TRB Safety Performance and Analysis Committee (ACS20)

User Liaison Subcommittee (ACS20(2))

Co-chairs: Daniel Carter (NCDOT) and Kim Kolody (Jacobs)
Mentors: Geni Bahar (Navigats) and Mike Dimaiuta (Genex)

August 16, 2022

1:30 to 3:30 pm ET

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Agenda

- **Welcome and Meeting Objectives** *(5 min)*
  - ***Sign-in sheet***
- **ACS20 Committee Chair Update** (Karen Dixon) *(5 min)*
- **FHWA Update** (Jerry Roche) *(10 min)*

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Agenda

- **Working Groups**

  On-going Initiatives Discussions *(70 min)*

  – **Discussions:**
    - **HSM User Discussion Forum, FAQs** (Daniel Carter / Tariq Shihadah Jacob Farnsworth) (20 min)
    - **HSM Part C Tools** (Mike Dimaiuta / Bonnie Polin / Stephen Read) (30 min)
    - **Practical Approaches to Applying HSM Part C Methods** (Bonnie Polin) (20 min)

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Agenda

- **Working Groups**

  On-going Initiatives Updates *(20 min)*

  - **Updates:**
    - **HSM Part C Information Guide Updates** (Khalid Jamil)
    - **TRB 2023 Workshop** (Mike Dimaiuta)
    - **TRB 2022 Follow-up Activities/Webinars** (Kim Kolody / Kelly Hardy)
    - **Road Safety Training for Local Agencies** (Cong Chen)
    - **Policy and Legal Aspects** (Priscilla Tobias)
    - **International Safety Research** (Jennifer Ogle)

- **Research and Synthesis Topics** *(5 min)*
- **Other Items/Wrap-up** *(5 min)*

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ACS20 Committee Chair Update

- Karen Dixon

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FHWA Update

- Jerry Roche

Working Groups - On-going Initiatives *Discussions*

- **HSM User Discussion Forum, FAQs**
  - *Tariq Shihadah / Daniel Carter / Jacob Farnsworth*
- **HSM Part C Tools**
  - *Mike Dimaiuta / Bonnie Polin / Stephen Read*
- **Practical Approaches to Applying HSM Part C Methods**
  - *Bonnie Polin*

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User Forum Working Group Update

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Purpose and Overview of the Forum

- Working group goals
  - Increase user interactions and peer exchange
  - Identify, respond to technical questions in centralized platform
  - Share news, research, and information
  - Support our goals for practical applications

- Progress so far
  - Identified Discourse.org as ideal platform
  - Coordination with AASHTO and FHWA for funding support
  - Preparing for ~2 month pilot test with diverse volunteers

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Pilot Testing

- What will pilot testers do?
  - Post 2+ original topics, respond to 5+ others
  - Test other critical features (notifications, profile, moderation, etc.)
  - Participate in kick-off and debriefing webinars
- Goals
  - Refine user experience, identify best practices
  - Test productivity and moderation workflow
  - Prepopulate the forum
- Interested in participating? Contact us!
  - https://forms.office.com/g/VJLSqsESeH

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Pre-populating the Forum

- Benefits
  - Create posts for visitors to begin interacting with right away
  - Present helpful information we've already gathered
- Sources
  - Pilot testers
  - HSM FAQ document
  - Working group-generated materials
  - Others?

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Methods for Content Moderation

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Content Moderation

- Goals for Managing Information
  - Encourage participation, idea-sharing
  - Highlight best practices
  - Identify areas of need

- Challenges
  - Conflicting recommendations
  - Incorrect or non-ideal practices
  - Distractions from helpful information
  - Letting the perfect get in the way of the good

- How should we do this?

