

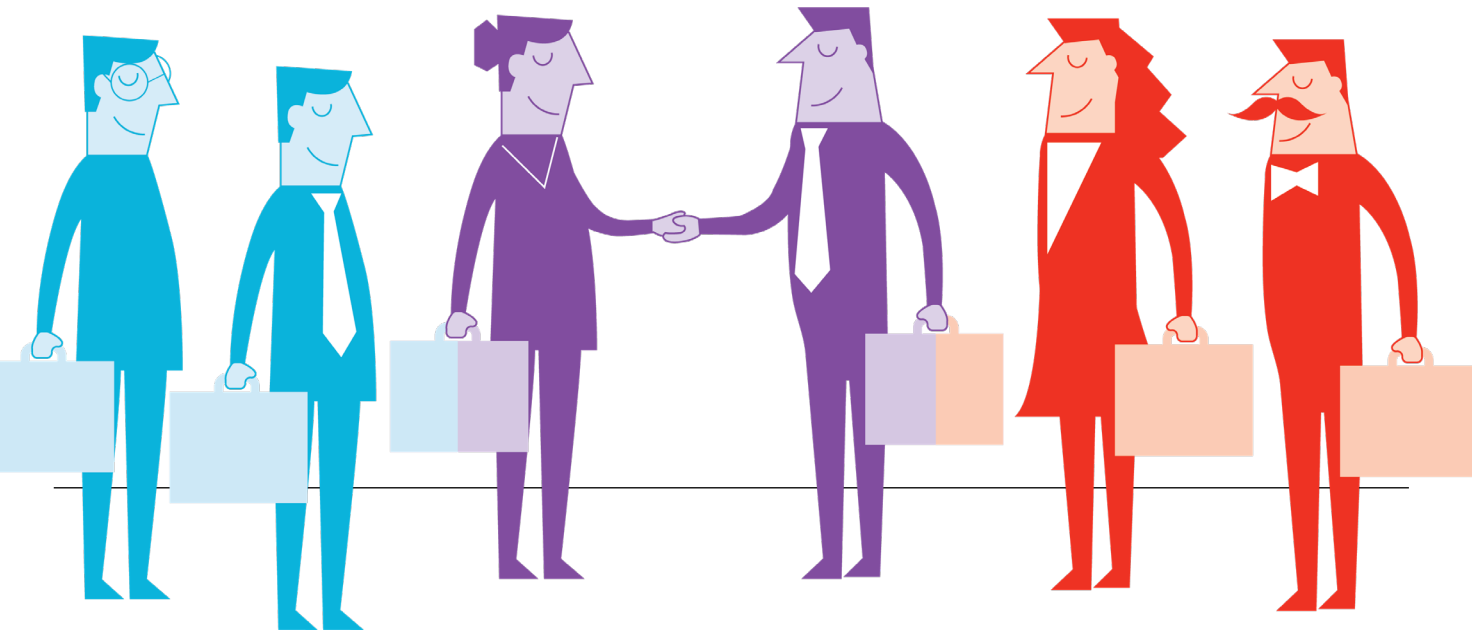
Committee on Safety Performance and Analysis (ACS20)

Transportation Research
Board Annual Meeting
Thursday, January 14, 2021



SCAN ME

Welcome



ANB20 Safety
Data, Analysis, and
Evaluation

ACS20 Safety
Performance
Analysis

ANB25 Highway
Safety
Performance



Committee Scope

This Committee fosters collection and innovative use of diverse safety data, and the development of new theories and analytical methods to advance the science of safety to meet the needs of future technologies and road users.

This Committee further promotes the application of these methods and supporting tools, and the institutionalization of science-based methods. In doing so, this Committee supports informed transportation decision-making and improves safety performance on the Nations' roadway infrastructure system, notably by reducing fatalities and injured persons caused by crashes.



Name
Affiliation
Connection to the scope



Kim Eccles
VHB
“innovative use of diverse
safety data”



Karen Dixon
Texas Transportation
Institute
“promote application of
supporting tools”

Committee Scope

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Subcommittee Structure

Subcommittees

- Safety Analytical Methods (ACS20(1))
- User Liaison (ACS20(2))
- Surrogate Safety Measures (ACS20(3))
- Rural Road Safety Policy, Programming, and Implementation Subcommittee, ACS10(4), Joint Subcommittee of ACS10, ACS20, AKD30
- Pedestrian and Bicycle Safety Analysis (ACS20(5))

Administration Task Forces

- Research Statement Development
- Conferences and Meetings
- Annual Paper Review
- Best Paper Award
- Paper Synthesis Report
- Communications
- Technical Issues
- Data Collaboration Task Force

A few words about Acronyms...

- **Crash Modification Factor (CMF)**
- **Crash Modification Function (CMFunction)**
- **Highway Safety Manual (HSM)**
- **Safety Performance Function (SPF)**
- **National Cooperative Highway Research Program (NCHRP)**
- **Highway Safety Improvement Program (HSIP)**
- **Research Needs Statement (RNS)**



A few words about Acronyms...

- **Model Inventory of Roadway Elements (MIRE)**
- **Fundamental Data Elements (FDE)**
- **Transportation Systems Management and Operations (TSMO)**
- **Benefit Cost Analysis (BCA)**
- **Fatalities and Serious Injuries (KA)**
- **My Favorite Committee (ACS20)**
- **Pooled Fund Study (PFS)**
- **Strategic Highway Research Program 2 (SHRP2)**



Secretary and Communications Report

Approval of Meeting Minutes

TRB 2020 Annual Meeting

- ANB20 Minutes
- ANB25 Minutes



The tool the National Academies (NASEM) uses to manage membership, friends of committees, research panel membership etc.

- If you haven't **please sign up**
- Keep your email address and details **up to date**

NOTE. We do not keep 'lists of members or friends' – it is all done centrally. If you are not in myTRB, you won't get committee communications.

The screenshot shows the myTRB.org website interface. At the top, there is a navigation bar with links for HOME, MyTRB, CONTACT US, DIRECTORY, E-NEWSLETTER, FOLLOW US, and RSS. Below this, the header features the logo for The National Academies of Sciences, Engineering, and Medicine on the left, and the TRB (Transportation Research Board) logo on the right. A 'Log in' link is visible in the top right corner. The main content area is titled 'Welcome to MyTRB!' and includes a prompt to 'Log in or create an account to access the following:'. Below this, there are four tabs: 'Connect', 'Convene', 'Publications', and 'Annual Meeting'. The 'Convene' tab is currently selected. The content under the 'Convene' tab states: 'TRB's work relies on volunteers and seeks to involve transportation professionals at every stage of their career. Get involved with TRB today.' It lists several links: 'Join the Centennial Club', 'Become a TRB Affiliate', 'Update Your Interests', 'Become a Friend of a Technical Committee', 'Become a Centennial Patron', 'Manage Your MyTRB Profile', and 'Visit the Job Center'. At the bottom of the page, there is a footer with the text: 'The National Academies of Sciences, Engineering, and Medicine', '500 Fifth Street, NW | Washington, DC 20001 | T: 202.334.2000', and 'Copyright © 2021 National Academy of Sciences. All Rights Reserved. Terms of Use and Privacy Statement'.

trbacs.org

Our brand-new website

TRB ACS20 Safety Performance and Analysis

A technical standing committee

Search

Home About Meetings AASHTO Highway Safety Manual TRB Human Factors Guideline Tools



2021 **TRB** ANNUAL MEETING
Transportation Research Board

100TH Annual Meeting
A Virtual Event
January 2021

Participating in the 2021 annual meeting? : The Annual Meeting will markedly be different this coming year for attendees, presenters and presiding officers. With the entire event being virtual, here are a few tips from TRB: Make [Continue Reading](#)→

TRB 2021 Annual Meeting

FEATURED



The new TRB ACS20 committee and subcommittees are meeting at the annual meeting in 2021, and we are hosting various sessions. Please register to attend – Zoom meeting links become [Continue Reading](#)→

Posted in TRB 2021

Participating in the 2021 annual meeting?

Posted on December 8, 2020 by Idavan


About TRB

- About the Transportation Research Board.
- Safety and Human Factors Snap Search

Members and Friends

Visit [MyTRB](#) to sign up as a friend or to access the directory.

Tweets by @safety_analysis

 **Safety Performance and Analysis**
@safety_analysis

#TRBAM 2021 event not to miss: Poster Session 1327 Safety Performance and Analysis Act 4: Methods and Models - read more about this session and other safety performance and analysis sessions here: bit.ly/3i4v4wl



Heart icon, Retweet icon

28m

TRB
2021

Meetings

Including 11 years (2011 – 2021)
of synthesis reports of safety related papers from
TRB Annual Meetings!

