

**Statement of Work**  
**State Planning and Research Pooled Fund Program**  
**Operation of the North Central Superpave Center**  
(Updated June 23, 2003)

Introduction

The North Central Superpave Center (NCSC) was initiated in 1995 to assist the states/provinces and industry in the North Central region as they implemented the new Superpave mix design system for hot mix asphalt. As use of Superpave has become more routine in the region, the role of the NCSC has evolved to include hot mix asphalt issues in general.

The NCSC is a partnership between the Indiana Department of Transportation and Purdue University with additional funding support provided by the Illinois DOT, Indiana DOT, Iowa DOT, Kansas DOT, Manitoba DOH, Michigan DOT, Minnesota DOT, Missouri DOT, Nebraska DOR, and Wisconsin DOT.

The NCSC is governed by a Steering Committee consisting of representatives of the agencies and industry in each participating state/province plus one representative of the Asphalt Institute. At their first meeting in November 1995, the Steering Committee established four main tasks to be the focus of NCSC activities. Those tasks include communication of new findings, advances and experiences with Superpave on a regional and national level; continued research and development work to further refine Superpave; training state and industry personnel in various aspects of Superpave; and ruggedness and precision and bias testing of the new Superpave binder and mixture analysis protocols. The NCSC has been active in all of these areas since its inception, as detailed in reports to the Steering Committee including *The North Central Superpave Center: A Review After Two Years of Operation* (August 1997), *The North Central Superpave Center: A Review After Four Years of Operation* (June 1999) and *The North Central Superpave Center: A Review After Six Years of Operation* (May 2001).

The North Central Superpave Center consists of two branches. The Mixture Branch and main headquarters is located at the INDOT Division of Research in West Lafayette, IN, and the Binder Branch is located at the INDOT Division of Materials and Tests in Indianapolis.

Objective

The objective of this pooled fund project is to provide continued long-term funding support for the operation of the NCSC. The original regional pooled fund project was a two-year project. There have been two two-year extensions beyond the original project period. The funding for the next two years, as outlined in the budget, will be used to support staff salaries, NCSC operational expenses, travel and publications.

Statement of Work

This pooled fund project will provide for continued operation of the North Central Superpave Center to assist agencies and industry with Superpave implementation and hot mix asphalt issues. The NCSC will provide technical assistance, training, communication, and research and development work to meet the needs of the region.

The work elements to be performed include the following:

*Task A - Communication*

Major asphalt-related research efforts underway across the country continue to generate new findings. There is a great advantage to collecting and sharing this increase of knowledge among the states in the region. Since its inception, the NCSC has placed a high priority on providing up-to-date information on the newest Superpave and asphalt-related developments to all agencies in the region and beyond. The following means are used to facilitate these efforts:

- A free newsletter is distributed to over 3000 people within and beyond the North Central region. A national newsletter, an initiative with the other Superpave Centers designed to improve communication across the country, was developed and is in its fifth year. The NCSC is the coordinator and editor of the newsletter.
- The NCSC maintains a World Wide Web site (<http://ce.www.ecn.purdue.edu/~spave/>) that provides information on Superpave and hot mix asphalt, training schedules, a calendar of events, and links to other sites of interest, training videos, and other items.
- NCSC staff members at both the Binder and Mixture branches are frequently contacted by phone, fax or e-mail to provide information and advice on a wide variety of issues related to Superpave and asphalt pavements. In some cases, further laboratory or field work follows these initial contacts. Both agency and industry personnel have taken advantage of this source of expertise.
- NCSC staff members make frequent technical presentations to local, state, regional and national meetings, seminars and conferences.
- NCSC personnel have served on the Superpave Lead State Team, Mixtures Expert Task Group, Binder Expert Task Group, Region 5 and 7 Training and Certification Workshop, and other committees of regional and national interest. The technical expertise gained during these contacts and activities is directly communicated to the participating agencies through the newsletter and the web page.
- The NCSC acts as a clearinghouse for regional and national information.
- A searchable web database of Superpave information (located at <http://rebar.ecn.purdue.edu/Superpave/search.asp>) has been implemented to further serve the region and beyond.

*Task B - Research and Development*

The NCSC will continue to work with member agencies on the identification, coordination and support of regional research efforts. Current research at the NCSC is directed towards refining and expanding the applicability of the Superpave system as well as addressing general asphalt issues.

Research projects currently in progress or in development include:

- Mitigation of Tire-Generated Pavement Noise
- Optimizing Superpave HMA Surface Friction Characteristics
- Simple Performance (Triaxial) Testing of North Central Mixtures
- Contribution of PG Graded Binders to Low Temperature Cracking
- Performance of Superpave Mixes in Indiana
- Use of the Binder Ignition Oven with Dolomitic Aggregates
- Evaluation of Top-Down Cracking
- Field Evaluation of Porous Asphalt Mixes

Other research projects have been conducted with individual states, the National Cooperative Highway Research Project and other universities. Additional research topics will be identified and pursued through interaction with the Steering Committee.

