

# **National Cooperative Highway Research Program (NCHRP)**

## **Research for Improved Highway Materials Tests and Specifications**

**August 2007**

# NCHRP- National Cooperative Highway Research Program

- An AASHTO program sponsored by state DOTs
- Started in 1962
- Annual funding ~ \$35 million/year
- Contributes to advancements in all aspects of highways
- 8 fields of research (Administration, Planning, Design, **Materials and Construction**, Soils and Geology, Maintenance, Traffic, and Special Projects)
- 25 Subject areas (includes **concrete materials; bituminous materials; general materials; specifications, procedures, and practices**)

# **NCHRP: Goal-Oriented Research**

- **Responds to state DOT needs: DOTs and AASHTO committees propose research topics; SCOR selects projects.**
- **Ensures applicability of the results: state DOTs and other sectors of the highway industry participate in monitoring the research.**
- **Results are published by NCHRP (reports, digests, synthesis, CD-ROMs, and Web documents) or by AASHTO (guides/manuals, specifications, and test methods), and often adopted by state DOTs and other organizations.**

# **NCHRP Research Subject Areas**

- **Research areas include all topics covered by the Subcommittee's 21 Technical Sections:**
  - **Soil & Unbound Recycled Materials; Aggregate Materials**
  - **Asphalts; Asphalt-Aggregate Mixtures**
  - **Hydraulic Cement and Lime**
  - **Concrete Materials & Fresh Concrete; Hardened Concrete**
  - **Rigid Pipe; Flexible and Metallic Pipe**
  - **Safety Devices**
  - **Concrete Reinforcement**
  - **Pavement Measurement Technologies**
  - **Etc.**

# Examples of NCHRP Projects (1)

- **Completed, Resulted in AASHTO Standards:**
  - ☺ **Aggregate Tests Related to Asphalt Concrete Performance in pavements (NCHRP Report 405)**
  - ☺ **Transverse Cracking in Newly Constructed Bridge Decks (NCHRP Report 380)**
  - ☺ **Superpave Support and Performance Model Management (NCHRP Report 547)**

# Examples of NCHRP Projects (2)

- **Recently Completed NCHRP Projects (Potential for AASHTO Standards)**
  - ☺ **Test Methods for Characterizing Aggregate Shape, Texture, and angularity (NCHRP Report 555)**
  - ☺ **Air Void Requirements for Superpave Mix Design (NCHRP Report 567)**
  - ☺ **Improved Procedure for Laboratory Aging of Asphalt Binders in Pavements (Project 9-34)**
  - ☺ **Procedures for Evaluating Air-Entraining Admixtures for Highway Concrete (NCHRP Report 578)**

# Examples of NCHRP Projects (3)

- **In Progress - Nearing Completion (Potential for AASHTO Standards):**
  - ☺ **Improved Specifications and Protocols for Acceptance Tests on Processing Additions in Cement Manufacturing (Project 18-11)**
  - ☺ **Improved Conditioning Procedure for Predicting Moisture Susceptibility (Project 9-33)**
  - ☺ **Self-Consolidating Concrete for Precast Prestressed Concrete Bridge Elements (NCHRP 18-12)**
  - ☺ **Measuring Tire-Pavement Noise at the Source (Project 1-44)**
  - ☺ **Procedures for Testing and Evaluating Detectable Warning Systems (Project 4-33)**

# Examples of NCHRP Projects (4)

- **In progress:**
  - ☺ **Procedures for Determining the Mixing and Compaction Temperatures of Asphalt Binders in Hot Mix Asphalt (Project 9-39)**
  - ☺ **Mix Design Practices for Warm Asphalt Mix Technologies (Project 9-43)**
  - ☺ **Specifications and Protocols for Acceptance Tests of Fly Ash Used on Highway Concrete (Project 18-13)**
  - ☺ **Testing Protocols for Surface Applied Concrete Sealers (Project 20-07/Task 235)**



# Examples of NCHRP Projects (5)

- **Planned/Anticipated (Selected as Part of the NCHRP FY 2008 Program):**
  - ☺ **NCHRP Project 4-35: Enhanced Test Method for Specific Gravity and Absorption of Coarse and Fine Aggregate**
  - ☺ **NCHRP Project 9-46: Mix Design and Evaluation Procedure for High Reclaimed Asphalt Pavement Content in Hot Mix Asphalt**
  - ☺ **NCHRP Project 9-47: Engineering Properties/Field Performance of Warm Mix Asphalt Technologies**