TRB ACS20 Safety Performance and Analysis

A technical standing committee

Search

Home

About

Meetings

AASHTO Highway Safety Manual

TRB Human Factors Guideline

Tools

Meetings

Annual Meeting 2021



The new TRB ACS20 committee and subcommittees are meeting at the annual meeting in 2021, and we are hosting various sessions. **Note that you have to register to attend and that Zoom meeting details become available 48 hours before the meeting at the [TRB Annual Meeting Online Program website](#).**

Meetings:

- TRB Safety Performance Analysis Committee Meeting: Thursday, January 14 2:00 PM-5:00 PM ET – [Agenda](#)
- Safety Analytical Methods Subcommittee (ACS20(1)): Friday, January 08 10:00 AM-11:30 AM ET – [Agenda and Meeting Handout](#)
- User Liaison Subcommittee (ACS20(2)): Friday, January 08 12:00 PM-1:30 PM ET – [Agenda](#), [Meeting Handout](#)
- Surrogate Safety Measures Subcommittee (ACS20(3)): Wednesday, January 13 10:00 AM-11:30 AM ET – [Agenda](#)
- Pedestrian and Bicycle Safety Analysis Subcommittee: Wednesday, January 13 12:00 PM-1:30 PM ET
- Rural Road Safety Policy, Programming, and Implementation Subcommittee, ACS10(4), Joint Subcommittee of ACS10, ACS20, AKD30: Thursday, January 07, 12:00 PM-1:30 PM ET

Sessions:

- *Workshop 1027* – Safety Performance Decision Making: Advancing

Synthesis of Safety Related Papers for TRB Annual Meetings

- 2021 - PDF
- 2020 - PDF
- 2019 - PDF
- 2018 - PDF
- 2017 - PDF
- 2016 - PDF
- 2015 - PDF
- 2014 - PDF
- 2013 - PDF
- 2012 - PDF
- 2011 - PDF

TRB
2021

Twitter

Hashtag for the meeting is **#TRBAM**

Committees no longer have twitter accounts, but we are using a *generic* account (**@safety_analysis**) that are now also available for other purposes for topic of “Safety Performance and Analysis”:
if you’re doing recruitments, RFPs for research, any new reports, etc.

Email me a blurb (<180 characters and a weblink) and I’ll get it posted for you.
vanschi@wsdot.wa.gov

TRB ACS20 Safety Performance and Analysis Search

A technical standing committee

Home About Meetings AASHTO Highway Safety Manual TRB Human Factors Guideline Tools

2021 TRB ANNUAL MEETING Transportation Research Board **100TH Annual Meeting** A Virtual Event January 2021

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Tweets by @safety_analysis

Safety Performance and Analysis @safety_analysis

#TRBAM 2021 event not to miss: Poster Session 1327 Safety Performance and Analysis Act 4: Methods and Models - read more about this session and other safety performance and analysis sessions here: bit.ly/3i4v4wl

Safety Performance and Analysis, Act 4: Methods and Models

Wednesday, January 27
04:00 PM ET
05:30 PM ET

#TRBAM @NALLMTRB

28m

Synthesis Report on Safety-Related Papers



TRB Standing Committees
ACS10 – Transportation Safety Management Systems
ACS20 – Safety Performance Analysis

Synthesis Report
on Safety-Related Papers
 presented at the 100th TRB Annual Meeting

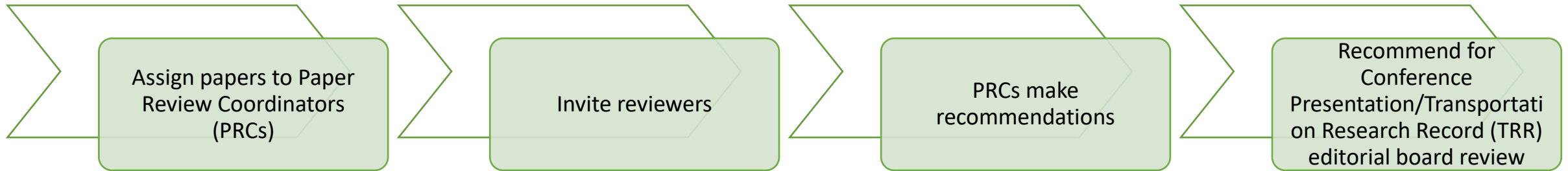
Prepared by

Alfonso Montella, Mohamed Abdel-Aty, Mohamad Banihashemi, Frank Gross, Qiming Guo, Jaeyoung Lee, Filomena Mauriello, Raul Andres Pineda Mendez, Maria Rella Riccardi, Heesub Rim, Brendan Russo, Xueqian Shi, Raghavan Srinivasan, Jinghui Yuan, and Andrew Tarko

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- Xueqian Shi
- Raghavan Srinivasan
- Jinghui Yuan
- Andrew Tarko

Committee Papers and Awards

ACS20 Paper Review Process



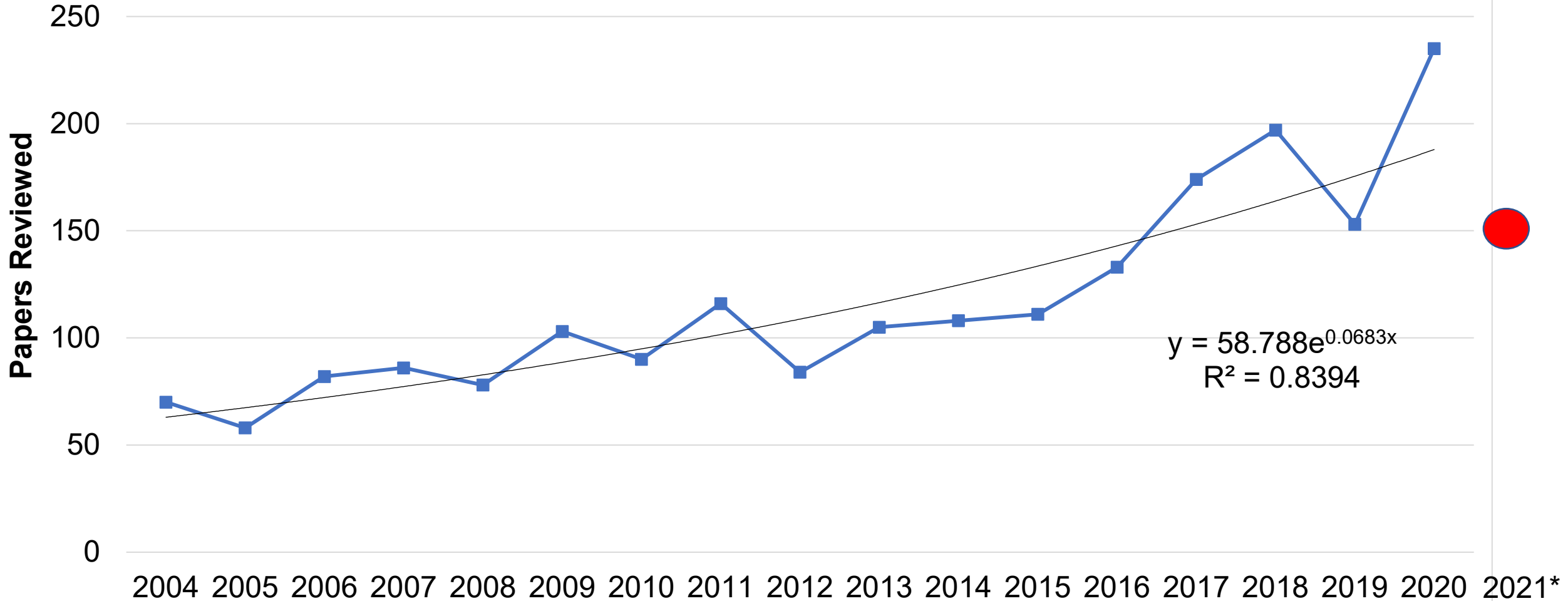
ACS20 Paper Submission*

2020 ANB20		
Presentation Only	74	31%
Presentation and Publication	161	69%
Total	235	100%

2021 (ANB20+ANB25)		
Presentation Only	60	31%
Presentation and Publication	90	69%
Total	150	100%

*Papers in specialty pool are not included.

18 Years of ANB20 Papers



* 2021 Figure include papers from both ANB20 and ANB25

ACS20 Review Summary

Presentation			Presentation & Publication			
Total	Reject	Accept	Total	Reject	Accept for Presentation	Accept for Presentation and Editorial Review
59	21	38	90	49	37	27
		63%			41%	30%

ACS20 Paper Reviewers

A great team of Paper Review Coordinator (PRCs): Xiao Qin, Raghavan Srinivasan, Nicolas Saunier, Peter Savolainen, Ward Vanlaar, George Yannis

Special thanks go to Bhagwant Persaud, Kim Eccles, and Karen Dixon

And YOU, reviewers!

In particular, on 09/23/2020, we sent out “*ACS20 Committee Paper Reviews - Volunteers Needed*” to ask for volunteers to take on additional reviews for 42 papers. **Within 48 hours, I received 88 emails!**

ANB25 Best Paper Award 2020

Members of the paper review committee:

Xiao (Shaw) Qin
Cong Chen
Raul Avelar Moran
John Nitzel

Ranking Criteria

Contribution to Field
Breadth of Applicability
Logic
Readability
Presentation (if available)

Summary:

Award for best paper based on the paper submitted and if presented. Four candidates were presented at the 2020 Annual Meeting in a podium session.

The Winner !