*Task C – Training*

Training has been a key function of the NCSC over the past seven years. Well over 1600 people representing states/provinces, industry, local governments, Federal Highway Administration and universities have received Superpave binder or mixture training. Roughly half of the people trained have been from industry. Continued training will be needed as advancements in hot mix asphalt continue and as new personnel join the workforce. This continued training will need to be developed, customized and updated for particular applications. An example of most recent developments in this area is a series of binder testing training videos available on the NCSC web page at <http://ce.www.ecn.purdue.edu/~spave/Videos/Training%20Videos%20TOC.htm>.

The NCSC will continue to provide a high level of Superpave training through routine binder and mix design courses. Mix design courses will be offered at the beginning and experienced levels. Specialized courses will be designed as needed. The NCSC also teaches several NHI courses on Superpave as requested. The NCSC will also continue to participate in regional and national training and certification development efforts.

*Task D - Ruggedness, Precision and Bias Testing*

The Federal Highway Administration has provided a Superpave Shear Tester (SST), Indirect Tensile Tester (IDT), Superpave Gyrotory Compactor and binder Direct Tension Tester (DTT) to the NCSC. The NCSC will participate in ruggedness and precision/bias testing as directed by the Federal Highway Administration and in cooperation with the other Superpave Centers. Most recently, the center completed ruggedness testing of the binder Direct Tension device.

*Task E - Third Party Laboratory*

The NCSC is available to participating agencies to use as a third-party laboratory if needed to verify results or assist in dispute resolution. Limited testing is available to participating states free of charge, while extensive testing will require an additional financial agreement. The Steering Committee will determine the extent of the free testing in consultation with the NCSC staff.

NCSC Steering Committee

As mentioned earlier, the Steering Committee was established to provide guidance for the initiation and operation of the NCSC. The Steering Committee consists of two representatives of each participating state or province, one from industry and one from the agency. A representative of the Asphalt Institute was also added to represent the binder suppliers since most industry representatives are from the hot mix industry. (At the present time, no industry representatives from Canada have been identified.)

The Steering Committee sets policy, identifies research and training needs, and establishes priorities for consideration by the NCSC staff. Since many members of the Steering Committee are also members of the North Central Asphalt User Producer Group (NCAUPG) Management Committee, the Steering Committee also serves as liaison to the NCAUPG. Meetings of the NCSC Steering committee are typically held in conjunction with the NCAUPG annual meeting. In part because of this close relationship between the Steering Committee and the NCAUPG Management Committee, the NCSC was asked to serve as Secretary of the NCAUPG in 2001 and to coordinate future meetings of the NCAUPG. Additional interaction with the Steering Committee is accomplished throughout the year using e-mail and (most recently) conference calls. E-mail updates are also provided to the Steering committee. A current listing of the members of the NCSC Steering Committee is attached as **Appendix A**.

### NCSC Equipment and Facilities

The NCSC Mixture Branch and main headquarters is located at the Indiana Department of Transportation's Research Division in West Lafayette, IN. The Mixture Branch is fully equipped with Superpave mixture analysis equipment (gyratory, SST and IDT) provided by the FHWA. Through its ties to the Purdue University School of Civil Engineering, the Mixture Branch has access to the Superpave Performance Test equipment, loaded wheel tester and other advanced equipment. The Mixture Branch also has binder testing equipment on site, including the binder Direct Tension Tester. The NCSC will explore the needs, benefits and costs of pursuing AMRL accreditation.

The NCSC Binder Branch is located in and largely staffed by the Indiana Department of Transportation's Materials and Tests Division in Indianapolis, IN. The Binder Branch has duplicate sets of binder testing equipment, one set provided by the FHWA to the North Central region. The Binder Branch has appropriate AMRL accreditation through INDOT.

### Reporting

The NCSC is responsible for reports to the NCSC Steering Committee on the operation and function of the Center. Funding support for the Center is provided through an FHWA Pooled Fund Project to be administered by the Indiana Division Office Coordinator. The NCSC provides periodic status reports to the Steering Committee at their regular meetings and other times as required.

The Division Office Coordinator is:

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### Budget

The NCSC depends on funding from a number of sources. Expenses associated with the operations of the NCSC include salaries, supplies, communications and travel for training or attending meetings (for NCSC staff and State Steering Committee members). Additional funding support for the Center is generated through outside research agreements with individual agencies or groups of states (pooled fund projects). Fees collected from training courses also provide needed financial support for the Center. Detailed budget information has been provided to the NCSC Steering Committee members.

The NCSC Steering Committee therefore proposes that a 100% SPR Pooled Funds Project from the participating agencies provide partial support for the operation of the NCSC. NCSC member agencies' participation level is identified at \$25,000 per year for a two-year period (FY 2004 and 2005) for partial support of the Center. The need for continued funding of the Center will be reviewed every two years, and the project is renewable for up to a ten-year period.

## Appendix A

**North Central Superpave Center Steering Committee Members**

As of May 2003

<b>STATE</b>	<i>State Representative</i>	<i>Industry Representative</i>
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