

TRB Safety Performance and Analysis Committee
(ACS20)

User Liaison Subcommittee

Meeting

July 15, 2021

2-4 pm EST

Agenda

- **Welcome and Meeting Objectives (5 min)**
- **ACS20 Committee Co-Chairs Update (Kim Eccles/Karen Dixon) (5 min)**
- **FHWA Update (Jerry Roche) (5 min)**
- **NCHRP 17-71A - Highway Safety Manual 2nd Edition (Stephen Read/Bonnie Polin) (15 min)**

Agenda

Working Groups - Updates and Discussions on Current/On-going ULSC Initiatives (40 min)

- Permanent Working Groups:
 - Policy and Legal Aspects (*Priscilla Tobias*)
 - International Safety Research (*Jennifer Ogle*)
- Temporary Working Groups:
 - TRB 2022 Workshop (*Kim Kolody*)
 - HSM Website (*Stephen Read*)
 - HSM Part C Tools (*Bonnie Polin/Mike Dimaiuta*)
 - HSM FAQs (*Jake Farnsworth*)
 - Practical Application of the HSM (*Tim Barnett*)
 - Road Safety Training for Local Agencies (*Cong Chen/Tim Colling*)

Agenda

- **New Initiatives (20 min)**
 - **HSM User Discussion Forum** (Stephen Read/Bonnie Polin)
 - **HSM Glossary of Terms/Style Guide** (Derek Troyer)
- **Research and Synthesis Topics Update (20 min)**
- **Other Topics (10 min)**

ACS20 Committee Co-Chairs Update

FHWA Update

Jerry Roche, PE
Office of Safety
jerry.roche@dot.gov

NCHRP 17-71A: Highway Safety Manual 2nd Edition

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Policy and Legal Aspects

- Liability Neutral Roadway Safety Document
 - Publication: *Guidelines for Drafting Liability Neutral Transportation Engineering Documents and Communication Strategies*
 - Webinar: Joint AASHTO-TRB (Kelly Hardy/Priscilla Tobias)
- HSM2
 - Glossary of Terms
 - Style Guide/Terms of Use
 - Consideration of Tort Liability Implications

International Safety Research

TRB 2022 Workshop Planning

► **Making Safe System a Reality: Planning to Implementation**

- The Safe System (SS) approach is critical for saving lives.
- This will explore SS using real-world applications and breakout discussions to define SS for all users, discuss barriers (e.g. data, measures, equity, funding, legal implications) and opportunities for SS coordination (e.g. HSM, Greenbook) and implementation, share lessons learned, and identify research needs.
- This builds on a series that has engaged 500+ agency leaders, practitioners and academics and aligns with Committee Strategic Plans.

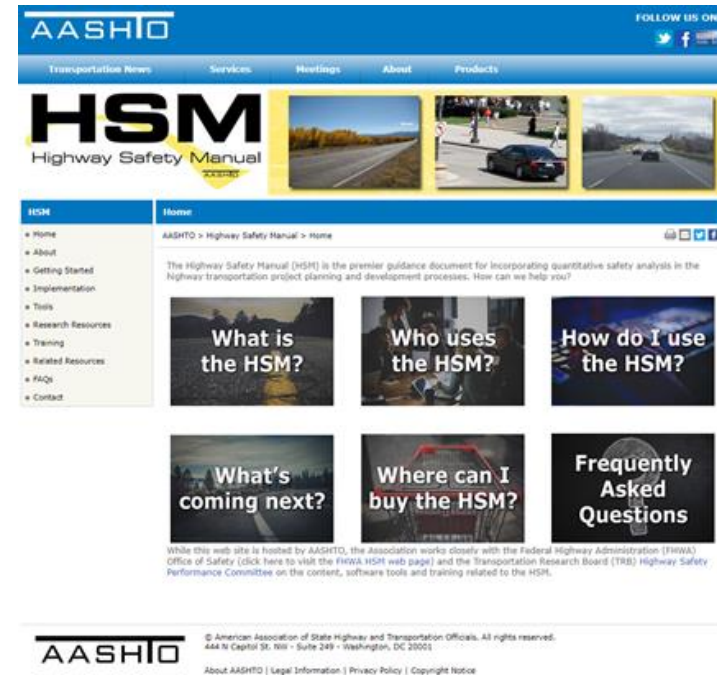
TRB 2022 Workshop Planning: Partnership and Collaboration