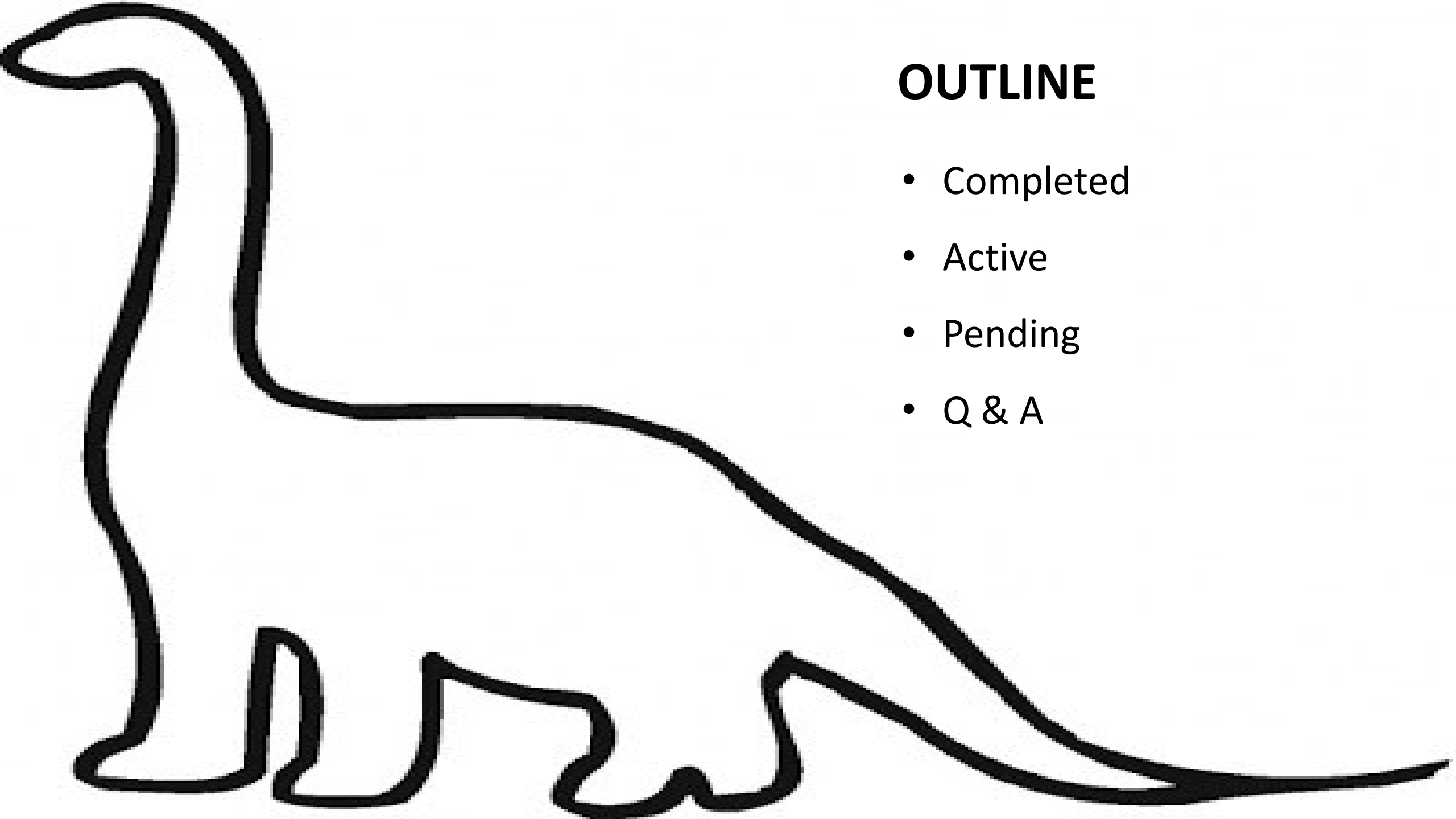
- Safety Performance of One-Way Arterials
 - Srinivas Geedipally, Texas A&M Transportation Institute
 - Dominique Lord, Texas A&M University
 - Michael Pratt, Texas A&M Transportation Institute
 - Kay Fitzpatrick, Texas A&M Transportation Institute
 - Eun Sug Park, Texas A&M Transportation Institute

TRB and NCHRP Staff Report



Status of NCHRP 17-Series Projects

David M. Jared, P.E., M.ITE
Senior Program Officer
djared@nas.edu



OUTLINE

- Completed
- Active
- Pending
- Q & A

Completed (publication pending)

- 17-45: Enhanced Safety Prediction Methodology and Analysis Tool for Freeways and Interchanges
- 17-50: Lead States Initiative for Implementing the HSM
- 17-62: Improved Prediction Models for Crash Types/Severities
- 17-63: Guidance for the Development and Application of Crash Modification Factors
- 17-64: Guidance for the Implementation of the Toward Zero Deaths National Strategy on Highway Safety

Completed (publication pending; cont.)

- 17-68: Intersection Crash Prediction Methods for the HSM
- 17-76: Guidance for the Setting of Speed Limits
- 17-78: Understanding and Communicating Reliability of Crash Prediction Models
- 17-80: Expansion of Human Factors Guidelines for Road Systems, 2nd Edition



Active

- 17-11(02): Development of Clear Recovery Area Guidelines
- 17-43: Long-Term Roadside Crash Data Collection Program
- 17-79: Safety Effects of Raising Speed Limits to 75 mph +
- 17-82: Guidance for Fixed Objects in RDG Project Data
- 17-85: Develop./Applic. of Crash Severity Models for HSM
- 17-86: Estimating Effectiveness of Safety Treatments in Absence of Crash Data

Pending (RFP posted)

- 17-96: Traffic Safety Culture Research Roadmap (proposals due 02-18-21)





THANK YOU!



WWW.SNOOPY.COM

First Break



Name

Affiliation

Other Participation at TRB



Committee on Safety Performance and Analysis (ACS20) – ACT 2

Transportation Research
Board Annual Meeting
Thursday, January 14, 2021



SCAN ME

Subcommittee Reports

2021 Subcommittee Participation



Subcommittees

- Safety Analytical Methods (ACS20(1))
- User Liaison (ACS20(2))
- Surrogate Safety Measures (ACS20(3))
- Rural Road Safety Policy, Programming, and Implementation Subcommittee, ACS10(4), Joint Subcommittee of ACS10, ACS20, AKD30
- Pedestrian and Bicycle Safety Analysis (ACS20(5))

Subcommittee context and background

- The intention is for the new subcommittees to **complement one another**, not compete or be redundant.
- This subcommittee will be a merger of the Subcommittee on *Future Directions in Road Safety Analysis* (ANB20) and the Subcommittee on *Technical Issues* (ANB25).
- This subcommittee will **NOT** include the Surrogate Measures of Safety subcommittee (ACS20(3)), nor the Ped/bike safety analysis subcommittee (ACS20(4)).
- Issues related to **connected and automated vehicles** may be covered by a future separate joint subcommittee
- Consequently, this subcommittee is focused on **methods of analysis**, not on subjects of analysis.

Draft scope and mission discussion

The Safety Analytical Methods subcommittee supports the parent committee's charge to:

- Foster the development of new theories and analytical methods to advance the science of safety to meet the needs of future technologies and road users
- Promote the application of these methods and supporting tools to gain new safety knowledge, and the institutionalization of science-based methods

Activities to be undertaken as needed include:

- Generate Research Need Statements related to analytical methods and procedures for highway safety performance
- Serve as the Committee's primary resource for assessing technical issues in data-driven highway safety performance analysis methods
- Serve as a resource for analytical methods pertinent to other ACS20 subcommittees and task groups.
- Evaluate the effectiveness of current and proposed data-driven methods and tools and their use to assess highway safety performance (in conjunction with TRB Committee AED60).
- Monitor emerging ideas and approaches in safety analysis, i.e., include artificial intelligence, traffic microsimulation, causal and structural modeling and surrogate measures of safety.
- Monitor applicable analytical methods from other disciplines, such as econometrics, epidemiology and biostatistics.
- Promote analysis and development of quantitative metrics for evaluating the use of emerging and non-traditional data sets not already used in safety, such as EMS, hospital records and other public health databases, crowd-sourcing data, social network data, tort/legal settlement data, driver and motor vehicle records, and naturalistic driving data.

Relationship to former ANB25 Technical Issues

- That Subcommittee addressed ad hoc issues with the HSM Part B -- Safety Management Systems and Part D -- CMFs as well as Part C -- Predictive Methods.
- Not all of those issue will necessarily be within the purview of this new subcommittee.
- Consequently, the functions of the Technical Issues Subcommittee could be handled in one of two ways.
 - A working group within the SAM subcommittee, working cooperatively with other appropriate subcommittees (in ACS20 or other committees) for non-analytical technical issues.
 - A working group outside SAM that refers analytical issues to this Subcommittee, and other issues to other appropriate subcommittees (in ACS20 or another committee).
- There was no consensus of the group regarding these two options, so this issue is to be resolved later.

