

# State Planning and Research Program Quarterly Report

**PROJECT TITLE:** Design and Construction Guidelines for Thermally Insulated Concrete Pavements

**OBJECTIVES:**

The main objective of the proposed research is to develop design and construction guidelines for thermally insulated concrete pavements (TICP), i.e. composite thin HMA overlays of new or structurally sound existing PCC pavements. A secondary objective is to develop recommendations for feasibility analysis of newly constructed TICP or thin overlays of the existing concrete pavements.

**PERIOD COVERED:** July 1 – September 30, 2008

**PARTICIPATING AGENCIES:** Minnesota Department Of Transportation, Caltrans, Federal Highway Administration, Local Road Research Board, Washington State Department of Transportation

**PROJECT MANAGER:**

Tim Clyne

**LEAD AGENCY:**

Minnesota Dept. of Transportation

**PRINCIPAL INVESTIGATOR:**

Lev Khazanovich

**SP&R PROJECT NO:**

TPF 5(149)

**PROJECT IS:**

Planning

Research & Development

**ANNUAL BUDGET:**

The total project budget is \$455,000. Of that \$16,000 is reserved for pooled fund administrative costs, which leaves \$439,000 available for research.

**PROJECT EXPENDITURES TO DATE:** The estimated expenses are \$25,400.

**WORK COMPLETED:**

The contract award to the University of Minnesota was executed in the 1<sup>st</sup> Quarter of 2008. However, the subcontracts with the University of California-Davis (UC Davis) and University of Washington are still in process. UC Davis wants to modify some language in the contract. The language comes mostly from the master agreement that UMN has with MnDOT. There are other details which need to be worked out as well, including royalties, intellectual property, and patent issues. In spite of extensive negotiations during the last quarter, an agreement has not been reached. The PI (Lev Khazanovich) and Co-PI (John Harvey) will make the outmost efforts to facilitate an agreement between the parties by November 30, 2009. However, it is possible that the negotiation will end without the desired results. In this case, the PI will prepare and propose a contingency plan to the TAP. A possible solution is to hire key members of the UC Davis team as consultants for this project. Other options will be also considered.

The research team continued literature review of AC overlays of PCC pavements. Also, the research team initiated a comprehensive evaluation of the MEPDG models for AC overlays of PCC pavements concentrating on the temperature modeling. Several potential problems were identified. One of them is related to climatic data interpolation. The research team also identified a lack of self-consistency in the AC layer modeling, most likely due to AC sublayering in the EICM analysis.

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

The research team will facilitate contract execution or development of a contingency plan. The research team will continue the literature review efforts. The EICM problems will be further investigated.

**STATUS AND COMPLETION DATE:**

This project is just getting underway, with completion expected by June 30, 2011. However, completion of task 1 may be delayed due to a delay in the subcontract with UC Davis. The research team may need to ask for a no-cost time extension for this task completion.

