally, 3 random locations were selected within each section in a stratified manner to serve as the fixed test location for nondestructive wheelpath densities. Transverse profiles are measured along these same locations each week so that rutting may be calculated using a contact method. Every month, wet ribbed surface friction testing, falling weight deflectometer testing, and structural high speed response data is collected, along with videologging to provide a permanent visual record of surface performance. Every quarter, cores are cut from the wheelpath of every section so that densification of each layer can be considered. Average rut depths for all 45 test sections are provided in Figure 4. Rutting ranges from a low of 1 mm to a high of just over 7 mm, with an overall average of about 3 ½ mm. Little change in rutting was noted in the cooler winter months, but rising temperatures are again causing rutting rates to increase.

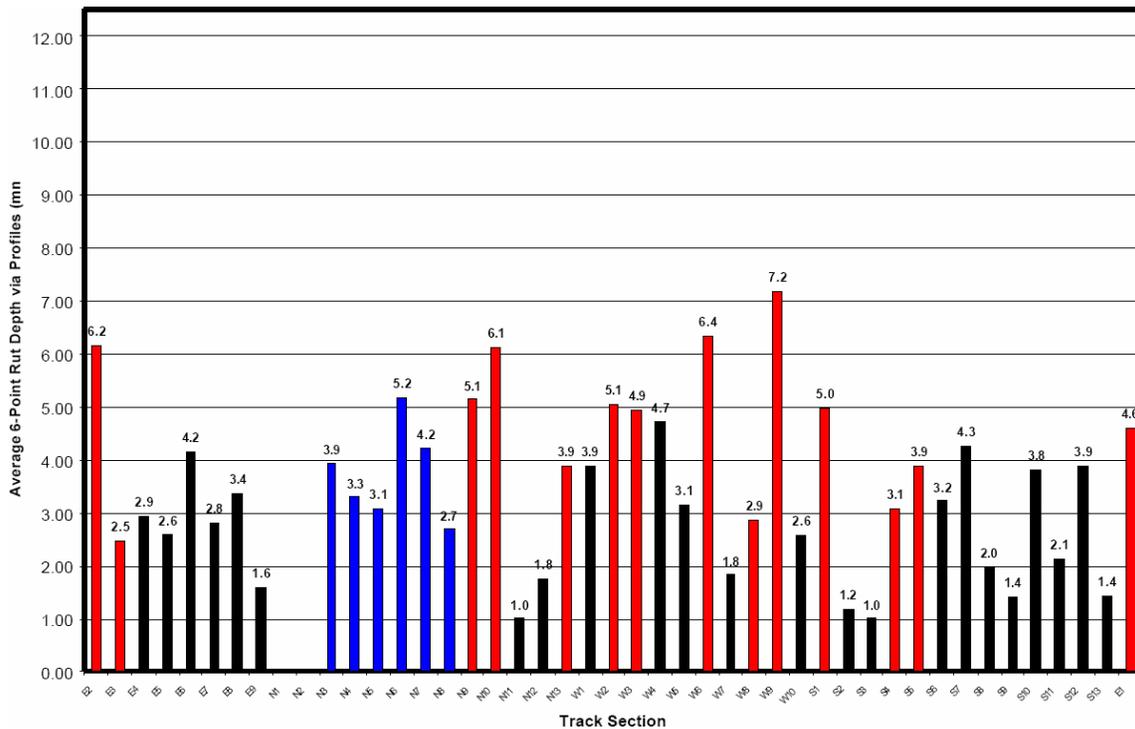


Figure – Average Rut Depths in Experimental Sections as of 6/30/05

Laboratory Performance

To facilitate lab to field performance correlations, simulative laboratory testing is being conducted on samples made before construction (to encompass the design verification perspective), during construction (to encompass the QC perspective) and after construction (to provide the QA perspective). Confined cyclic loading, unconfined static creep testing and dynamic modulus testing are being conducted post-construction to encompass the fundamental approach. Hundreds of pounds of mix were sampled and saved during production of each experimental section to facilitate other research projects that can be enhanced by being plugged into Track research.

Communication

Dissemination of results is an important aspect of the work performed at the Pavement Test Track. A meeting of the sponsor advisory group is hosted at the Track every 6 months in order to provide research sponsors with the opportunity to visually inspect the condition of their test sections and review preliminary findings. The most recent meeting of this group was held on May 9th and 10th (noon to noon), with the next meeting currently scheduled to coincide with the end-of-traffic conference planned for November 15th and 16th of 2005.

Planning for 2006

Track personnel are currently working directly with the 4th Division to develop the plans and specifications necessary to rebuild the Track in 2006. A series of working meetings were held in this quarter at the Track, with the project currently on schedule to be included in the February, 2006 letting. At this time, it is anticipated that a larger structural experiment will be included in the third research cycle; however, it will still be possible for sponsor states to include traffic continuation (e.g., durability) and mix performance (e.g., rutting) experimental sections.

PROBLEMS ENCOUNTERED OR ANTICIPATED:

No significant problems were encountered during the last quarter or are anticipated in the next quarter.

STATUS AND COMPLETION DATE

Percentage of work completed to date for total project _____ 76.9 _____

Project is: 100.0 percent
___X___ on schedule _____ behind schedule, explain:

Expected Completion Date: _____ February 28,2006 _____