- ▶ 2022 TRB AM Workshop Sponsors and Co-Sponsors
 - ▶ **ACS10: Transportation Safety Management Systems**
 - ▶ **ACS20: Safety Performance and Analysis**
 - ▶ AKD10: Performance Effects of Geometric Design
 - ▶ ACH10: Pedestrian
 - ▶ ACH20: Bicycle Transportation
 - ▶ A0040C: Rural Transportation Issues Coordinating Council
 - ▶ ACS30: Traffic Law Enforcement
 - ▶ ACS40: Occupant Protection
 - ▶ ACS60: Truck and Bus Safety
 - ▶ ACS50: Impairment in Transportation

HSM Website (...holding pattern)

- Should have HSM2 NCHRP work plan by July with chapter and research inclusion decided. Decision on request for additional funds and/or timeline for difficult chapters will follow.
- What's coming (HSM2) slides may need refresh with new work plan
- ULSC continued support and input:
 - Input on redesign for HSM2
 - Ideas for “restarting” the User Discussion Forum (www.hsmforum.org)
 - Google sheet to facilitate your input/ideas:

<https://docs.google.com/document/d/1Hua72zgDVapbzYRIKgE45UuHWOIuQJQll0gvxCBnRY4/e>
[dit](#)



HSM Part C Tools

- Gap analysis previously done and submitted to AASHTO in June 2020 via Google Doc
- Part C HSM2:
 - 17-71A will not be building tools
 - Intersections (17-68), Bicycles and Pedestrians (17-84) have/will have tools
 - What about crash type and severity models?
 - Will 17-83 (HSM2 training) include tools?
- ULSC began collecting info on **state-developed HSM spreadsheets/tools**, with goal of creating a catalog of HSM-related tools

HSM Part C Tools (cont.)

- Is there a need / desire for one set of Part C tools?
 - States have their own tools because some use their own models and not just calibrate HSM models
 - States have their own tools because it is more timely to add features/models into their own than wait for HSM
 - Some states share and help others with the models
 - States have their own because it is more like a “program” than an Excel file
 - Can add in operational performance as well (McTrans) in a program but not the existing Excel files
- Action items / step we should take?
 - Complete catalog of what is out there by surveying states
 - Survey States:
 - what people use,
 - why people build their own,
 - what they want to add
 - **Need volunteers!!!**
- As always, ULSC input will help with scoping and liaison with NCHRP, AASHTO etc.

HSM FAQs

- Latest Edition – June 2018
- Minor Updates Needed
 - New information related to HSM2
 - Changes with CMF Clearinghouse Star Ratings



HSM	FAQs
<ul style="list-style-type: none">• Home• About• Getting Started• Implementation• Tools• Research Resources	<p>AASHTO > Highway Safety Manual > FAQs</p> <p>These Frequently Asked Questions (FAQs) are based on the knowledge and experience of the developers and practitioners of the Highway Safety Manual, as well as various publications and websites, including the Highway Safety Manual discussion forum, the Federal Highway Administration's Crash Modification Factor Clearinghouse, and more. FAQs are sourced from the Highway Safety Manual Frequently Asked Questions compendium, developed by the Transportation Research Board – Highway Safety Performance Committee's (ANB25) User Liaison and Technology Facilitation Subcommittee. A PDF of the latest version of this document (June, 2018) can be found here.</p>

Practical Application of HSM (1)

Research Topics submitted and considered by AASHTO Committee on Safety

- Developing Safety Performance Functions and Crash Modification Factors for Weather Related Crashes
- Developing Safety Performance Functions and Crash Modification Factors for Light, Medium, and Heavy Rail and Roadway Interfaces

Items for Possible Synthesis:

System Planning

- Simplified network screening methods: finding target crash patterns, selection of sites, and prioritizing expenditures.