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Content Moderation

- Moderation Roles
  - Objective content reviewers (moderators)
  - Subject matter experts (experts)
- Sensitivity Levels
  - How complex is this topic?
  - How problematic would a wrong answer be?
  - How valuable is peer exchange around this topic?
- Response Protocols
  - Based on the sensitivity of each topic, we may…
    - Require post approval by a **moderator**
    - Require an initial response by an **expert**
    - Limit responses by forum **users**

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Content Moderation

- All new posts will be reviewed by a moderator who will determine a sensitivity level and a response protocol
- In high-sensitivity cases, the topic may be rejected in favor of a public service announcement on the same topic

Sensitivity	Post is Shared Publicly	Public Input Allowed	Expert Assigned for Response	Expert Assigned for Moderation	Example Question
Private	Never	Never	Yes	N/A	*Agency-specific issue that may create liability or distress if shared publicly*
High	After Expert response	After Expert response	Yes	Review all responses before posting	*"How should I deal with facilities outside the bounds of HSM Part C?*
Medium (default)	**After approval**	**Yes**	**Yes**	**Yes**	***"What is the best CMF for centerline rumble strips?"***
Low	After approval	Yes	No	Yes	*"How are other agencies performing systemic analyses?"*
Public	After approval	Yes	No	No	*"What does HSM stand for?"*

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Don’t forget to sign-up for the pilot test!!!
Link: https://forms.office.com/g/VJLSqsESeH

Questions?


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ACS20 ULSC MYM
HSM Tools Working Group
August 16, 2022

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HSM Tools Working Group

TRB 2022

Past Activities:

- Completed ***HSM Spreadsheet Gap Analysis*** for Stephen Read's use in 17-71A RFP (2020)
- Began to collect information on state developed spreadsheets/tools, with the goal of creating a catalog of HSM-related tools (2020).
- Conducted ***HSM Part C Analysis Tools Survey*** (Fall 2021)
  - The Working Group prepared an HSM Part C Analysis Tools Survey, to understand the needs of safety practitioners related to the HSM Part C or site-specific predictive analysis tools. This was a joint effort from the AASHTO Committee on Safety and TRB ACS20.
  - Survey went out to all AASHTO COS members in September 2021.
  - Received responses from 23 states and results were compiled.
- Outreach to states regarding their development of calibration factors (Early 2022)

Volunteers:

- Bonnie Polin, Brian Frazer, Daniel Carter, David Petrucci, Derek Troyer, Jacob Farnsworth, Jennifer Ogle, Jerry Roche, Kelly Hardy, Mike Dimaiuta

HSM Part C Analysis Tools Survey - Responses

TRB 2022

Predictive Models used by Agency

Model Type	States
Uncalibrated HSM Part C models	8 States: AZ (Safety), CA, LA, MD, MN, NE, UT, WA
Calibrated HSM Part C models	11 States: AZ (planning), IL, LA, ME, MN, MO, NC, OH, OR, SC, VT
Agency developed site-specific models	8 States: LA, MA, MT, NC, OH, PA, SC, UT
Other	6 States: KS, MA, PA, UT, WI, WA

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HSM Part C Analysis Tools Survey - Responses

TRB 2022

Tools used to support the analysis method

Type of tool	States	Method used in the analysis tool
IHSDM	AZ, UT, VT, WA, MD, WI	SPFs plus HSM CMFs (AZ, UT, VT, WA); SPFs plus state specific CMFs (MD); SPFs plus most applicable CMF (WI)
In-house built analysis software application	MO, PA	SPFs plus HSM CMFs (MO)
HSM Spreadsheet Tools (accessible from HSM website)	AZ, CA, MO, NC, VT, WA, PA, UT	SPFs plus HSM CMFs (AZ, CA, MO, NC, VT, WA); CMFs from the clearinghouse (case by case) (UT)
Modified HSM Spreadsheet Tools	IL, ME, NC, OR, SC, PA, WA	SPFs Only (IL); SPFs plus HSM CMFs (ME, NC, OR, SC); SPFs plus state specific CMFs (NC)
Other Commercial-off-the-shelf (COTS) analysis software application	KS, MT	SPFs Only (KS); SPFs plus HSM CMFs (MT)
In-house built spreadsheet	AZ, MA, NE, NC, OH, PA, WA, WI	SPFs plus HSM CMFs (AZ, NE, OH, WA); SPFs plus state specific CMFs (MA, NC); SPFs plus most applicable CMF (WI)
Other	NC, UT, WI, LA, MN, OH	SPFs only (LA); SPFs plus HSM CMFs (MN)

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NCHRP Synthesis 20-05/Topic 54-10

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"State Customization of Highway Safety Manual Methods"

- The objective of this synthesis is to document state DOT current practices on calibration factors and development of jurisdiction-specific SPFs.
- Status?