# Identification/Selection of Research Projects for NCHRP

- **Problem Statement Sources:**

- AASHTO member departments
- AASHTO Committees/Subcommittees, etc.
- FHWA

(120 to 180 are submitted)

- **Project Selection/Funding:**

- AASHTO Standing Committee on Research (SCOR)

(30 to 40 funded)

# Review/Selection Process

- Preliminary review by NCHRP and FHWA
- Review/ranking by **Evaluation Panels (Materials, Bridges and Structures, and Traffic and Safety)**, AASHTO committees, industry (pavement projects only), etc.
- Review/rating by AASHTO Research Advisory Committee (RAC) and by AASHTO Standing Committee on Research (SCOR)
- Review/programming by SCOR
- Approval by AASHTO Board of Directors
- Acceptance by the National Academy of Sciences

# Evaluation-Panel Process: Materials

- Problem statements related to materials are evaluated by an Evaluation Panel **on behalf the AASHTO Highway Subcommittee on Materials**
- The Evaluation Panel is composed of 10 members of the Subcommittee; includes the Subcommittee Secretary (serving also as FHWA representative)
- Evaluation Panel reviews and categorizes problem statements in terms of priority for research (low-medium-high).
- Evaluation Panel ranks high-priority problem statements.
- Staff provides Evaluation-Panel comments, categorization, and rankings to RAC and SCOR for consideration.

# NCHRP FY 2008 Program

	<u>Submitted</u>	<u>Programmed</u>
• <b>Continuations</b>	24 (\$9.995)	23 (\$9.600)
• <b>New Projects</b>	122 (\$45.605)	36 (\$16.450)
• <b>Other New</b>		5 (\$0.830)
• <b>TOTAL</b>	146 (\$55.555)	64 (\$26.880)
• <b>Contingent</b>		8 (\$2.225)
• <b>FY 2007 (New)</b>	188 (\$74.772)	54 (\$21.050)

# NCHRP FY 2008 New Projects

	<u>Submitted</u>	<u>Programmed</u>
• Member Dept.	59	16 (27%)
• AASHTO Com.	59	24 (41%)
• FHWA	4	1 (25%)
• TOTAL	122	41 (34%)

# **NCHRP FY 2008 Program**

- **March 25-27, 2008: FY 2008 projects selected**
- **April 2007: Program announcement**
- **April 13, 2007: Solicit panel nominees**
- **National Academies acceptance**
- **June-July 2007: Panel formation**
- **July 2007-January 2008: 1<sup>st</sup> and 2<sup>nd</sup> panel meetings (develop RFPs and select agencies)**
- **February 1, 2008: FY 2008 authorization**
- **February-April 2008: Contracting**

# NCHRP FY 2009 Program

- **July 2, 2007: Solicitation of FY 2009 problem statements**
- **Sept. 14, 2007: End date for problem statements**
- **Oct. 31, 2007: Completion of review**
- **Nov. 16, 2007: Respond to submitters**
- **December 3, 2007: End date for submitter comment**
- **January 3, 2008: Mail candidates to SCOR/RAC**
- **February 19, 2008: SCOR/RAC ballots due**
- **March 6, 2008: Ballot summary report to SCOR**
- **March 25-27, 2008: SCOR meeting/project selection**



# Some NCHRP Continuing Programs

- **Project 20-07:** Research for AASHTO Standing Committee on Highways
- **Project 20-05:** Synthesis of Information Related to Highway Problems
- **Project 20-06:** Legal Problems Arising Out of Highway Programs

# **More Information on NCHRP Projects related to Maintenance**

- **A handout (list of current and recently completed projects related to selected materials topics) is available:**
  - **It identifies status of projects (completed, in progress, or anticipated).**
  - **It identifies available publications (reports, digests, web documents, etc.)**
- **Specific information or questions, contact Amir N. Hanna (ahanna@nas.edu/202/334-1892).**

# More Information

- **Cooperative Research Programs" (CRP) WWW Homepage**
  - **<http://www.trb.org> ..... NCHRP**
- **Contact: Amir N. Hanna**  
**ahanna@nas.edu**  
**202/334-1892**