

**National Cooperative Highway Research
Program (NCHRP)
Research on the Maintenance of Highway
Infrastructure**

AASHTO Highway Subcommittee on Maintenance

July 30-August 3, 2017

Providence, Rhode Island

(NCHRP Liaison: Amir N. Hanna)



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NCHRP- National Cooperative Highway Research Program

- **What is NCHRP**
- **Examples of NCHRP Maintenance-Related Projects**
- **Implementation of Project Findings**
- **NCHRP FY 2018 and 2019 Programs**



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NCHRP- National Cooperative Highway Research Program

- **Part of the Transportation Research Board (TRB)**
- **Part of The National Academies of Sciences, Engineering, and Medicine**
- **Private, non-profit institution**
- **Independent, non-partisan, objective**



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NCHRP- National Cooperative Highway Research Program

- An AASHTO program sponsored by state DOTs
- Started in 1962
- Covers all aspects of highways: **8 fields of research** (Administration, Planning, Design, Materials and Construction, Soils and Geology, Maintenance, Traffic, and Special Projects) and **25 Subject areas** (pavements, concrete materials; bituminous materials; general materials; specifications, procedures, and practices; etc.)
- Considers problem statements only from AASHTO member departments (individually or through AASHTO committees) and FHWA
- Annual funding ~ \$40 million/year



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NCHRP: Goal-Oriented Research

- **Responds to state DOT needs: DOTs and AASHTO committees propose research topics; SCOR selects projects.**
- **Ensures applicability of the results: Practitioners from State DOTs and other sectors of the highway industry participate in monitoring the research.**
- **Produces practical, ready-to-use results: Often become AASHTO standards, guides, manuals, specifications, and test methods. Often adopted by state DOTs and other organizations.**



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NCHRP Projects – Completed-1

Recently completed-Pavements:

- **NCHRP Project 01-48: *Consideration of Preservation in Pavement Design and Analysis Procedures*** (published as NCHRP Report 810)
- **NCHRP Project 14-27: *Guide for the Preservation of Highway Tunnel Systems*** (published as NCHRP Report 816)
- **NCHRP Project 14-31: *Framework for a Pavement-Maintenance Database System*** (published as NCHRP Report 820)
- **NCHRP Project 14-33: *Quantifying the Effects of Preservation Treatments on Pavement Performance*** (will be published as NCHRP Report 858)



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NCHRP Projects – Completed-2

Recently completed-Bridges and Structures:

- **NCHRP Project 12-100: *Guidelines for Maintaining Small Movement Bridge Expansion Joints*** (publication decision pending)
- **NCHRP Project 14-28: *Inspection Guidelines for Bridge Post-Tensioning and Stay Cable Systems Using NDE Methods*** (published as NCHRP Report 848)
- **NCHRP Project 14-29: *Assessing, Coding, and Marking of Highway Structures in Emergency Situations*** (published as NCHRP Report 833)

Recently completed-All Assets:

- **NCHRP Project 14-20A: *Consequences of Delayed Maintenance of highway assets*** (will be published as NCHRP Report 859)



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NCHRP Projects – In Progress-1

In Progress-Pavements:

- **NCHRP Project 14-37:** *Guide Specifications for the Construction of Chip Seals and Microsurfacing*
- **NCHRP Project 14-38:** *Guide for Timing of Asphalt-Surfaced Pavement Preservation*

In Progress-Bridges and Structures:

- **NCHRP Project 14-36:** *Proposed AASHTO Guide for Bridge Preservation Actions*
- **NCHRP Project 20-07(380):** *Proposed AASHTO Manual for the Maintenance of Roadways and Bridges*
- **NCHRP Project 20-07(399):** *Identifying Bridge Maintenance and Preservation Activities which Minimize Environmental Impact*



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NCHRP Projects – In Progress-2

In Progress-Equipment:

- **NCHRP Project 13-04:** *Guide for Optimal Replacement Cycles of Highway Operations Equipment*
- **NCHRP Project 13-05:** *Guide for Utilization Measurement and Management of Fleet Equipment*

In Progress-Operations:

- **NCHRP Project 14-34:** *Guide for Performance Measures in Snow and Ice Control*



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NCHRP Projects - Anticipated

Anticipated-Equipment:

- **NCHRP Project 05-24:** *Guidelines for the Selection and Application of Vehicle and Equipment Warning Light Configurations, Colors, and Markings*
- **NCHRP Project 13-06:** *Development of an Automated Tool to Assist in the Formulation and Maintenance of Long Range Equipment Replacement Plans*
- **NCHRP Project 13-07:** *Guidelines to Calculate Total Cost of Ownership for Fleet Operations*