Project Planning and Preliminary Engineering

- Analysis of target crash patterns and frequencies for a project (existing and predicted patterns considering design alternatives). What is the impact of the design? Will there be an increase/decrease in crashes and of what type? Is there a positive reduction in crashes? How to consider safety versus operational improvements?

Design and Construction

- Application of HSM to support implementation of Safe Systems, Practical Solutions/Design, Vision Zero, and other crash reduction/elimination approaches.

Practical Application of HSM (2)

Items for Possible FHWA or another Agency Developing:

System Planning

- Practices to integrate HSM into policies and design criteria choice for planning alternatives and transportation facility design (e.g., application/implementation of 17-81 Safety Planning research).
- Simplified methods for systemic safety countermeasure selection and prioritization.

Project Planning and Preliminary Engineering

- Methods for the selection of the combination of safety countermeasures, i.e., greatest crash reductions, most economical, etc.

Design and Construction

- Assess impact of design exceptions and modifications during construction.
- Guidance on the application of HSM in work zone designs. Follow-on to work performed under NCHRP Project 17-61, *Estimating the Safety Effects of Work Zone Characteristics and Countermeasures: A Guidebook*. May be design or operations guide on using the HSM in Work Zone Layouts/Designs.

Operations and Maintenance

- Consideration of HSM methodologies in operations and maintenance (some CMFs exist, but how best to apply both SPFs and CMFs to operations and maintenance activities):
 - Signal operation and ITS applications.
 - Enforcement operations, roaming service patrols, etc.

Practical Application of the HSM

- Even though part of the items listed could be covered under the RNS to be discussed later, several items could still be pursued as Synthesis or other works:
 - Simplified network screening methods
 - Practices to integrated HSM
 - Analysis of target crash patterns and frequencies for a project
 - Methods for the selection of the combination of safety countermeasures
 - Application of HSM for work zone design

Summary of items posted on:

<https://alabama.box.com/s/4usubomn4kro9rr0fb0opbhvt85xgzer>

For editing access, please email me at: tebarnett1@ua.edu

ACS20 User Liaison Subcommittee Local Agency Training Work Group

July 15, 2021

Tim Colling, Michigan Tech
Cong Chen, University of South Florida



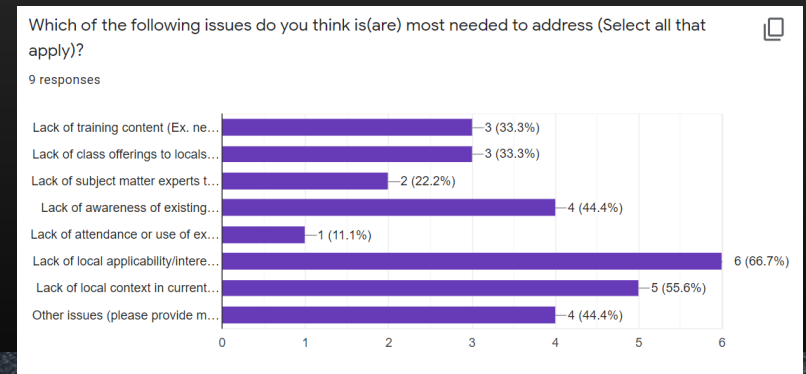
Last meeting.....

Did survey and live responses from committee members.

Primarily to give vision to what the sub-committee was trying to do and to better define the problem

Response:

- Disagreement whether local training is a “supply” or a “demand” problem
- Not a large sample of experts
- Bias



