



Research Services Section  
Mail Stop 330, 395 John Ireland Boulevard  
St. Paul, Minnesota 55155 (phone: 651-366-3780)

## LRRB RESEARCH PROBLEM STATEMENT

### \*\* SUBMITTAL FORM \*\*

Please mail, email or fax to Research Services [research.dot@state.mn.us](mailto:research.dot@state.mn.us) / 651/366-3789

#### *Research Idea*

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**Date:** 2/28/11  
**Contact Person(s):** Julie Skallman  
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**I. Title (Be brief yet descriptive):**

Use of StreetPave for Design of Concrete Streets and Highways in Minnesota Cities and Counties.

**II. Problem (Clearly & concisely describe the problem):**

Concrete pavements in Minnesota have been designed for decades using the AASHTO '72 design method as revised in 1981. This method used the empirical data obtained from the AASHTO road test in Illinois in the 1950's. The AASHTO road test only lasted two years and obtained limited data. Mn/DOT's preferred design software, Rigid Pave, used for their trunk highways and by default on local roads is based on this limited data. Since that time much more has been learned about pavement design. The design method utilized in the StreetPave software, developed by the American Concrete Pavement Association (ACPA), is based off the Portland Cement Association's (PCA) thickness design method and recent long term pavement performance data that was included in the new AASHTO Mechanistic-Empirical design method. Allowing StreetPave as the design standard for city and county streets and highways will allow a more current design method which will better utilize the tax payer's dollars by optimizing the thickness needed for the concrete pavement.

**III. Research you propose (State how you see the research to be done):**

Compare and document the differences between Mn/DOT's Rigid Pave program and ACPA's StreetPave program to show the major differences in thickness design for a number of various designs. Also highlight the differences in the design methodology to better understand the differences in the thickness design. A review of the input variables used by our surrounding DOTs using the Rigid Pave software will also be conducted to compare results. Lastly, compare the results of StreetPave to the data that has been obtained by the MnROAD test facility to compare to a "real life" situation. I believe the cost for this research would be about \$18,000.

**IV. If research is successful, what are the potential benefits?**

In 2009 and 2010 there were approximately 750,000 SY to 1,000,000 SY of concrete pavements bid by local agencies. StreetPave will typically give thickness requirement values of 1/2" to 2" less than Rigid Pave. Based on current prices of approximately \$2.50/SY-inch there is a potential savings of \$900,000 to \$5,000,000 annually to the tax payers of Minnesota.

**V. In general, what would have to be done to gain the benefits from these research results?**

Allow the use of StreetPave for design of concrete pavements for city and county applications without special approval by the Mn/DOT Materials office.

**VI. Qualified Researcher(s):**

Matt Oman – Braun Intertec  
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952-995-2000

**VII. Project Review (Recommended people to review a research proposal on this topic):**

John Brunkhorst – McLeod Co  
Mike Sheehan – Olmsted Co  
Mark Maloney – City of Shoreview

**VIII. Key Words (List of descriptive key words to assist in a literature search):**

**IX. This is a (design) problem.**