Meeting stats

Total = 102+

- Consulting Engineers 31
- Contractor 2
- Federal Official 13
- Local Official 4
- State official 13
- Student 5
- University faculty/staff 26
- Other 7

Subcommittees

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User Liaison Subcommittee - Scope

... coordinates the activities of the Committee related to the implementation (in terms of understanding and application) of the HSM and other future quantitative analysis methods and procedures ..., gathering and disseminating of user feedback, and encouraging policy change to support the institutionalization of safety procedures.

The Subcommittee will coordinate our efforts with other subcommittees, with the ACS20 Communication Coordinator, with other TRB Committees, with HSM users, and with the *international safety research community*.

- **Vision**

... aim to achieve the institutionalization of the state of the art of quantitative highway safety information into professional practice; to be demonstrated by the widespread understanding and effective application of the fundamentals of highway safety.

- **Mission**

- Institutionalization of HSM practice, procedures, and future advances in quantitative highway safety performance by users, including:
 - AASHTO (American Association of State Highway and Transportation Officials)
 - FHWA (Federal Highway Administration)
 - TRB Committees
 - ITE (Institute of Transportation Engineers)
 - Local agencies
 - Consultants
 - Universities, Educators and Trainers
 - International users
 - Researchers

User Liaison Subcommittee Structure

- **Permanent Working Groups**
 - International Safety Performance Research
 - Policy and Legal Aspects
- **Temporary Working (Task) Groups**
 - TRB workshops, including 2021 *“Safety Performance Decision-Making: Advancing Research through Implementation”*
 - AASHTO Highway Safety Manual (HSM) website
 - HSM Part C tools
 - HSM FAQs
 - Research Needs Statements

User Liaison Subcommittee Initiatives

- TRB Workshops/Sessions
- HSM Website / HSM Part C Tools
- HSM FAQs
- NCHRP LRD83 Final Report
- Explore opportunities for collaboration, e.g., with:
 - ***Performance Effects of Geometric Design Committee*** (AKD10)
 - ***Joint Subcommittee of Rural Road Safety Policy, Programming, and Implementation*** (ACS10 parent/ACS20/AKD30)
 - ***Joint Simulation Subcommittee*** (of Traffic Simulation (ACP80) & Traffic Flow Theory and Characteristics (ACP50) Committees)
 - National Local Technical Assistance Program (LTAP)

- **Workshop 1027: *Safety Performance Decision-Making: Advancing Research Through Implementation***
 - Sponsored by ACS20 (lead) and Performance Effects of Geometric Design (AKD10)
 - Friday January 22, 10 am to 1 pm ET
- **Session 1311: *Case Studies in Performance-Based Analysis of Geometric Design***
 - Sponsored by AKD10 (lead) and ACS20
 - Wednesday January 27, 2:30 to 4:00 pm ET

- Practical Applications of HSM
- Best Practices for Transferability of SPF/CMFs
- Policy and Legal Aspects

User Liaison Subcommittee - Post-TRB Meeting

- Brief updates on progress of on-going initiatives since TRB
- Then, get to work! 😊
 - Move forward with initiatives and identified research needs
 - Identify new initiatives

February 16, 2021 at 1-3pm EST

All are invited to participate!

For meeting info/Zoom link, email:

michael.dimaiuta.ctr@dot.gov

genibahar@navigats.com

Post-February 16: Working meetings will be scheduled approximately every two months

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TRB Joint Subcommittee of Rural Road Safety Policy, Programming, and Implementation ACS10(4)

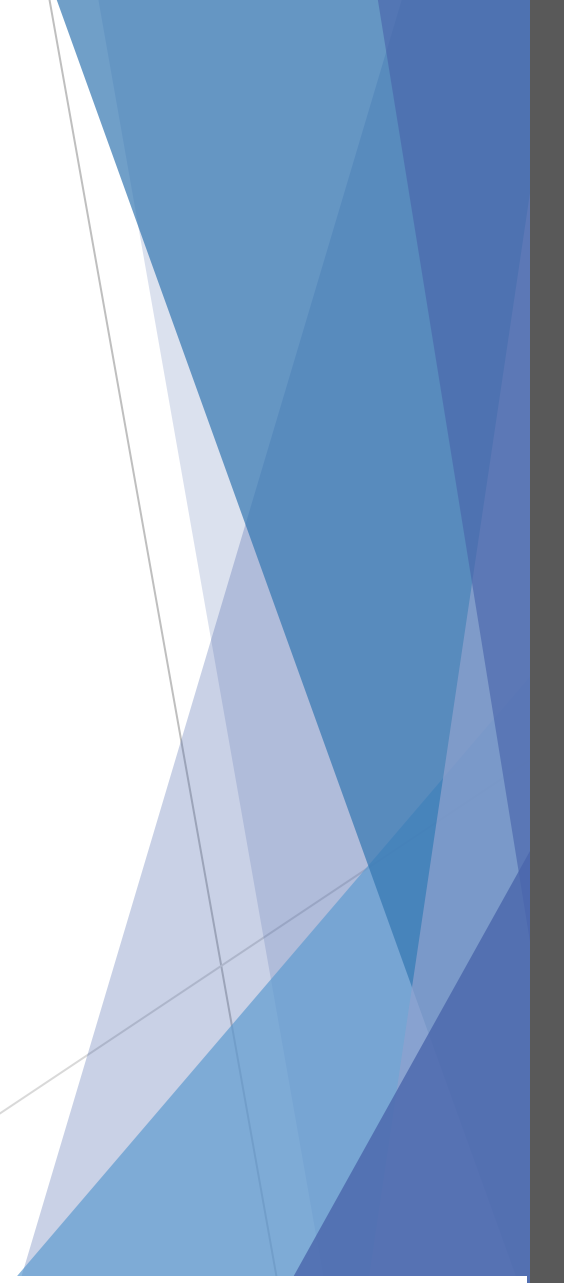
- ▶ Khaled Ksaibati – University of Wyoming – Co-Chair
- ▶ Joseph Marek – Clackamas County, Oregon – Co-Chair
- ▶ **PARENT COMMITTEES:**
 - ▶ ACS10 – Standing Committee on Transportation Safety Management Systems
 - ▶ ACS20 – Standing Committee on Safety Performance and Analysis
 - ▶ AKD30 – Standing Committee on Low Volume Roads
- ▶ **VISION:** Identifying new areas of rural roadway safety research needs and best methods for outreach, dissemination and implementation both within and outside the TRB organizational structure and those tasked with implementation.

MISSION:

- ▶ Promote and support research ideas related to and assisting with decisions connected to rural roadway safety improvements.
- ▶ Planning, operations, education, emergency medical services, enforcement and engineering.
- ▶ Research includes development of policies, programming, decision-making, and countermeasure implementation for both paved and unpaved rural roadways.

GOAL:

- ▶ Provide a focal point/forum within TRB and facilitate research and outreach activities related to improving rural roadway safety through policies, programming, and countermeasure implementation. Act as a liaison and collaborator with other safety related committees and their activities that may be relevant to rural roadways.



Joint Subcommittee on Rural Road Safety Policy, Planning and Implementation ACS10(4)

2020 Accomplishments and 2021 Work

- ▶ Supporting new A0040C - Rural Transportation Issues Coordinating Council with Khaled Ksaibati as a member
- ▶ Workshop submission and approval for 2021 TRB
 - ▶ #1044 - New Developments in Safety on Low Volume Roads
 - ▶ Thursday January 22nd at 2:00 PM Eastern

- ▶ Working with ACS10, ACS20 and AKD30 on supporting committee restructuring
- ▶ Added Vehicle/Animal Collisions to subcommittee research portfolio
- ▶ Revising strategic plan, working with animal vehicle collision team and pursuing research need statements during 2021

Research Topic Areas

- Adding Animal-Vehicle-Collision research topic area to our subcommittee in cooperation with ACS20 and AEP70 - Committee on Environmental Analysis and Ecology
- Research Topic Areas for Research Needs Statement Development
 - Model Inventory of Roadway Elements (MIRE) compliant data needs for very low volume roads and unpaved roads
 - Data-driven methods for simplified safety analysis on rural roads - build on publication *Selecting Safety Improvements on High Risk Rural Roads*
 - Creating better guidance for engineers and road officials related to safety and operations on rural and unpaved roads building on some existing guides
 - Speed limits for unpaved roads
 - New technologies to aid safety on rural roads including work zones

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Pedestrian and Bicycle Safety Analysis Subcommittee ACS20(4)

- Joint subcommittee of ACS20, ACH10, ACH20
- Co-chairs:
 - Thomas Jonsson, NTNU, Norway
 - Shane Turner, Abley, New Zealand

(yes, we do have an interesting challenge scheduling meetings in our subcommittee 😊)
- Scope:

The TRB Pedestrian and Bicycle Safety Analysis Subcommittee aims to promote the collection of data on pedestrian and cycle exposure and crashes and the development of Safety Performance Functions (SPF) and Accident Modification Factors (AMFs) for these modes, for all intersection and link types.



What's new?