Current Direction

Trying to identify demand vs supply using national metrics

Supply

- NHI training reports
- TC3 training reports
- LTAP center reports

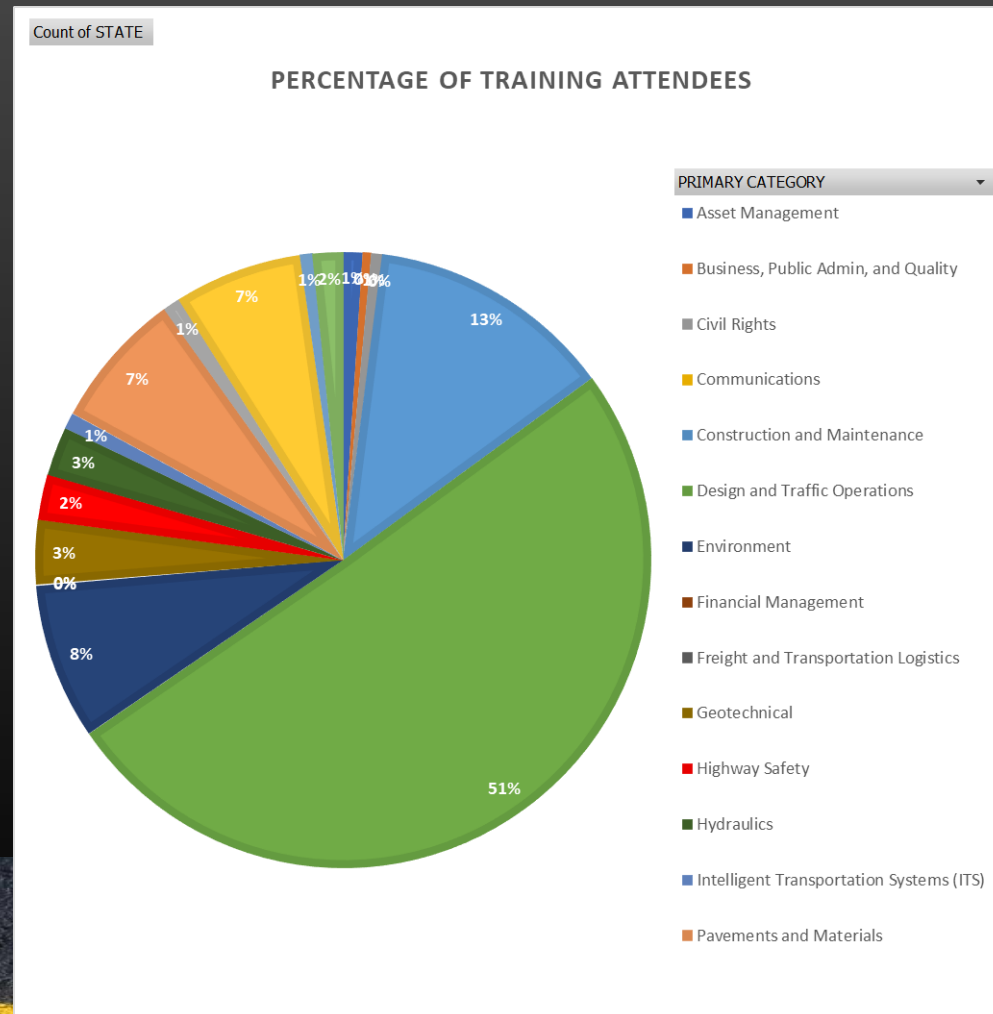
Demand

- FHWA national local agency needs survey
 - Possible LTAP survey (rather save this for root causes)
-
- Made Inquiry to FHWA CLAS on data that they have