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Discussion – HSM User Needs and Preferences related to tools

TRB 2022

Balance – one software tool that is true to HSM Part C, but provides the ability for the user/agency to input different functional forms for agency-specific SPFs, and which supports development/entering/ application of calibration factors…

…which is also inexpensive enough for agencies (locals, counties, MPOs, states) to use.

- Is one tool that meets the needs of many desired? If so, what capabilities should that tool have? What are the highest priorities?

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Discussion – HSM User Needs and Preferences related to tools

TRB 2022

How important/desirable are these capabilities in an HSM Part C tool? What are the highest priorities? **(go to www.menti.com; code 9606 9367**

- Implements all HSM2 Part C methods (rather than separate tools for each facility type)
- Enter and apply agency/state-specific SPFs (with same functional form as HSM)
- Enter and apply agency/state-specific SPFs (with functional form that differs from HSM)
- Enter and apply agency/state-specific SPFs for facility types/conditions not covered in HSM (e.g., models for urban collectors, HOV/managed lanes, frontage roads, etc.)
- Enter and apply CMFs external to HSM Part C (user-defined CMFs)
- Develop/enter/apply calibration factors
- SPF calibration and assessment (e.g., "Calibrator Tool"-type functions, such as goodness-of-fit measures)

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Discussion - HSM User Needs and Preferences related to tools

TRB 2022

How important/desirable are these capabilities/characteristics in an HSM Part C tool? (What are the highest priority?) **(go to www.menti.com; code 9606 9367)**

- Web-based
- Can link to GIS database
- Can share files across a network
- Can import data from other sources (e.g., state roadway and crash databases, highway design software/LandXML)
- Output is customizable by user
- Automated segmentation process (following HSM Part C)
- Economic analyses using Part C results (e.g., benefit-cost calculations)
- Integrated with – or has capability to be integrated with other tools (e.g., ICE)

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Discussion – HSM Tools

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- Costs:
  - How important is the cost (tool licensing + tech. support)?
  - What is a reasonable cost for an agency?
- Technical support:
  - What level(s) is needed (e.g., “nuts and bolts” of using the tool, guidance on application of HSM Part C methods, interpretation of results, etc.)?
- Training (on use of tools):
  - What type is needed?
  - Who should provide?

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Potential Mechanisms for Developing/Enhancing Tools

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- AASHTOWare
- Commercial-off-the-shelf (COTS) analysis tool(s)
- Update/expand HSM spreadsheets (currently available for free on HSM website)
  - Via funded contract mechanism
  - Volunteer effort (ACS20?)
- Tools developed (or to be developed) under NCHRP projects which developed models (17-58, 17-68, 17-70, 17-84, 17-62, etc.)?
- Tools to be developed under NCHRP 17-83 (*Briefings and Training Materials for Implementation of the HSM2*)? (project currently on hold)
  - Objectives include development of: "A package of electronic analysis tools building on existing available tools to illustrate and support use of the HSM2."
- State agency-developed/enhanced tools
- Other?

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Discussion – HSM Tools

TRB 2022

- What challenges do your agency/organization face in applying HSM methods via tools:
  - Lack of knowledge about the tool(s)
  - Tool does not have functionality we need
  - Lack of data for populating the models
  - Lack of understanding of HSM concepts
  - Unclear how to model/evaluate when HSM methods do not apply to conditions (e.g., 3-lane ramp)
  - Lack of institutional support
  - Tool(s) seems too complicated / difficult to use
  - Other…
- What project decisions do you (or plan to) apply HSM Part C methods to? How does that impact your needs/preferences for tools?
  - Project selection
  - Countermeasure selection
  - Alternatives analysis
  - Alternative selection
  - Safety evaluation for an EIS/EA
  - Interchange Access Requests (aka IJRs, IMRs, etc.)
  - Design exceptions
  - Traffic impact analysis/traffic impact studies (TIA/TIS)
  - ICE
  - Other?