During the year

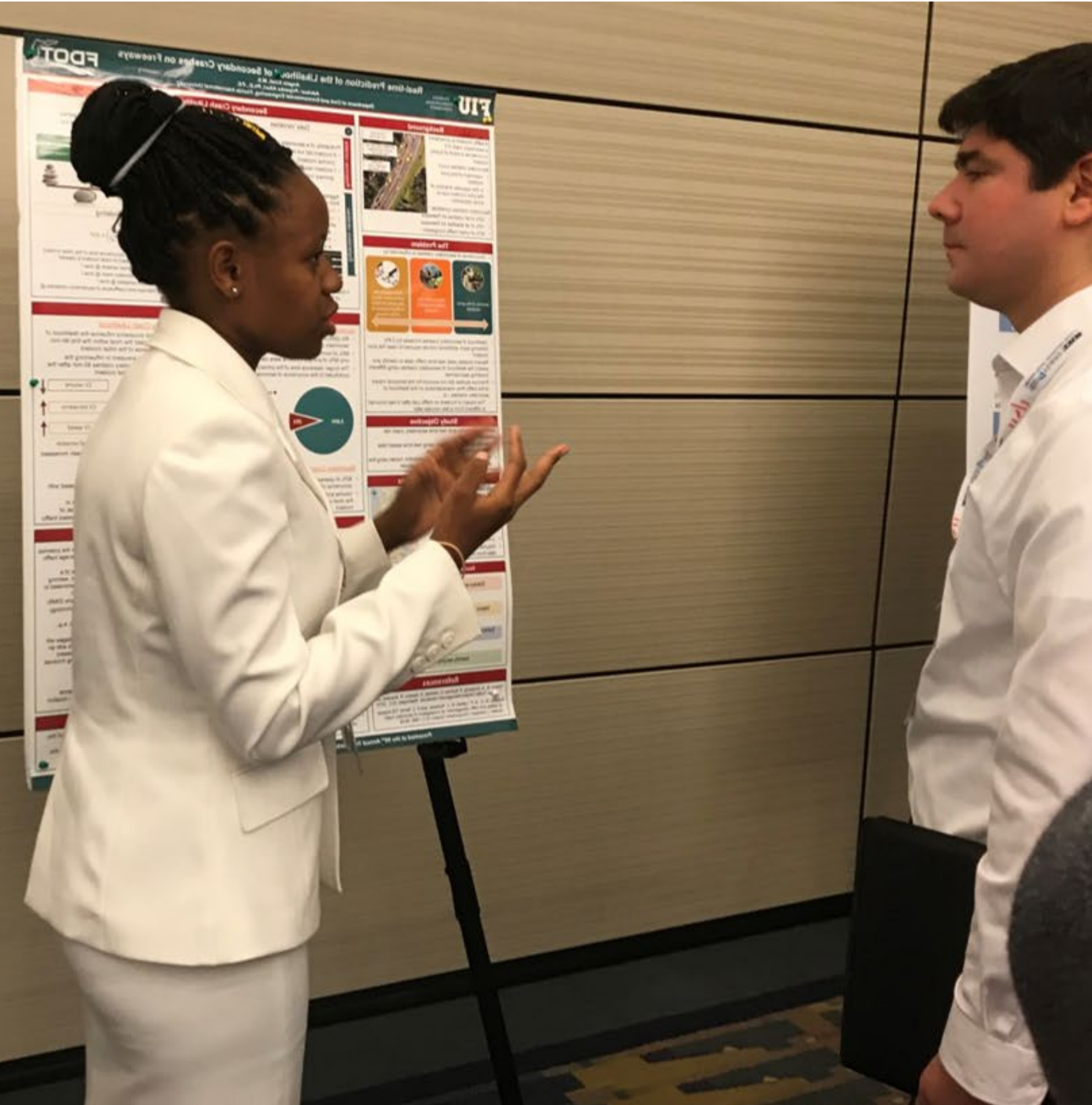
- New webpage
<https://sites.google.com/mail.usf.edu/trb-pedestrian-bicycle-safety> (Thanks to Chunfu Xin!)
- Online meetings to discuss RNS

Subcommittee meeting (yesterday)

- Record attendance peaked at 163 participants (120 signed in on the sign-in function)
- Presentations on Speed Management and Crash Data
- Lively chat-discussion on RNS with many new ideas to follow up
- Zoom-meeting worked well except running short of time. We want to do more of these during the year.



Doctoral Student Workshop



Lectern Session 1143

*Safety Performance and
Analysis Doctoral Student
Competition*

Tuesday, January 26
10:00 AM - 11:30 AM ET

#TRBAM
@NASEMTRB

The Standing Committees on Safety Performance Analysis (ACS20, formerly ANB20) and Statistical Methods (AED60, formerly ABJ80) continues to sponsor a special session that highlights work by Ph.D. students who are nearing the completion of their doctoral research on transportation safety.

■ Format

- 8 presenters (vs. 12 in “normal” years)
- 3-minute presentations from each person
- Posters that provide greater detail (external to the live session)
- Moderated question-and-answer period between presentations (questions to be prepared in advance by the “jury”)

- 1. Students submit, via e-mail, an abstract of no more than 500 words that summarizes their research. A template is provided for their use. Submission occurs after, and separate from, the TRB call.**
- 2. Students copy their faculty advisor on the e-mail to allow for confirmation of the anticipated graduation date. Priority is given to students who are nearest to graduation.**
- 3. A group of volunteers from ACS20 and AED60 reviews and rates the abstracts. Selections are made after consultation with committee chairs.**
- 4. The event is held during the TRB Annual Meeting and a group of volunteers rate the presentations, culminating in a Best Presentation Award.**

Thank you to this year's volunteers!

Timothy Gates, Michigan State University

Michael Pawlovich, South Dakota State University

Xiao Qin, University of Wisconsin-Milwaukee

Jonathan Wood, Iowa State University

This Year's Presenters and Topics

Name	University	Presentation Title
MD Sultan Ali	Florida International University	Assessing the Safety Impacts of Transit Signal Priority Using Full Bayes Before-After Study
Mohamed Essa	University of British Columbia	Real-time safety and mobility optimization of traffic signals in a connected vehicle environment
Henrick J. Haule	Florida International University	Evaluating the Safety Impacts of Ramp Metering on Freeways
Ricardo Osmar Jacome	University of Nebraska - Lincoln	On-Road Coordinates for Autonomous Vehicle Guidance
Pei Li	University of Central Florida	The Application of Novel Connected Vehicles Emulated Data on Real-Time Crash Potential Prediction for Arterials
Seyedeh Maryam Mousavi	Texas A&M University	Examining the Effects of Non-Infrastructure Variables on The Safety Performance of Mixed Traffic Environments at a Signalized Intersection
Duc Cong Phan	La Trobe University	Can walking and cycling for train access improve road safety? A case study in Victoria, Australia
Beijia Zhang	Auburn University	A Comprehensive Study of Driver Behaviors at Unsignalized Intersections Using SHRP2 Naturalistic Driving Study Data

Request for Jurors!

Anyone who is interested in serving as a judge for this competition can email Peter Savolainen (pete@msu.edu).

Please volunteer no later than Friday, January 15.

Students will provide a copy of both their video recording and poster by Friday, January 22.

These materials will be shared to a Google Drive folder to which judges will have read-only access.

Second Break



Name

Affiliation

Meaningful advice you
received as a student (or gave)



Committee on Safety Performance and Analysis (ACS20) –ACT 3

Transportation Research
Board Annual Meeting
Thursday, January 14, 2021



SCAN ME

Research Updates

CMF Clearinghouse Rating Transition



NCHRP 17-72 Update Crash Modification Factors for the Highway Safety Manual

The objectives of this research are to:

- a. Assess the current criteria and existing process for evaluating and identifying the quality of CMFs for appropriate use with the HSM.
- b. Develop proposed revisions to the criteria and process, including how existing and new CMFs may be incorporated in the HSM. Provide guidance for practitioner application of the revised process.
- c. Apply the evaluation criteria to identify and assess CMFs and develop a list of appropriate CMFs for the HSM.



