

The National Academies of
SCIENCES • ENGINEERING • MEDICINE



TRANSPORTATION RESEARCH BOARD

CRP NCHRP UPDATES

AASHTO SCOHTS SSM AM

in conj w GHSA

Seattle WA

Wednesday August 31 - Friday September, 2016

Mark S. Bush, P.E., PTOE
NAS TRB Cooperative Research Programs

NCHRP: RESEARCH THAT IMPACTS

Impacts on Practice | NCHRP - Mozilla Firefox

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Impacts on Practice | NCHRP

NCHRP Impacts on Practice

Among the variety of methods the National Cooperative Highway Research Program uses to showcase the value of NCHRP research is a series of success stories titled "Impacts on Practice." These one-page case studies highlight how transportation agencies have put critical NCHRP research results to use nationwide.

[Administration and Management](#)
[Traffic and Safety](#)
[Construction and Materials](#)
[Design](#)
[Environment, Energy, and Planning](#)
[Maintenance and Preservation](#)

Administration and Management

Iowa DOT's Relentless Pursuit of Excellence
 January 11, 2012

At Iowa DOT, every new research result from NCHRP represents an opportunity for improvement. "We judge the way we NCHRP—or any research program—by how it makes a difference in the way we do business," says Sandra Larso Iowa DOT's Research and Technology Bureau.

Making Every Asset Count
 January 12, 2011

From stop signs to suspension bridges to assets of every size in between, transportation agencies have zeroed in on management in recent years as an important strategy to help direct spending decisions. AASHTO's Transporter Management Guide, published in 2002 based on NCHRP research, is the key resource they turn to.

New Hampshire's go-to source for research
 December 21, 2010

New Hampshire DOT receives one of the smallest slices of federal highway funding in the nation and has a resea budget of only \$800,000. How does the agency parlay its State Planning & Research funds into \$35 million every y

Funding Revolutionary Ideas in Transportation Innovations Deserving Exploratory Analysis
 May 3, 2010

What are the best ways to fund innovative ideas? How do you ensure that the most promising ideas are funded? How do you ensure that the most promising ideas are funded? How do you ensure that the most promising ideas are funded?

NCHRP 2004-10-01-01 IMPACTS ON PRACTICE

The capacity balancing act

Highway Capacity Manual

The capacity balancing act is a complex task. It involves balancing the needs of different users of the highway system, such as commuters, freight carriers, and emergency services. The Highway Capacity Manual provides a framework for understanding and addressing these challenges.

Key findings:

- Emerging technologies and data make ongoing research and updates to the manual critical.
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NCHRP 2004-10-01-01 IMPACTS ON PRACTICE

Snow and ice control—one storm at a time

As winter weather approaches, highway agencies are faced with the challenge of snow and ice control. NCHRP research provides valuable insights into effective strategies for managing these challenges.

Key findings:

- Agencies should consider the impact of climate change on snow and ice control operations.
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Information and Learn more at trb.org/nchrp



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COOPERATIVE RESEARCH PROGRAMS

Program	Began	Budget	Partners
NCHRP (Highway)	1962	\$41M	FHWA, AASHTO
TCRP (Transit)	1992	\$9M	FTA, APTA
ACRP (Airports)	2004	\$15M	FAA, ACI
NCFRP (Freight)	2006*	\$3M	RITA
HMCRRP (HazMat)	2006*	\$1M	PHMSA
NCRRP (Rail)	2010	\$5M	FRA



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NCHRP FINANCING

- From State Departments of Transportation (including DC & PR)
- 5½% of State Planning and Research funds (voluntary contribution)
- SPR is \approx 2% of total Federal Aid Highway apportionment
- Additional federal line item in legislation
- FY 2017 Research Program ~\$32,479,436
- Notes regarding fy2017, prior and beyond