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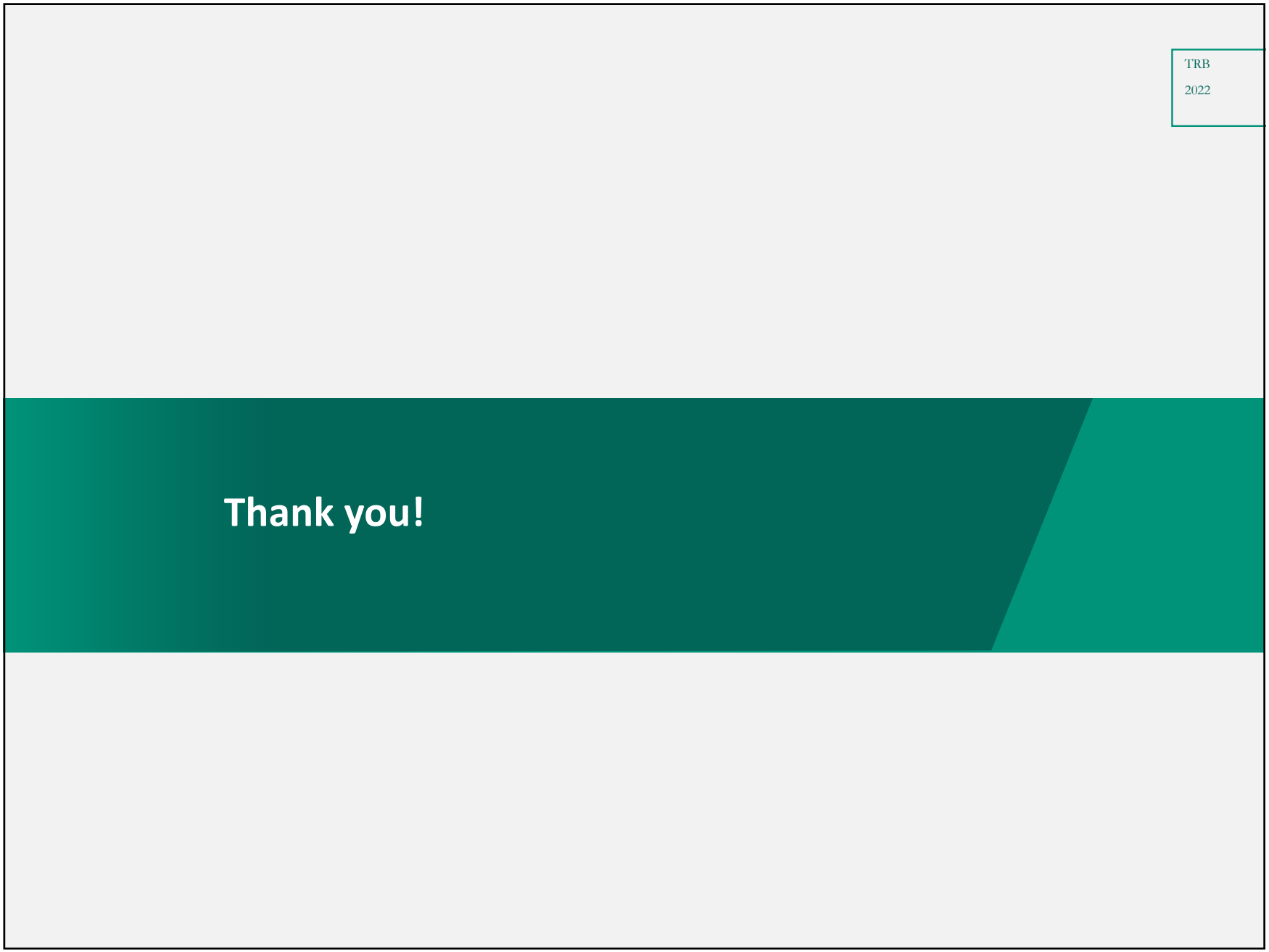

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American Association of State Highway and Transportation Officials
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Highway Safety Manual
AASHTO