CMF Clearinghouse Transitions to New Rating Criteria

TRB
2021



**On or about
February 15th**



NCHRP 17-72 Rating Procedure

- More detailed and provides scores for different factors including sample size, study design, methodology, and statistical significance
- Separate rating criteria for Before/After, Cross-Sectional, Meta-Analysis, and Meta-Regression studies
- Overall Procedure
 - Points are assigned based on multiple factors
 - Levels within factors and points for each level
 - Total score calculated by adding the points; maximum possible score is 150



Converting NCHRP 17-72 Ratings to Star Rating

NCHRP 17-72 Rating Score	Star Rating in CMF Clearinghouse
135-150	5 star
110-134	4 star
75-109	3 star
35-74	2 star
0-34	1 star



What Happens Post Rating Transition

- Provide excel spreadsheet to compare old and new star ratings for the CMFs in the Clearinghouse at date of transition.
- Update Individual CMF Score and Star Rating
- Change website content
 - About
 - Star Rating Criteria
 - User Guide

CMF / CRF DETAILS

CMF ID: 5229

CONVERSION OF INTERSECTION INTO HIGH-SPEED ROUNDABOUT

DESCRIPTION: CONVERSION OF INTERSECTION INTO HIGH-SPEED ROUNDABOUT

PRIOR CONDITION: THE INTERSECTION WAS OPERATING UNDER NO CONTROL, YIELD, TWSC, AWS, OR SIGNAL CONTROL

CATEGORY: INTERSECTION GEOMETRY

STUDY: EVALUATION OF ROUNDABOUT SAFETY, QIN ET AL., 2013

Star Quality Rating:	★★★★☆ [VIEW SCORE DETAILS]
Crash Modification Factor (CMF)	
Value:	0.659
Adjusted Standard Error:	
Unadjusted Standard Error:	0.094

SCORE DETAILS

Study Design Score: Excellent

Sample Size Score: Excellent

Standard Error Score: Excellent

Potential Bias Score: Excellent



What Can You Do To Prepare For The Transition

- Familiarize yourself with the new rating criteria
- Continue to record CMF IDs for the CMFs that you are currently using
- State DOTs: Update your State CMF Lists following the rating transition to reflect the new rating criteria
- Researchers: Consider new rating criteria as you conduct studies to develop CMFs
- Attend upcoming CMF Clearinghouse for more details
- Sign-up for the CMF Clearinghouse newsletter to receive notifications

RECEIVE THE QUARTERLY EMAIL NEWSLETTER

EMAIL ADDRESS	FIRST NAME	LAST NAME	ORGANIZATION	SIGN UP
---------------	------------	-----------	--------------	---------



Questions?

- **Visit:**
<http://www.cmfclearinghouse.org/changes.cfm>
- **Contact:**
Karen Scurry
FHWA Office of Safety
202-897-7168
karen.scurry@dot.gov

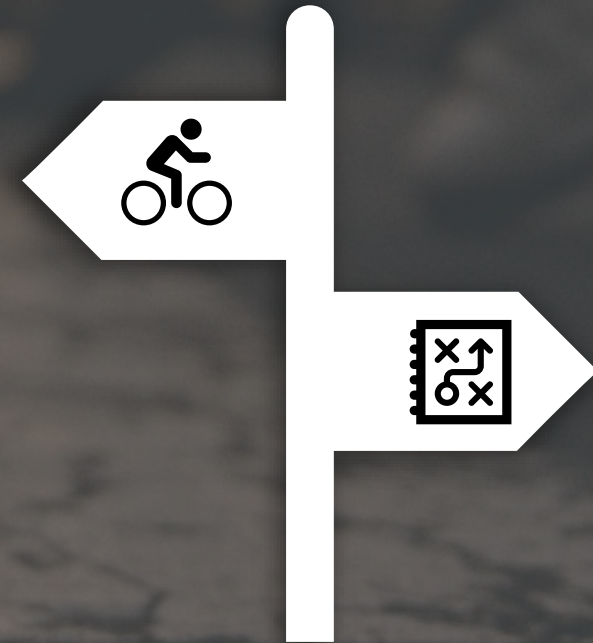
TRB 2021 AASHTO Brief

ACS20 Committee Meeting January 14, 2021



Agenda

- HSM2 Development Status
- Future of HSM Review Process
- HSM-Related Research
- AASHTO-Sponsored Webinars
- HSM Website Updates



HSM Development Status

A summary of the past year

From 17-71 to 17-71A

- NCHRP and 17-71 contractor elected to terminate contract in spring 2020
- Plans for a follow-on project 17-71A began immediately to continue project work with Ray Derr, NCHRP
- Review of documents and progress was conducted with to clearly define the 17-71A scope and funding
- RFP went out in September, followed by overview/Q&A webinar

Proposed AASHTO Highway Safety Manual, Second Edition

NCHRP Project 17-71A



Exponent®

Harwood Road Safety, LLC

Mr. Brelend C. Gowan

Ogle Research, LLC

Project Objective

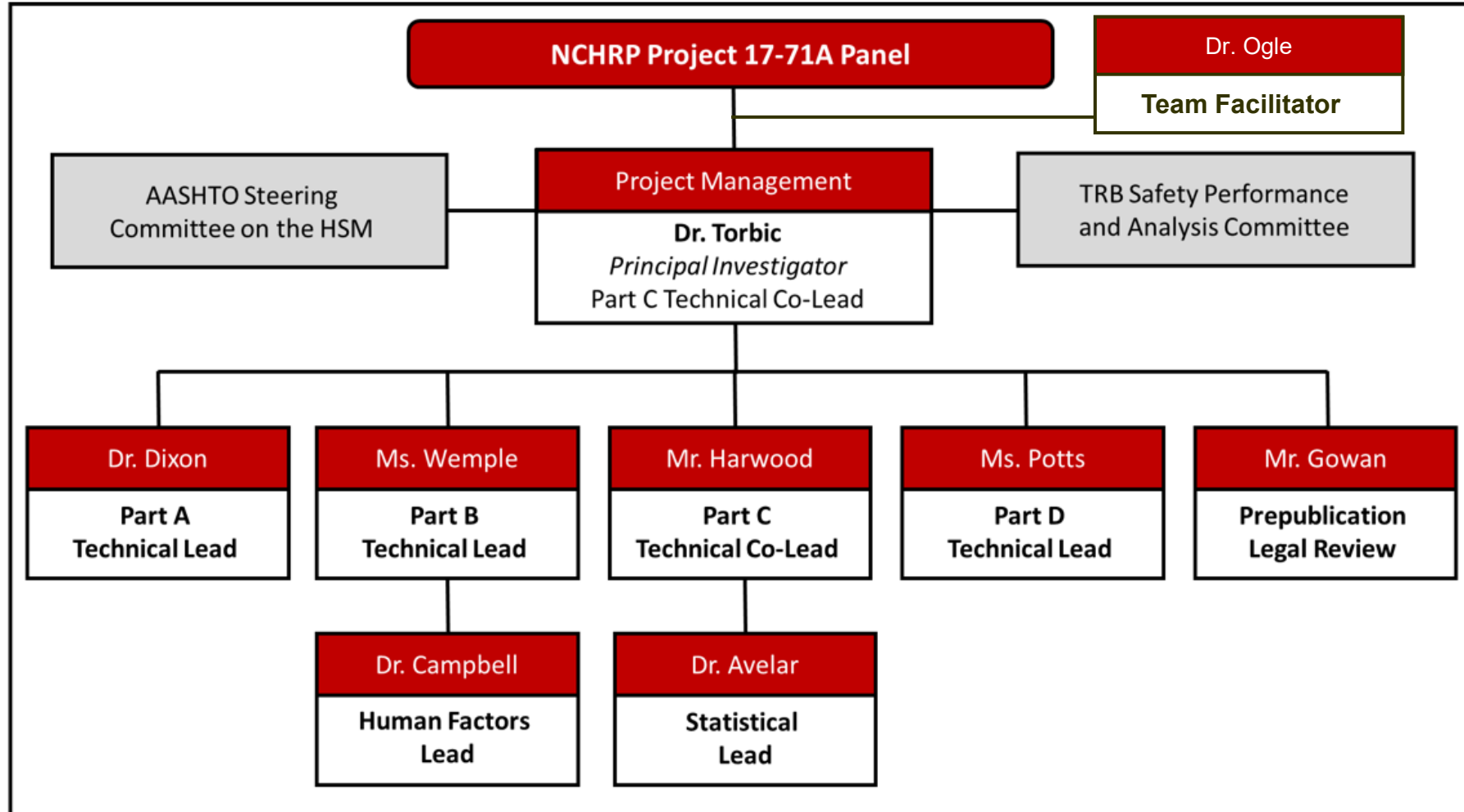
- Complete the work initiated as part of NCHRP Project 17-71 to develop and prepare a proposed HSM2 in a format suitable for adoption as an AASHTO publication.
- The proposed HSM2 will synthesize and incorporate relevant ongoing and completed research including: completed NCHRP Project 17-71 deliverables, related documents, and user feedback to expand the scope and quality of HSM2 to increase application and improve its usability.

NCHRP 17-71A Project Panel

- **Bonnie Polin**, Massachusetts DOT (Co-Chair)@#
- **Stephen Read**, Virginia DOT (Co-Chair)@
- **John Milton**, Washington DOT@#
- **Timothy Barnett**, Univ. of Alabama#
- **Daniel Carter**, North Carolina DOT
- **Cong Chen**, Univ. of South Florida
- **Timothy Colling**, Michigan Technology Univ. #
- **Jason Hershock**, Pennsylvania DOT@
- **Kohinoor Kar**, Arizona DOT#
- **Priscilla Tobias**, Arora and Associates#
- **Derek Troyer**, Ohio DOT@
- **Jerry Roche**, FHWA (Liaison) #
- **Kelly Hardy**, AASHTO (Liaison) @#
- **Bernardo Kleiner**, TRB (Liaison) #
- **Ray Derr** (NCHRP Program Officer)

Previous Panel Member
@ Member of AASHTO HSM Steering Comm.

