

Minnesota Department of Transportation's Road Research Facility (MnROAD)  
National Center for Asphalt Technologies (NCAT)

## Quantifying the Benefits of Pavement Preservation and Development of Asphalt Cracking Performance Tests

### Partnership Vision

This partnership between MnROAD and NCAT will facilitate high-value pavement research that addresses national needs using full-scale pavement testing facilities in both warm and cold climates on flexible, rigid, and composite pavement structures.

### How to Become an Equal Partner

We invite your agency to join us in developing cost-effective solutions to those issues public agencies are facing in both northern and southern climates. Sharing our resources and expertise will improve the coordination of experiments focused on pavement preservation and developing asphalt cracking performance tests. Your involvement is essential to create experiments that address agencies' specific needs and to help insure the research is done so it can be implemented into each agency as easy as possible. Bi-annual (face-to-face) sponsor meetings will be utilized to keep agencies directly involved with the research direction and current findings.



### How Do We Join?

To get involved, simply join the pooled fund or provide a commitment letter. The Alabama DOT is leading this partnership through a pooled fund effort; MnDOT (MnROAD) will be the subcontractor. Agencies can direct their funding to either facility.

**Pooled Fund (MnROAD/NCAT joint efforts) - <http://www.pooledfund.org/Details/Study/496>**

- Pavement Preservation @ 120K/yr (3 years)
- National HMA Cracking Performance Test @ 210K/yr (3 years)

Become an equal partner by joining the pooled fund at the link above. If your agency wishes to participate, but cannot provide funding at this time, you can still be involved in the planning of the study and provide funds later by submitting a commitment letter now documenting your intent to financially support the study at the rate described above.



## Pavement Preservation

Our goal is to quantify the life-extending benefits of different pavement preservation treatments for roadways in different stages of life and decay. Our facilities have a history of evaluating the performance of pavement preservation treatments, including chip sealing, micro-surfacing, crack sealing and thin overlays. Accelerated testing will provide unique opportunities to determine the field performance of breakthrough materials and pavement preservation concepts without the risk of failure that local and state agencies are unwilling to accept. To address the needs of northern and southern climates, similar test sections are being developed for both Alabama and Minnesota. We are also pursuing off-site test locations on existing roads and highways that can be easily monitored for both low and higher volume roadways. Off-site concrete test sections in Minnesota may also be incorporated.

## Asphalt Cracking Performance Testing

Through this partnership, future asphalt technologies will be developed more efficiently over a wide range of climate and traffic factors. While many tests have been developed to predict the cracking potential of asphalt mixtures before they are placed in the field, a national effort is needed to verify those that are the most useful for each type of cracking. Types of cracking that may be investigated include top-down, reflection, and low-temperature cracking for new roadways and overlays of asphalt and concrete. Test sections will be developed with a range of crack-susceptible mixes over asphalt and concrete and then these mixes will be subjected to a battery of laboratory tests.

The goals are to evaluate various tests based on:

- Criteria related to field performance.
- Practicality of the tests for mix design verification and quality control testing.
- The ability to accommodate recycled materials, new and future additives, and mix combinations.
- Cost-effectiveness.

## Timeline

A series of planning meetings will set the stage for the next three years. Each participating agency will help direct the research effort and aid in the technology transfer with the goal of implementation of research findings in each agency.

- **Online-Web Planning Meetings** - March 27; April 10 and 17
  - Pavement Preservation (morning) and Cracking Experiment (afternoon)
  - April 17, 2015: Finalize plans
- **Construction**
  - NCAT Track and Off-site – Summer 2015
  - Minnesota Off-site – Summer 2015 or 2016
  - MnROAD Track – Summer 2017
- **Sponsor Study Meetings** (2X/Year face-to-face meetings)
  - Starting Fall 2015 @ NCAT

## Other Opportunities

- NCAT will also conduct research on topics outside of the studies presented here at its test track under this same pooled fund.
- MnROAD is also working on a separate pooled fund to help support other research needs that will be posted soon.

## Questions?

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