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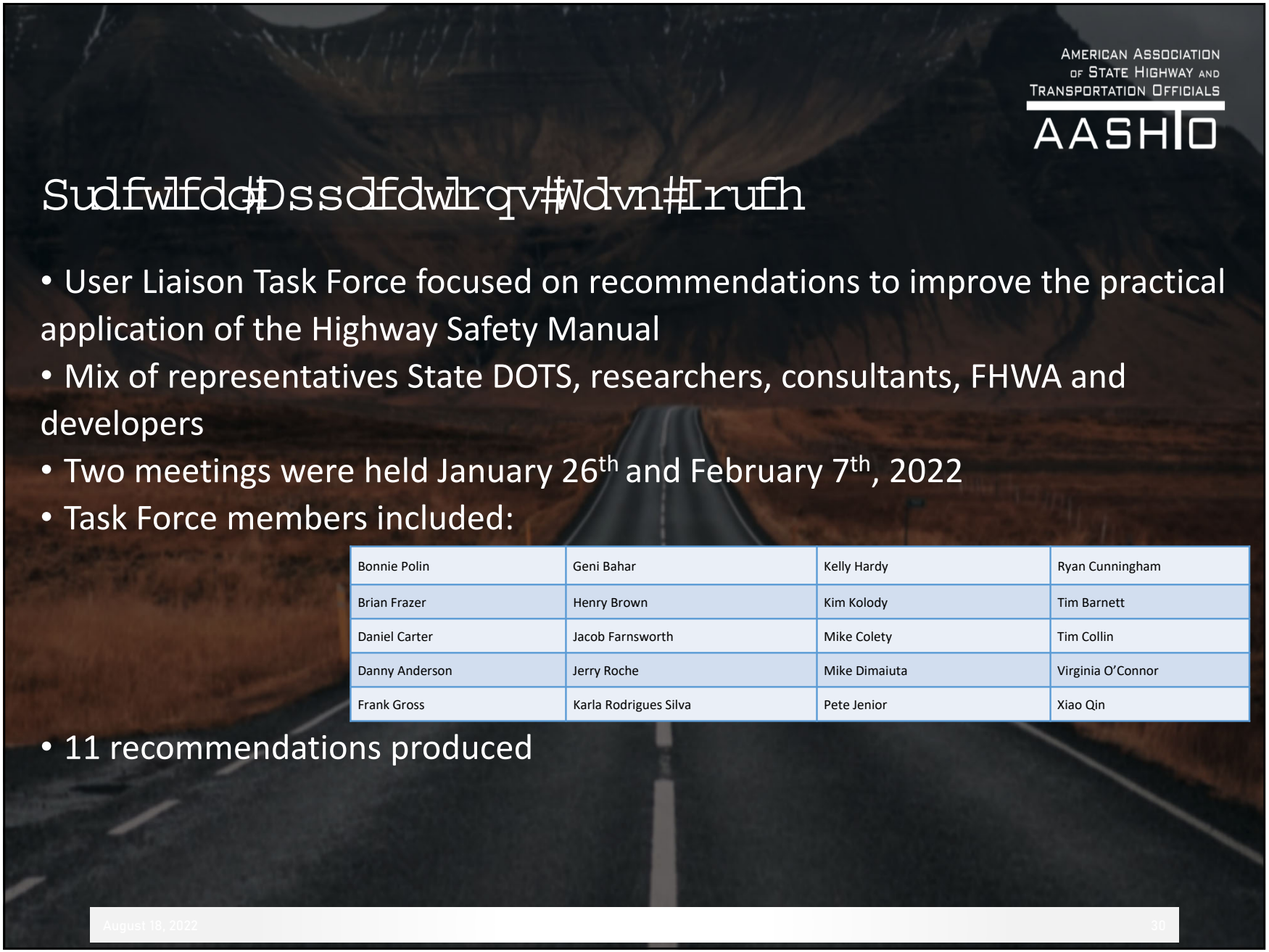
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AASHTO
Sudfwlfdo#Dssodfdwlrqv#Wdvn#Irufh
• User Liaison Task Force focused on recommendations to improve the practical application of the Highway Safety Manual
• Mix of representatives State DOTS, researchers, consultants, FHWA and developers
• Two meetings were held January 26th and February 7th, 2022
• Task Force members included:
Bonnie Polin | Geni Bahar | Kelly Hardy | Ryan Cunningham
Brian Frazer | Henry Brown | Kim Kolody | Tim Barnett
Daniel Carter | Jacob Farnsworth | Mike Colety | Tim Collin
Danny Anderson | Jerry Roche | Mike Dimaiuta | Virginia O'Connor
Frank Gross | Karla Rodrigues Silva | Pete Jenior | Xiao Qin
• 11 recommendations produced
August 18, 2022
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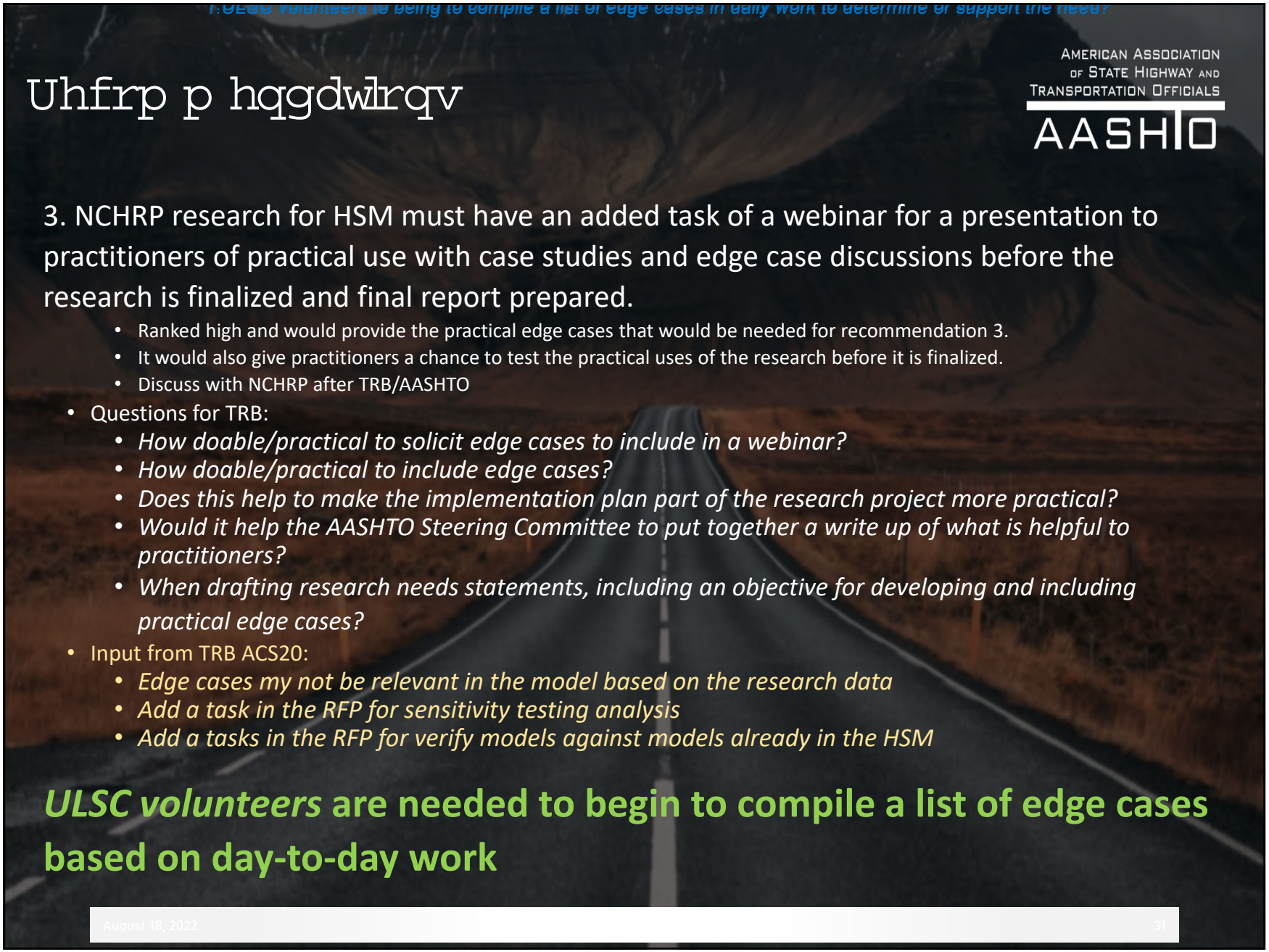
1. ULSC volunteers to begin to compile a list of edge cases in daily work to determine or support the need?
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AASHTO
3. NCHRP research for HSM must have an added task of a webinar for a presentation to practitioners of practical use with case studies and edge case discussions before the research is finalized and final report prepared.
• Ranked high and would provide the practical edge cases that would be needed for recommendation 3.
• It would also give practitioners a chance to test the practical uses of the research before it is finalized.
• Discuss with NCHRP after TRB/AASHTO
• Questions for TRB:
• How doable/practical to solicit edge cases to include in a webinar?
• How doable/practical to include edge cases?
• Does this help to make the implementation plan part of the research project more practical?
• Would it help the AASHTO Steering Committee to put together a write up of what is helpful to practitioners?
• When drafting research needs statements, including an objective for developing and including practical edge cases?
• Input from TRB ACS20:
• Edge cases my not be relevant in the model based on the research data
• Add a task in the RFP for sensitivity testing analysis