Project Organizational Chart



Research Approach

PHASE I—ASSEMBLE RESOURCES AND PLAN PROJECT

- Task 1—Kick-off Meeting and Project Management
- Task 2—Review Materials from NCHRP Project 17-71
- Task 3—Assessment of Research for Potential Incorporation into HSM2
- Task 4—Develop Glossary of Terms and Phrases to be Used and Avoided in HSM2
- Task 5—Prepare Interim Report

PHASE II—PRODUCE PROPOSED HSM2

- Task 6—Execute Approved Phase II Work Plan
- Task 7—Prepare Project Deliverables

Sample of Key Research Projects Expected to Contribute Material for Use in HSM2

Project Title	HSM Part Impacted
NCHRP Project 17-80 (Expansion of Human Factors Guidelines for Road Systems, Second Edition)	A
Naturalistic Driving Study (ongoing and/or recently completed projects)	A
NCHRP Project 17-73 (Systemic Pedestrian Safety Analysis)	B
NCHRP Project 17-77 (Guide for Quantitative Approaches to Systemic Safety Analysis)	B
NCHRP 20-7(334) (Primer on the Joint Use of the HSM and HFG)	B
NCHRP Project 17-81 (Proposed Macro-Level Safety Planning Analysis Chapter for the Highway Safety Manual)	B/C
NCHRP Project 17-84 (Pedestrian and Bicycle Safety Performance Functions for the Highway Safety Manual)	B/C
NCHRP Project 17-54 (Consideration of Roadside Features in the Highway Safety Manual)	C
NCHRP Project 17-58 (Safety Prediction Models for Six-Lane and One-Way Urban and Suburban Arterials)	C
NCHRP Project 17-62 (Improved Prediction Methods for Crash Types and Severities)	C
NCHRP Project 17-68 (Intersection Crash Prediction Methods for the Highway Safety Manual)	C
NCHRP Project 17-70 (Development of Roundabout Crash Prediction Models and Methods)	C
NCHRP Project 17-78 (Understanding and Communicating Reliability of Crash Prediction Models)	C
NCHRP Project 17-79 (Safety Effects of Raising Speed Limits to 75 mph and Higher)	C
NCHRP Project 17-89 (Safety Performance of Part-Time Shoulder Use on Freeways)	C
NCHRP Project 17-89A (HOV/HOT Freeway Crash Prediction Method for the Highway Safety Manual)	C
NCHRP Project 20-7(341) (Guidelines for Development HSM Part C Predictive Method Chapters)	C
NCHRP Project 17-63 (Guidance for the Development and Application of Crash Modification Factors)	D
NCHRP Project 17-72 (Update of Crash Modification Factors for the Highway Safety Manual)	D

Tentative Schedule of Key Milestones

Key Milestones	Dates
Authorization to expend precontract costs (Tasks 1 & 2) ^a	December 22, 2020 – March 22, 2021
Kick-off meeting with project panel	January 19, 2021
Virtual progress reports/meetings with project panel	Quarterly
Submit white paper on status of HSM Parts A-D and individual draft chapters (Task 2)	March 22, 2021
Submit white paper on assessment of research for potential incorporation in HSM2 (Task 3)	March 2021
Submit glossary of terms and phrases to be used and avoided in HSM2 (Task 4)	March 2021
Interim report and panel meeting (Task 5)	June 2021
Submit draft chapters of HSM2 and entire draft HSM2 (Task 6)	To be determined
In-person panel meeting	June 2022
Submit final proposed HSM2 (Task 7)	December 2022

^a Official start date for project period of performance still to be determined (POP – 24 months)

Future of HSM Review and Research

Plans for stakeholder reviews and new RNS

Future Reviews

- Simplified process
 - Stakeholder involvement in reviewing HSM2 materials was extremely valuable, hope to recreate
 - Limited review planned
 - Reduce load on volunteers, impact on project schedule
- Moving forward
 - New Panel, with HSM Steering Group input, will determine ACS20 reviewers and input requested

Research Updates

HSM2 related research projects for consideration:

- **Crash Severity Models**
- **Rural Two-Lane SPFs**
- **Several Freeway SPFs**

Future HSM research:

- **NCHRP projects funded but beyond 17-71A HSM2 inclusion period**
- **Continue HSM research gap analysis with ACS20**
- **Propose project to prepare Future HSM Strategic Plan**

AASHTO-Sponsored Webinars

Network screening, recently completed research, and more

Network Screening Webinars

- Plans
 - Co-hosting with Kerry Wilcoxon of Arizona DOT
 - Present innovative approaches by 5-6 state agencies
 - Highlight notable analysis and visualization approaches, data sources, and analysis methods
- Schedule
 - Overview webinar will be scheduled for February 2021 to introduce all case studies
 - Case study specific webinars will be held following the overview

Recently Completed Research Webinars

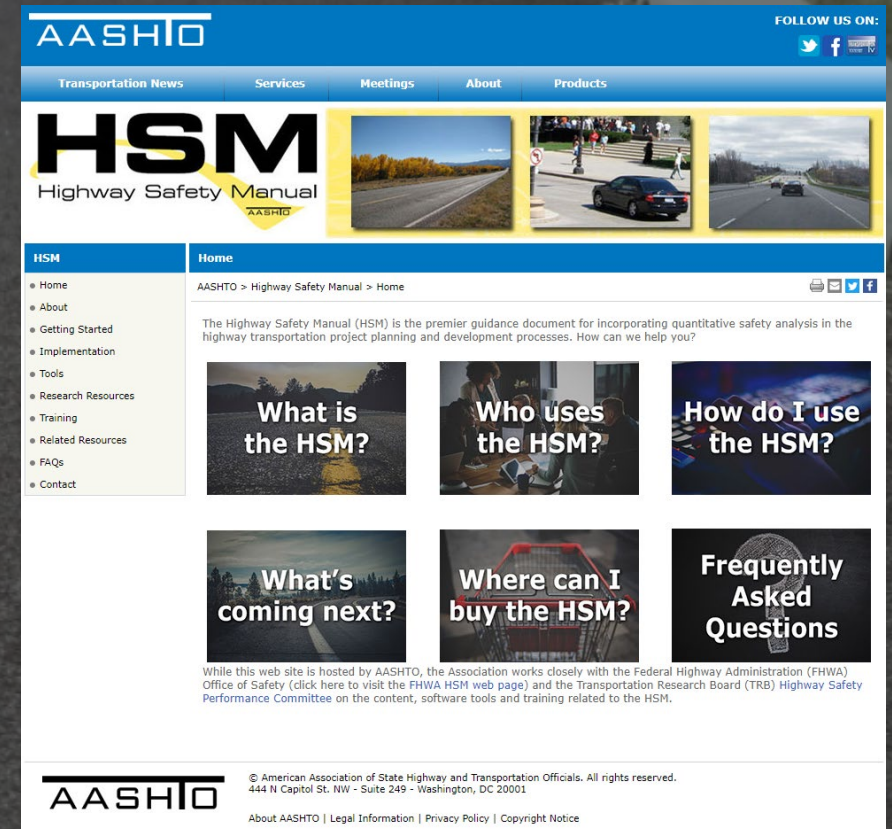
- Additional webinars are being planned for 2021 to introduce recently completed NCHRP projects
- Purpose is to introduce users to newly available analysis approaches while the HSM2 publication is being developed
- Topics will include:
 - Pedestrian/bicycle predictive modeling
 - New facility types predictive modeling
 - Systemic analysis methods
 - And more...

HSM Website Updates

Updates to content, tools, and more

HSM Website Update

- Minor updates continue to be made to the HSM website
 - **Tools:** Urban/Suburban Arterials Predictive Spreadsheet updated in April, 2020
 - **Research Resources:** Page updated to include links to related NCHRP and FHWA research project pages



HSM Website Update

- HSM2 Overview slide deck
 - Outlines the purpose of the HSM1
 - Describes what's coming in the HSM2, additions, changes
 - Lists new research which will be included in HSM2 and how to find the outcomes in the meantime

**Available on the HSM website
(highwaysafetymanual.org)**



Thank you.

Questions?