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NCHRP PROBLEM STATEMENTS

Submitted by AASHTO Committees FY 2017

AASHTO Committee	Number of Problems Submitted
AASHTO – Air Quality and Noise	1
AASHTO - Environment	3
AASHTO – Highway Traffic Noise Work Group	2
AASHTO – HSCOBS (Bridges and Structures)	7
AASHTO – HSTSM&O (Trans Sys Ops & Mgt)	2
AASHTO Std Cmte on Highway Traffic Safety SCOHTS	7
AASHTO – SCOM (Maintenance)	4
AASHTO – SCOTE (Traffic Engineering)	5
AASHTO – SCOTSEM (Trans Security & Emergency Mgt)	4
AASHTO – SOC (Construction)	2
AASHTO – SOC (Construction) / SOMt (Materials)	1
AASHTO – SOMt (Materials)	4
AASHTO Standing Cmte on Performance Management	2
AASHTO SubCmte on Asset Management	1
AASHTO –Subcmte on Design Tech Cmte Roadside Safety	5
TOTAL	50



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FY 2017 NCHRP PROGRAMMING

NCHRP Program				
FY 2017				
	Requested		SCOR Appr'd	
		Dollars		Dollars
	<u>Items</u>	<u>(millions)</u>	<u>Items</u>	<u>(millions)</u>
Continuations	16	12.775	16	12.775
New Problem Statements	101	43.600	45	18.000
Submitted by:				
Member Departments	49	18.660		
AASHTO Committees	50	24.410		
FHWA	2	0.530		
<u>TOTAL</u>	117	56.375	61	30.775



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SPECIAL PROJECTS & Continuations

Allocation FY2017

- 08-36 Research for AASHTO Std Cmte Planning (\$600,000)
- 20-5 Synthesis Program (\$1,830,000)
- 20-6 Legal Studies (\$350,000)
- 20-7 Research for AASHTO Std Cmte Highways (\$1,200,000)
- 20-24 Admin of Hwy & Transportation Agencies (\$1,250,000)
- 20-30 NCHRP-IDEA (\$1,250,000)
- 20-44 Accelerating the App of NCHRP Results (\$2,000,000)
- 20-65 Research for AASHTO Std Cmte Public Trans (\$450,000)



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SPECIAL PROJECTS & Continuations