• Add a tasks in the RFP for verify models against models already in the HSM
ULSC volunteers are needed to begin to compile a list of edge cases based on day-to-day work
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6. NCHRP research for HSM includes factors in CPM (crash prediction models) for similar types of jurisdictions (similar to the level, rolling, mountainous terrain in some Level of Service calculations).
Research need and a RNS will need to be prepared.
Medium because we may need to wait until the synthesis is completed.
Questions for TRB
Do we need to wait for the synthesis to be completed?
What is the feasibility of conducting this research and what would be some challenges?
Would this change the way we think of calibration?
Input from TRB ACS20:
Will need to develop and prepare a research needs statement
Concern that the goal of being able to adjust for differences between jurisdictions, etc. based on available attributes (e.g., reporting thresholds) may not yield effective results
ULSC support is needed to develop the RNS
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AASHTO
11. National / NCHRP has a requirement that data must be available so it can add to a database for others to use.
• Need a uniform way of accepting all data in a repository (Bureau of Transportation Statistics, HSH, etc.)
• Ranked high recommendation to pursue.
• What does NCHRP do with the data, do they need to provide a schema so it can all be collected uniformly so it can be used by others?
• Discuss with NCHRP after TRB/AASHTO
• Questions for TRB
• How often do researchers' data come from previous NCHRP projects data?
• Is that typically the starting point and is it easy to access?
Input from TRB ACS20:
• Contentious discussion on only using data that is then available to all to use because otherwise it is too costly and not reproducible. But data providers insist on not making it available while researchers and those trying to duplicate the research need it.
• Check with other committees on data how this is done
ULSC support or group needed to explore the experiences of other committees on data
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Working Groups - On-going Initiatives *Updates*