Example Attendance of NHI training FY 2020

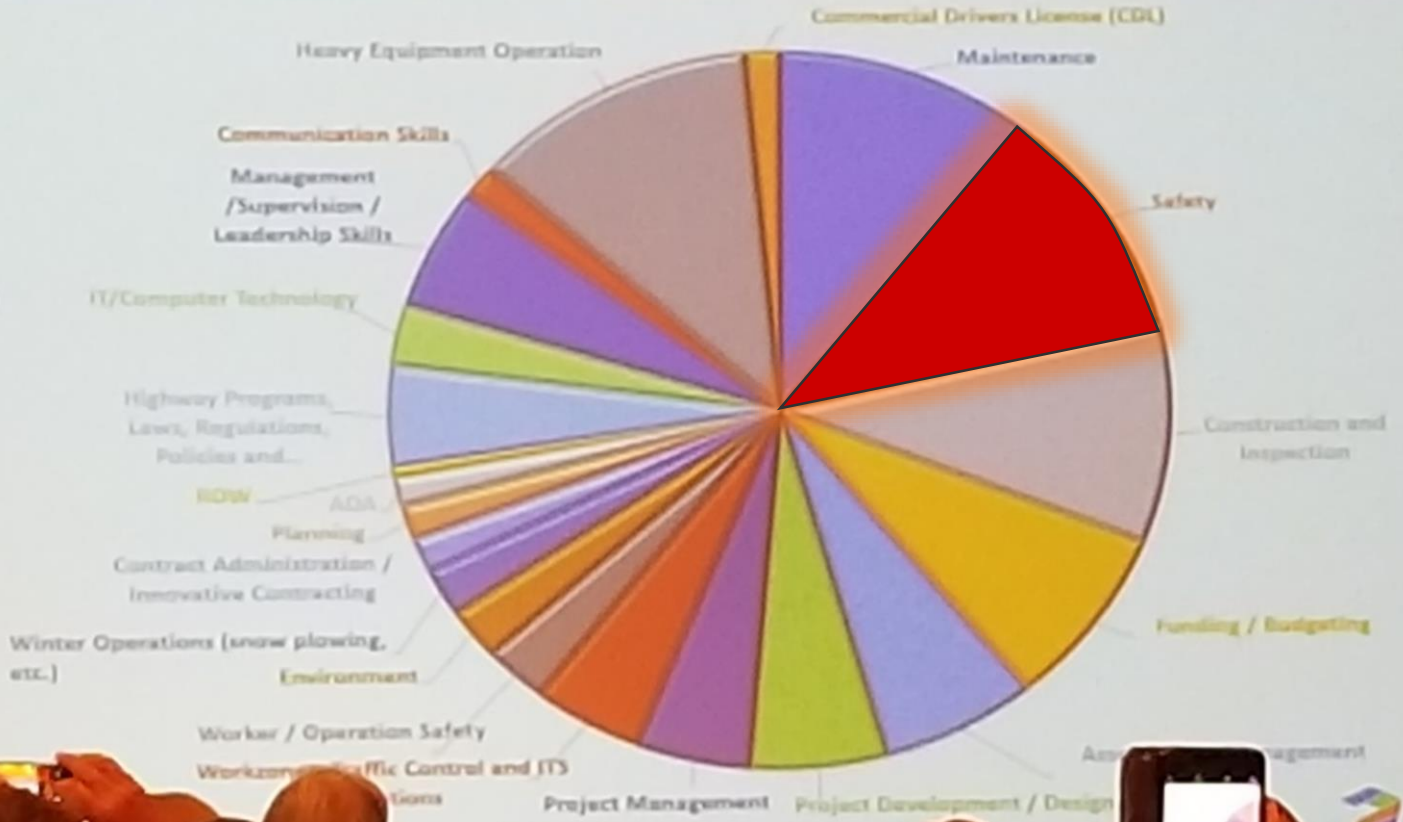
- 2% of all NHI class attendees were related to safety
- 65% of attendees of safety classes were related to HSM topics
- 10% of attendees were HSM specific classes
- 33% of NHI safety catalogue appears HSM related

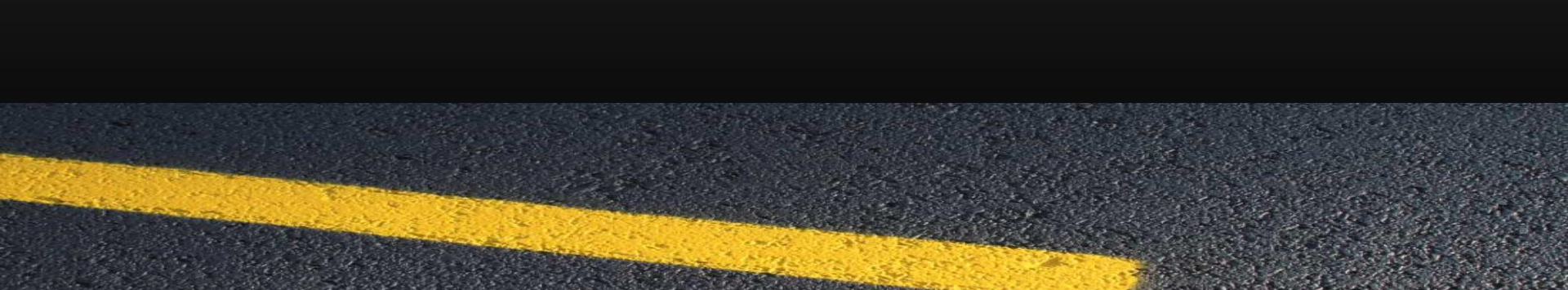


FHWA Survey of Local Training Needs

Draft Presentation

What are your three (3) most pressing training needs?