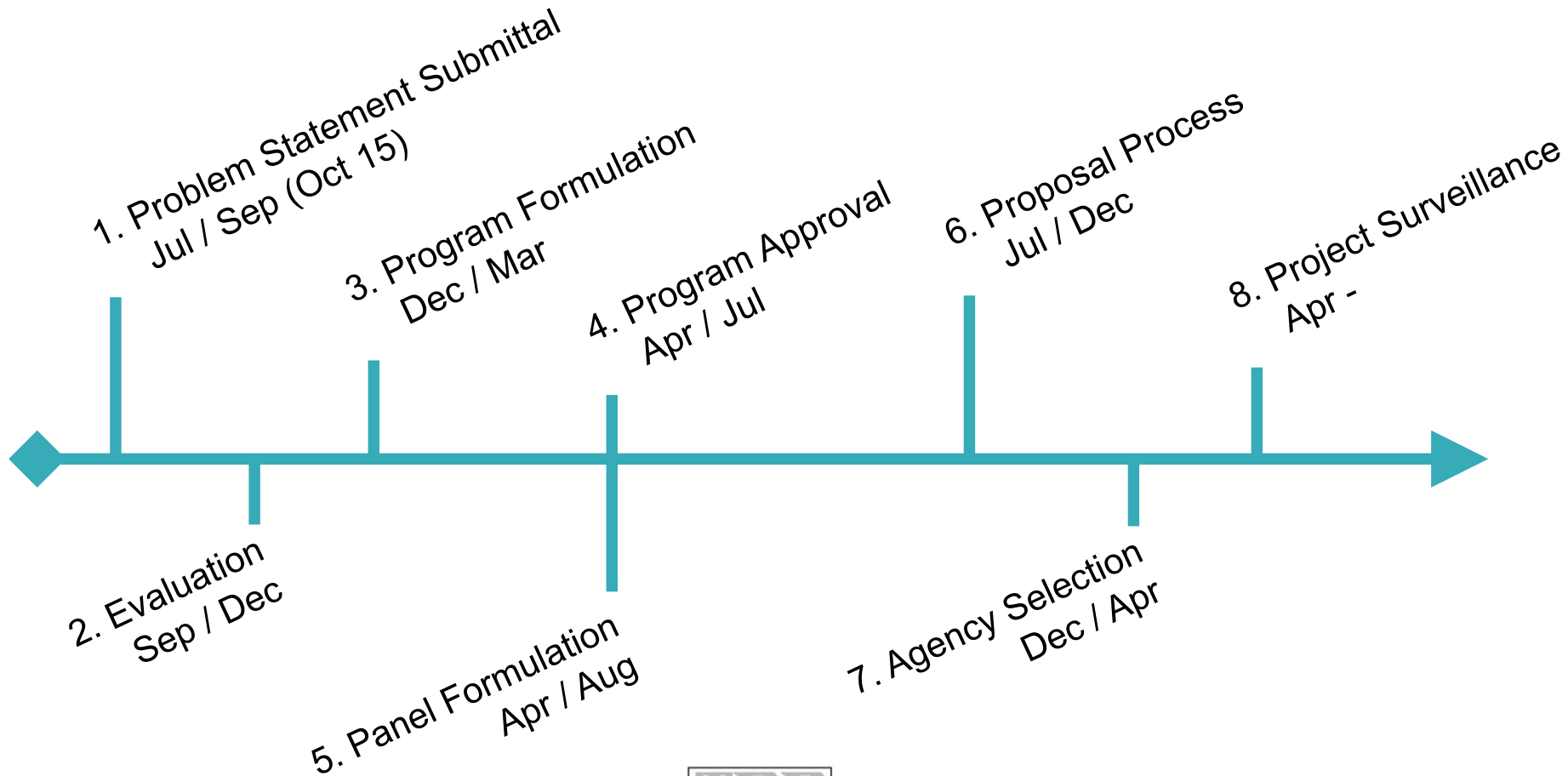
Allocation FY2017

- 20-68 US Domestic Scan Program (\$600,000)
- 20-59(53) (Security) FloodCast: Trans Resilience (\$250,000)
- 20-102 Impacts of Connected/Automated Vehicles (\$1,500,000)
- 25-25 Research for AASHTO Std Cmte Environment (\$600,000)
- 03-114 Planning & Eval of ATM Strategies (\$300,000)
- 07-23 Access Mgt in Vicinity of Interchanges(\$325,000)
- 09-52 Short-Term Lab Conditioning Asphalt Mixtures (\$160,000)
- 17-70 Dev Roundabout Crash Pred Models Methods (\$110,000)



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NCHRP PROCESS TIMELINE



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PROJECT STATUS

2016, 2017 Projects & FY 18 Solicitation

- Focus for Drafting Problem Statements
 - National Issue
 - Priority for multiple states
 - AASHTO Committee(s) endorsement
 - Strategic Improvement affecting DOTs
 - State Champion and implementation
 - Clear Succinct Understandable Title
 - Explain problem and how research will resolve natl issue
- Information
 - Current Projects and their status
 - New projects for FY2017 program



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NCHRP PROJECTS FY 2016

Relevant to Safety and SSM

- FY2016 NCHRP Projects: (Contract Execution)
 - 17-74 Developing Crash Modification Factors for Corridor Access Management (\$450,000)
 - 17-76 Understanding the Relationship between Operating, Posted, and Design Speeds and Safety in the Setting of Speed Limits (\$500,000)
 - 17-78 Understanding and Communicating Reliability of Crash Prediction Models (\$300,000)
 - 17-79 Safety Effects of Raising Speed Limits to 75 MPH and Higher (\$500,000)
 - 17-80 Expansion of HFG, Second Edition (\$500,000)



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New Approved NCHRP PROJECTS

FY 2017 Relevant to Safety and SSM

- FY2017 NCHRP New Approved Projects:
 - 17-81, B-03: Incorporating Road Safety Planning in the HSM (\$400,000)
 - 22-32, C-01: Dev of Methods to Evaluate Side Impacts w Roadside Safety Features (\$500,000)
 - 22-33, C-02: Dev of Collaborative Approach for Multi-State In-Serv Eval of Roadside Safety Hardware (\$650,000)
 - 17-82, C-03: Practical Approach to Fixed Objects w/in the Clear Zone (\$500,000)
 - 14-40, F-06: Transforming Roadside Mgt Technology & Practices for the Benefit of Safety, Ecology and Economy (\$300,000)