- **HSM Part C Information Guide**
  - *Khalid Jamil*
- **TRB 2023 Workshop**
  - *Mike Dimaiuta*
- **TRB 2022 TRB Follow-up Activities/Webinars**
  - *Kim Kolody, Kelly Hardy*
- **Road Safety Training for Local Agencies**
  - *Cong Chen, Tim Colling*
- **Policy and Legal Aspects**
  - *Priscilla Tobias*
- **International Safety Research**
  - *Jennifer Ogle*

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HSM Part C Information Guide

- Khalid Jamil

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ACS20 ULSC MYM
TRB 2023 Workshop and
TRB 2022 Workshop Follow-up Activities
August 16, 2022

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TRB 2023 Workshop

“Applying the Safe System Approach to Overcome Challenges”

- The workshop was recently approved, per Bernardo!
- Sunday January 9, 1:30 – 4:30 pm.
- Partners: **ACS10** (Transportation Safety Management Systems) and **ACS20** (sponsoring committees); **ACH20** (Bicycle Transportation)(co-sponsor); potentially others.
- Planning group has had several meetings:
  - Kim Kolody, Bonnie Polin, Stephanie Malinoff (ACS10 Chair), Nicole Waldheim, Mike Colety, John Milton, Rebecca Sanders, Steve Lavrenz, Bahar Dadashova, Shaunna Burbidge, Doug Cobb, Mike Dimaiuta
- ACS10 (Stephanie and Nicole) is leading the effort.

