

**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: October, 2009- December, 2009

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 \$220,000 was spend on testing plan development, data collection, and data analysis.

WORK COMPLETED:

Analysis was performed on all data collected in Spring 08, Fall 08, and Spring 09 tests. Video files for Fall 09 tests have been successfully processed and Peak-Pick analysis was completed for data collected in Fall 09 test and is currently being summarized. Preliminary findings on tire contact area and contact pressure, effects of shoulder, temperature, axle load, speed, and flotation tires were documented in forms of memos. Further analysis will be performed to confirm these findings which include verification with Fall 09 data and pavement response modeling.

SUMMARY OF ACTIVITIES EXPECTED TO BE PERFORMED NEXT QUARTER:

The research team will begin planning on the test to be conducted in Spring 10. The team will also complete the data reduction process of the data collected in Fall 09 test. Pavement response modeling will be performed extensively through Layered Elastic, Layered Viscoelastic and Finite Element models.

STATUS AND COMPLETION DATE:

The completion date of the project: Spring, 2010.