

**State Planning and Research Program  
Quarterly Report**

**PROJECT TITLE: The Effects of Implements of Husbandry on Pavement Performance TPF (148)**

**OBJECTIVES:** 1. Determine pavement responses to selected farm equipment.  
2. Compare pavement damage/response to typical 5-axle semi.

**PERIOD COVERED:** April, 2008- June, 2008

**PARTICIPATING AGENCIES: MnDOT, Minnesota Local Road Research Board, Iowa DOT, Illinois DOT, Professional Nutrient Applicators Association of Wisconsin.**

**PROJECT MANAGER:** Dr. Shongtao Dai

**SP&R PROJECT NO:**

**PROJECT IS:**

**LEAD AGENCY:** Mn/DOT

TPF-148

Planning  
 Research &  
Development

**PRINCIPAL INVESTIGATOR:** Lev Khazanovich.

**ANNUAL BUDGET:**

\$430,000 for 3 years

**PROJECT EXPENDITURES TO DATE:**

About \$158,300 was spent on the construction of the test sections and \$35,000 was spend on testing plan development, data collection, and data analysis.

**WORK COMPLETED:**

1. Analysis on the data collected from this spring test has been done. The analysis includes: pick-peaking, database development and preliminary theoretical analysis using linear elastic model using BISAR. The following actives were performed:
  - a. Capture baseline and peak signal pavement responses using automated process using a computer program provided by MnDOT.
  - b. Ran about 600 data sets using the Peak-pick program
  - c. Evaluate existing tables for the raw data
  - d. Design new tables for the raw data
  - e. Design summary data tables (max strains, deflections, backcalculated layer moduli, etc.)
  - f. Design QA/QC procedures for the collected data and summary tables
  - g. Estimate material properties and tire/pavement contact pressures
  - h. Select structural models for rigid and flexible pavements
  - i. Predict pavement responses (stresses, strains, and deflections)
2. The 2<sup>nd</sup> TAP meeting was held on June 24<sup>th</sup> at MnROAD. Also, approximately 22 industry people were invited to the meeting. The meeting was very successful. The fall testing is scheduled between August 25 and September 5<sup>th</sup>, 2008. The meeting note is attached.

**SUMMARY OF ACTIVITIES EXPECTED TO BE PERFORMED NEXT QUARTER:**

1. The research team will complete Task 2 and 3.
2. The research team will continue to perform data analysis collected this spring
3. MnDOT and the research team will get ready for the fall testing.

**STATUS AND COMPLETION DATE:**

The reports of tasks 2 and 3 will complete by August 31, 2008. The research team will make the outmost efforts to put the project back on scheduler.

The completion date of the project: Spring, 2010.