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TRB 2023 Workshop: "Applying the Safe System Approach to Overcome Challenges"

TRB 2022

Draft Working Agenda

- ***A Look Back, A Look Ahead***
  - Recap of 2022 TRB Workshop (*Making Safe System a Reality: Planning to Implementation*)
  - Setting Stage for 2023 Workshop: From Concept to Application
- ***Safe System Alignment Prioritization Framework***
- ***Applying the SSA to Plans, Policies, and Projects***
  - Real World Applications for each
- ***Break Out Groups***
  - Transportation Planning
  - Transportation Policy
  - Transportation Projects
- ***Report Out***
  - Including Research Needs and Gaps to Achieve Safe System Application

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TRB 2023 Workshop: "Applying the Safe System Approach to Overcome Challenges"

TRB 2022

- ***We anticipate needing many additional volunteers, e.g., to facilitate break out groups.***
  - *Please contact us if you are interested:*
    - ***Michael.Dimaiuta.ctr@dot.gov***
    - ***Kim.Kolody@Jacobs.com***

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TRB 2022 Workshop Follow-up Activities:
AASHTO/TRB Webinar series: Safe System Approach

TRB 2022

- Joint initiative: **AASHTO/Towards Zero Deaths SC** and **TRB ACS10 / ACS20**
- Series of webinars covering implementation of the Safe System Approach across different disciplines.
- Status: planning stage.
- Planning group:
  - Kim Kolody, Nicole Waldheim, Wendy Hansen, Kerry Wilcoxon, Kelly Hardy, Bonnie Polin, Karen Dixon, Mike Dimaiuta, Robert Hull, Michelle May, Stephen Read
  - Met on June 16.
- Timeframe: goal is to have the initial webinar this fall.

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AASHTO/TRB Webinar series: Safe System Approach

TRB 2022

- The initial webinar is intended to give an overview of the multi-disciplinary applications and opportunities for SSA, and will prepare safety practitioners to:
  - Discuss SSA with agency leadership, other colleagues, and partners.
  - Envision practical SSA implementation among DOT divisions and safety partners.
  - Gain insights and ideas from safety practitioners and agencies with experience implementing SSA.
- Based on interest and availability, this webinar may become a series, with future meetings focused on specific areas such as planning, programming, and design; speed, rural environments, maintenance and operations, etc.

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AASHTO/TRB Webinar series: Safe System Approach

TRB 2022

Current thoughts on the initial webinar:

- **Overview/recap of the TRB 2022 "Making Safe System a Reality: Planning to Implementation" workshop**
  - The vision of the workshop, what took place, etc.
- **SSA and the transportation project life cycle**.
  - Tie the TRB workshop to the approach AASHTO has been discussing and working on.
- **SSA in planning and design.**
  - A few speakers (from state DOTs?) will share examples of practical implementation (similar to presentations given in breakout sessions at the TRB 2022 workshop).
- **Discussion**.

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Road Safety Training for Local Agencies

- Synthesis: Best Practices for Incentivizing HSM Best Practices by Local Governments
  - Identify and summarize techniques that incentivize local government use of quantitative safety analysis techniques outlined in the HSM.
  - The study will focus on techniques that can be applied on a state level and will provide resources to state and federal agencies with a vested interest in traffic safety on the efficacy and resource requirements for these types of incentivizing programs.

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Policy and Legal Aspects

- Tort Liability 101 Webinar
- AASHTO partnership

International Safety Research

- Jennifer Ogle

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Research and Synthesis Topics

- New synthesis, research needs
- Other initiatives

Other Items/Wrap-up

- Next ULSC meeting -- in October?

Thank you!

- Co-chair contact info:
  - Daniel Carter: dlcarter4@ncdot.gov
  - Kim Kolody: kim.kolody@jacobs.com

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