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New Approved NCHRP PROJECTS

FY 2017 Relevant to Safety and SSM

- FY2017 NCHRP New Approved Projects:
 - 15-65, G-02: Dev Comprehensive Objective Criteria to Reduce Serious & Fatal Lane Departure Crashes & AASHTO RDG Update (\$300,000)
 - 17-83, G-03: Implementation & Training Materials for the AASHTO HSM, Second Edition (\$500,000)
 - 17-84, G-04: Pedestrian & Bicycle Safety Performance Functions for the AASHTO HSM (\$500,000)
 - 05-22, G-20: Establishment of a National Specification for Use of LED Roadway Lighting (\$400,000)
 - SP-04: Next Generation Transportation Pooled Fund (TPF) Website



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T & Safety RELATED 20-07 STATUS

- Task 334 Primer on the Joint Use of the HSM & HFG \$50K
- Task 341 Guidelines for Development HSM Part C Pred Meth Chp \$100K
- Task 353 Development of Strategic Research Plan for SCOHTS \$100K
- Task 354 WZ Speed Limits & Crash Data Practices \$100K
- Task 358 Reducing Risks Worker Safety in WZ due to Distracted Drivers \$100K
- Task 360 Development of a Strategic Plan for SCOD-TCRS \$75K
- Task 368 Development of a Roadmap for Use of SHRP2 Safety Data to enhance Existing Publications \$100K
- Task 371 DOT Technical Assistance in Using the HFG \$50K



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T & Safety RELATED 20-07 STATUS

- Task 372 Evaluation of MASH Test Vehicles \$90K
- Task 383 Review and Update of the AASHTO Roadside Design Guide \$100K
- Task 384 Core Competencies for Key Safety Analyses \$75K
- Task 401 A Systematic Approach to Hardware Replacement Analysis to Support AASHTO MASH Implementation



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Current Safety & related HSM

- 03-108 Guidance on Quantifying Benefits of TIM Strategies
- 03-119 Application of MASH Test Criteria to Breakaway Sign, Luminaire Supports and Crashworthy Work Zone Traffic Control Devices
- 16-05 Guidelines for Cost-Effective Safety Treatments of Roadside Ditches
- 17-11(02) Development of Clear Recovery Area Guidelines
- 17-43 Long-Term Roadside Crash Data Collection Program
- 17-46 Comprehensive Analysis Framework for Safety Investment Decisions
- 17-50 Lead States Initiative for Implementing the HSM
- 17-54 Consideration of Roadside Features in the HSM
- 17-55 Guidelines for Slope Traversability
- 17-56 Development of Crash Modification Factors for Uncontrolled Pedestrian Crossing Treatments



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Current Safety & related HSM

- 17-57 Development of a Comprehensive Approach for Serious Traffic Crash Injury Measurement and Reporting Systems
- 17-58 Safety Prediction Models for Six-Lane & One-Way Urban Suburban Arterials
- 17-59 Safety Impacts of Intersection Sight Distance
- 17-60 Cost Benefit Metrics for Behavioral Highway Safety Countermeasures
- 17-62 Improved Prediction Models for Crash Types and Crash Severities
- 17-63 Guidance for the Development and Application of Crash Modification Factors
- 17-64 Guidance for the Implementation of the TZD National Strategy on Highway Safety
- 17-66 Guidance for the Selection of Appropriate Countermeasures for Opposite Direction Crashes



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Current Safety & related HSM

- 17-67 Identification of Factors Contributing to the Decline of Traffic Fatalities in the United States
- 17-68 Intersection Crash Prediction Methods for the HSM
- 17-69 A Strategic Approach to Transforming Traffic Safety Culture to Reduce Deaths and Injuries
- 17-70 Development of Roundabout Crash Prediction Models and Methods
- *17-71 Proposed AASHTO Highway Safety Manual, Second Edition*
- 17-72 Update of Crash Modification Factors for the HSM
- 17-73 Conducting Systemic Pedestrian Safety Analyses
- 22-26 Identification of Factors Related to Serious Injury & Fatal Motorcycle Crashes into Traffic Barriers



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NCHRP SUCCESS FACTORS

- Effective Process
- Proven Results and Return on Investment
- Stakeholder Participation
- Reliable Funding
- Stakeholder Participation
- Applied Research
- Stakeholder Participation



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Thank You!

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Senior Program Officer

Cooperative Research Programs

Transportation Research Board

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