New Initiatives

- **HSM User Discussion Forum** (Stephen Read/Bonnie Polin)
- **HSM Glossary of Terms/Style Guide** (Derek Troyer)

HSM User Discussion Forum

HSM Glossary of Terms/Style Guide

Research and Synthesis Topics Update

- Overview of process and timeline
- Research Topic Statements
- Synthesis Topics

Research Topic Statements submitted by ULSC

- Practical Approaches to Quantifying Safe System Concepts
(Bonnie Polin)
- Pavement Friction and Safety Performance Integration *(Priscilla)*
- Safety Performance Function for Curves *(Priscilla)*
- Practical Applications of the HSM *(Tim Barnett)*
- Developing SPFs and CMFs for Weather Related Crashes *(Tim Barnett)*
- Developing SPFs and CMFs for Light, Medium, and Heavy Rail and Roadway Interfaces *(Tim Barnett)*

Safe System

- **Practical Approaches to Quantifying Safe System Concepts**
 - AASHTO Safety Committee Ranked 1st out of 30

Roadway Segments

- **Safety Performance Functions (SPF) for Curves**
 - AASHTO Safety Committee Ranked 3rd out of 30
 - How can curves be considered without piecemealing different processes?
 - Consider rural vs urban, speed, and other variations of curves?
- **Pavement Friction and Safety Performance Integration**
 - AASHTO Safety Committee Ranked 8th out of 30
 - Strong support for linkage of safety and asset management.
 - Safe Systems application linked to pavement condition.
 - Guidance on Data Collection and Frequency would be beneficial.
 - Should this be initially with 2 lane roadways?

Practical Applications of the HSM

- 2-RNS were ranked by AASHTO COS high enough to move forward:
 - Practical Application of the HSM (ranked 15th of 30)
 - Retitled to: ***Applications Guide to the Highway Safety Manual***
 - Similar document was developed for HSM1 under NCHRP 17-50
 - Safety Performance Functions and Crash Modification Factors for Weather Related Crashes (ranked 19th of 30)
- Need help/volunteers to fully develop RNS for submittal back to COS by August 15th.
- Link: <https://alabama.box.com/s/4usubomn4kro9rr0fb0opbhvt85xgzer>
For editing access, please email me at: tebarnett1@ua.edu

Research Topic Statements developed/submitted by others

- **Effects of Roadway Geometric Design, Posted Speed Limit, and Operating Speed on Safety Performance for High-Speed Rural Highways and Freeways** – *RNS under development by AKD10; seeking support from ACS20*
- **Local Network MIRE Data Collection and use for Data Driven Data Analysis** (*Rural Roads JSC*)
- **Modernizing the Network Screening Process using Machine Language (ML) and Artificial Intelligence (AI)** - *submitted via ACS20 Analytical Methods SC*

Synthesis Topics

- **Submitted before Feb. 17 deadline (not selected)**
 - Transferability of Safety Performance Measures (CMFs, SPFs, and CFs) (*Jennifer Ogle*)
- **Submitted after Feb. 17 deadline**
 - Assessment of Participatory Budgeting to Achieve Equitable Traffic Safety Outcomes (*Tariq Shihadah*)
 - A Synthesis on Artificial Intelligence (AI) Applications in Quantitative Roadway Safety Analysis (*Mohamad Banihashemi/Mouyid Islam*) - submitted via ACS20 Analytical Methods SC

Other Topics

- Collaboration with other ACS20 subcommittees and other TRB committees
 - *“Case Studies in the Performance-Based Analysis of Geometric Design”* (TRB poster session)
- Ideas for new ULSC initiatives
- Next ULSC meeting

Thank you!