Anticipated-Roadside:

- **NCHRP Project 14-41:** *Update Permanent Vegetation Control (Barriers) for Roadsides*

Anticipated-Pavements:

- **NCHRP Project 20-50(17):** *LTPP Data Analysis: Consequences of Deferred Treatment of Pavement Preservation Treatment Placement on Asphalt Concrete, Portland Cement Concrete and Composite Pavement Structures*



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NCHRP Products – Implementation Facts

- **Much of NCHRP projects on maintenance has been requested by SCOM.**
- **Projects produced practical, ready-to-use results.**
- **Findings are presented in the form of manuals, guides, guidelines, and procedures to facilitate adoption and publication by AASHTO.**

Examples of AASHTO publications resulting from NCHRP projects:

- **Maintenance Manual for Roadways and Bridges**
- **Manual for Emulsion-Based Chip Seals for Pavement Preservation**
- **Guide for Snow and Ice Control**
- **Guidelines for the Selection and Application of Warning Lights on Roadway Operations Equipment**
- **Decision Making for Outsourcing and Privatization of Vehicle and Equipment Fleet Maintenance**
- **Guidelines for Vegetation Management**



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NCHRP Products – Implementation Action Needed

- There is a need to facilitate dissemination/implementation of the findings/products.
- SCOM can play a major role in implementation.
- SCOM is encouraged to review NCHRP reports and consider publication as AASHTO Guide, Manual, Guidelines, etc. or dissemination through workshops, webinars, and other forums.

Candidate projects for consideration at this meeting:

- NCHRP Project 14-31: *Framework for a Pavement-Maintenance Database System*
- NCHRP Project 14-29: *Assessing, Coding, and Marking of Highway Structures in Emergency Situations*
- NCHRP Project 12-100: *Guidelines for Maintaining Small Movement Bridge Expansion Joints*
- NCHRP Project 20-7(250): *Update the AASHTO Guide for Snow and Ice Control*



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NCHRP FY 2018 - Summary

- **22 Continuation (special) projects (\$15.142 million)**
- **42 New projects (\$20.175 million):**

Total 64 projects (\$35.317 million) in about 20 problem areas (bridges, maintenance, materials, pavements, traffic, security, safety, etc.)



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NCHRP Special Projects

- **20-05 Synthesis Program**
- **20-06 Legal Studies**
- **20-07 AASHTO Highways Committee**
- **20-24 Administration of State DOTs (for CEOs)**
- **20-30 NCHRP-IDEA**
- **20-44 Accelerating the Application of NCHRP Research Results**
- **20-65 AASHTO Public Transportation Committee**
- **20-68 US Domestic Scan Program**
- **25-25 AASHTO Environment Committee**



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NCHRP FY 2018 Program

	<u>Submitted</u>	<u>Programmed</u>
• Continuations	24 (\$15.927)	22 (\$15.142)
• New Projects	100 (\$45.119)	42 (\$20.175)
• TOTAL	124 (\$61.046)	64 (\$35.317)
• FY 2016	117 (\$56.375)	53 (\$30.775)



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NCHRP FY 2018 New Projects

	<u>Submitted</u>	<u>Programmed</u>
• Member Dept.	45	13
• AASHTO Com.	46	24
• FHWA	9*	5**
• TOTAL	100	42

• Includes 6 LTPP data analysis projects

** All LTPP data analysis projects



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NCHRP FY 2018 Program

- **March 21-22, 2017: FY 2018 projects selected**
- **April 14, 2017: Program announcement**
- **April 14, 2017: Solicit panel nominees (closed May 31, 2017)**
- **National Academies acceptance**
- **Panel formation**
- **July-December 2017: 1st and 2nd panel meetings (develop RFPs and select agencies)**
- **February 2018?: FY 2018 authorization**
- **February-March 2018: Contracting**



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NCHRP FY 2019 Program

- **July 20, 2017: Solicitation of FY 2019 problem statements**
- **Oct. 16, 2017: End date for problem statements**
- **Nov. 17, 2017: Respond to submitters**
- **December 1, 2017: End date for submitter comment**
- **January 2, 2018: Mail candidates to SCOR/RAC**
- **February 20, 2018: SCOR/RAC ballots due**
- **March 7, 2018: Ballot summary report to SCOR**
- **March 2?-2?, 2018: SCOR meeting/project selection**



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More Information

NCHRP: Advancing transportation and meeting states' needs for half a century

- <http://www.trb.org> **NCHRP**
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