Period Covered: Through December 31, 2004 (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:** ____ PLANNING __X__ RESEARCH & DEVELOPMENT
Annual Budget	**Multi Year Project** Total Budget for Project 3,698,238.00 Total Cost to Date for Project 2,725,028.44	

Construction

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).

Lab Performance Testing

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 address the QA perspective). Confined cyclic loading, unconfined static creep testing and dynamic modulus testing is 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 laboratory testing. All of the testing planned for samples fabricated during the construction of “traffic only” test sections has been completed.

Trucking Operations

This type of research is known as accelerated performance testing (APT) because a design lifetime of truck traffic (typically 10 to 15 years) in compressed into 2 years. New heavy-duty Freightliner tractors were purchased specifically for the Track's rigorous environment, a Trucking Coordinator was appointed to maintain equipment and manage personnel, and a staff of drivers was appointed following a rigorous screening process. Full trucking using NCAT drivers over 2 shifts per day (5:00 AM to 2:00 PM then 2:00 PM to 11:00 PM) began around the first of December, 2003, with 12/17/05 set as the target completion date for the 10 million ESAL loading goal (20 million ESALs for “traffic only” sections that that were not replaced). Since all sections are subjected to identical and precisely monitored levels of traffic, it is possible to complete meaningful intrasponsor and intersponsor field performance comparisons.

Field Performance Testing

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

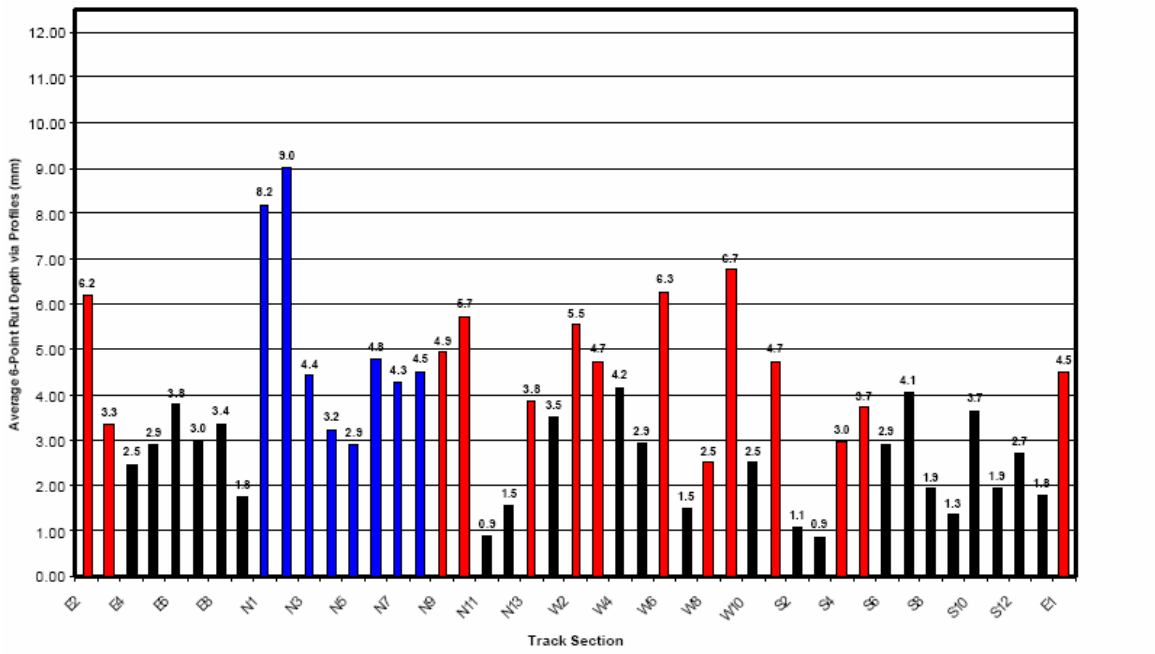

Figure 1 – Comparative Geometric Rut Depths on 2003 Track (Black=Extend Traffic, Red=New Rutting Study, Blue=New Structural Study)

ACTIVITIES NEXT REPORTING QUARTER:

Trucking operations are currently on schedule for completion in December of 2005. Performance testing is ongoing in both the field and the laboratory, with results disseminated to research sponsors via the project website (www.pavetrack.com). A research effort to develop practical rutting performance models for the 2000 Track has just been completed, with a detailed report thoroughly documenting the inaugural experimental results currently under prepublication review. The objective of this effort is to provide sponsors with implementable rutting performance models that accommodate numerous types of laboratory testing devices. An end-of-traffic conference is being planned for late fall of 2005, during which a sponsor meeting will be concurrently hosted by NCAT.

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 73.7
Project is: 100.0

X on schedule _____ behind schedule, explain:

Expected Completion Date: February, 2006