Stephen Read – Virginia DOT

stephen.read@vdot.virginia.gov

Kelly Hardy – AASHTO

khardy@aaashto.org





AASHTO Committee on Safety Research Subcommittee

Chair: Steven Buckley, Kansas DOT

Vice Chair: Adnan Qazi, Arkansas DOT

Kelly Hardy, AASHTO



Committee on Safety Schedule for FY23 NCHRP Submissions

- Develop and Collect Research Ideas: ***Due April 2***
 - steven.buckley@ks.gov; adnan.qazi@ardot.gov; khardy@ashto.org
- Safety Committee Reviews and Rates Ideas
- Return Comments to Authors
- Develop Full Research Problem Statements: ***Due August 27***
 - steven.buckley@ks.gov; adnan.qazi@ardot.gov; khardy@ashto.org
- Safety Committee Reviews and Rates RPS
- Safety Committee Submits to NCHRP: Due November 1

Research Problem Statement Schedule

AASHTO



2020



Reviewed
And Rated



Comments to
Authors
Summer



Prioritized



Submits
To NCHRP
Nov 1



Revised



Ideas Due
April 2



Full Problem
Statements Due
August 27



Researchers

Proposed research needs statement (RNS) development process

- Conduct RNS Brainstorming web meeting (meet jointly with AASHTO)
- Determine RNS priorities by participants
- Identify members and friends to help with writing assignments

Identify candidate topics and identify next steps

USDOT Updates

[NHTSA's Automated Vehicles for Safety Website](#)

- Comprehensive resource on vehicle automation technology
- FAQ on automation technology

[NHTSA releases 2019 Fatality Analysis Reporting System \(FARS\) data](#)

- 36,096 people killed in motor vehicle traffic crashes on U.S. roadways during 2019

[NHTSA releases 2019 Crash Investigation Sampling System \(CISS\) data](#)

- Estimated 2,736,257 police-reported motor vehicle crashes (at least 1 passenger vehicle towed from crash)
- Estimated 1,356,689 injured occupants involved

[NHTSA debuts the Fatality and Injury Reporting System Tool \(FIRST\)](#)

- [Allows users to build custom queries of Fatality \(FARS\) and Injury \(CRSS\) data](#)

[Occupant Protection \(2019 NOPUS, 2017 NSUBS, and 2019 State Estimates\)](#)

- [2019 National Occupant Protection Use Survey](#) 90.7% of adult front-seat passengers restrained
- [2017 National Survey of the Use of Booster Seats](#) 68.5 % of children aged 4 to 7 restrained in booster
- [2019 State Seat Belt Survey Estimates](#) State/Territory seat belt use 70.7% to 97.1%

FHWA Update

Jerry Roche, PE

Office of Safety

jerry.roche@dot.gov

MIRE FDE Outreach – Robert Pollack

- initiated a process to ascertain the current status of State progress toward compliance with FDE requirement (deadline: 2026).
- providing the FDE information to the Division Offices and ask that they share this information with the State DOT
- Opportunity to have discussion(s) with the State and Division Offices about FDE progress and to learn more about the successes and challenges the States are having with the FDEs

Compiled FDE information from

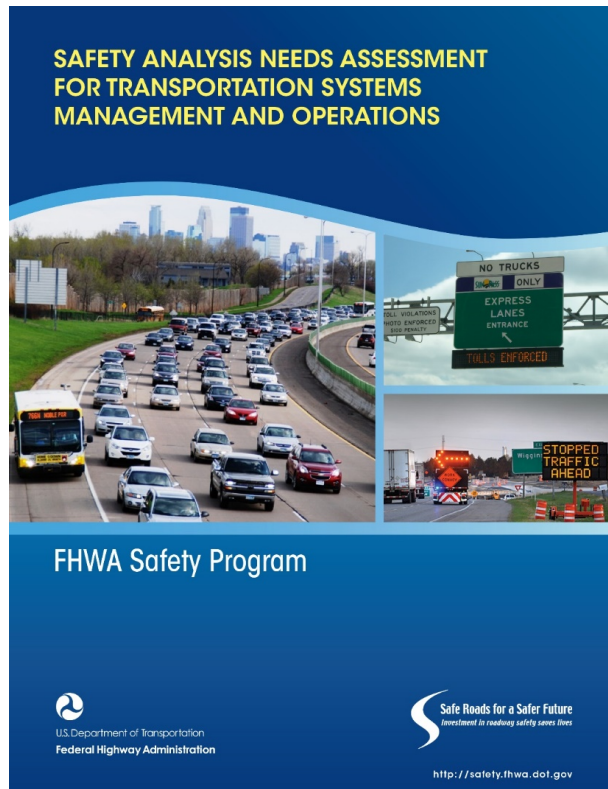
- Annual State HSIP Evaluation FDE progress reports by element from template
- MIRE FDE mapping with NHTSA

MIRE FDEs	Non Local Paved Roads - Roadway Segment		Non Local Paved Roads - Intersection		Non Local Paved Roads - Interchange/Ramp		Local Paved Roads		Unpaved Roads	
	Completion Percentage - State Owned	Completion Percentage - Non State Owned	Completion Percentage - State Owned	Completion Percentage - Non State Owned	Completion Percentage - State Owned	Completion Percentage - Non State Owned	Completion Percentage - State Owned	Completion Percentage - Non State Owned	Completion Percentage - State Owned	Completion Percentage - Non State Owned
ROADWAY SEGMENT										
Segment Identifier (12)	10	15								
Route Number (6)	50	75								
Route/Street Name (9)	95	85								
Federal Aid/Route Type (21)	80	45								
Rural/Urban Designation (20)	50	50								
Surface Type (23)	100	15								
Begin Point Segment Descriptor (10)	75	80								
End Point Segment Descriptor (11)	75	80								
Segment Length (13)	75	80								
Direction of Inventory (18)	100	50								
Functional Class (19)	100	45								
Median Type (54)	50	50								
Access Control (22)	60	65								
One/Two Way Operations (91)	75	80								
Number of Through Lanes (31)	60	80								
Average Annual Daily Traffic (79)	65	10								
AADT Year (80)	100	25								
Type of Governmental Ownership (4)	75	80								
INTERSECTION										
Unique Junction Identifier (120)										
Location Identifier for Road 1 Crossing Point (122)										
Location Identifier for Road 2 Crossing Point (129)										
Intersection/Junction Geometry (126)										
Intersection/Junction Traffic Control (131)										
AADT for Each Intersecting Road (79)										
Unique Approach Identifier (139)										
INTERCHANGE/RAMP										
Unique Interchange Identifier (128)										
Location Identifier for Roadway at Beginning of Ramp Terminal (197)										
Location Identifier for Roadway at Ending Ramp Terminal (201)										
Ramp Length (187)										
Roadway Type at Beginning of Ramp Terminal (195)										
Roadway Type at End Ramp Terminal (199)										
Interchange Type (182)										
Ramp AADT (191)										
Year of Ramp AADT (192)										
Functional Class (19)										
Type of Governmental Ownership (4)										
Totals (Average Percent Complete)	71.94	56.11	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#VALUE!	#VALUE!	#VALUE!	#VALUE!

Publication: Safety Analysis Needs Assessment for TSMO

TRB
2021

Funded by the HSM Implementation
Pooled Fund, TPF-5(255)



- Characterize current safety performance analysis practice, knowledge, and skills relevant to TSMO strategies
- Identify gaps in existing safety performance analysis approaches and develop associated research needs

<https://safety.fhwa.dot.gov/rsdp/downloads/fhwssa19041.pdf>

Selecting Projects and Strategies to Meet Safety Performance Targets

- **Outlines opportunities throughout the safety management process to maximize lives saved and injuries prevented**
- **Proposes two new methods: BCA (KA) and Countermeasure Score**
- **Testing of new approaches with two states under way**
- **Anticipated Completion: June 2021**

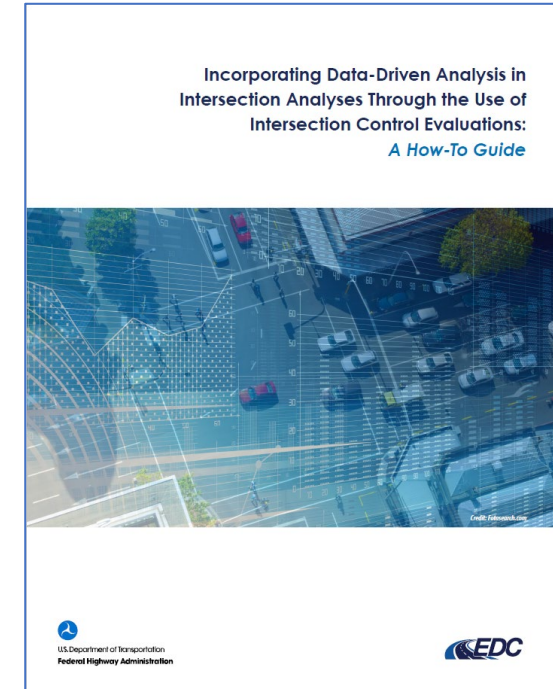
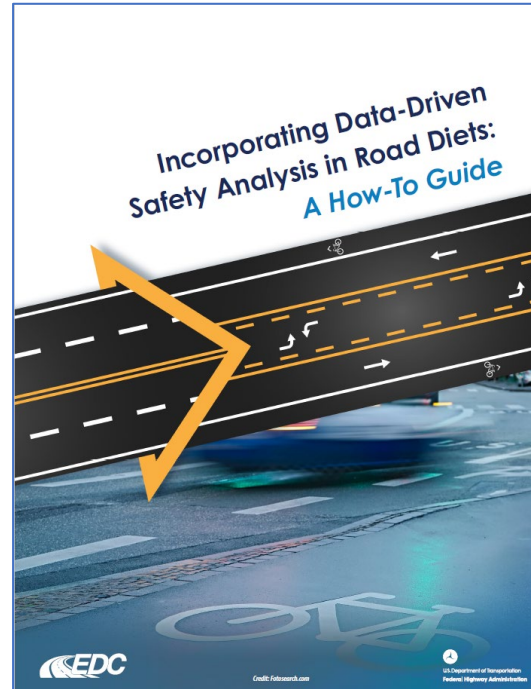
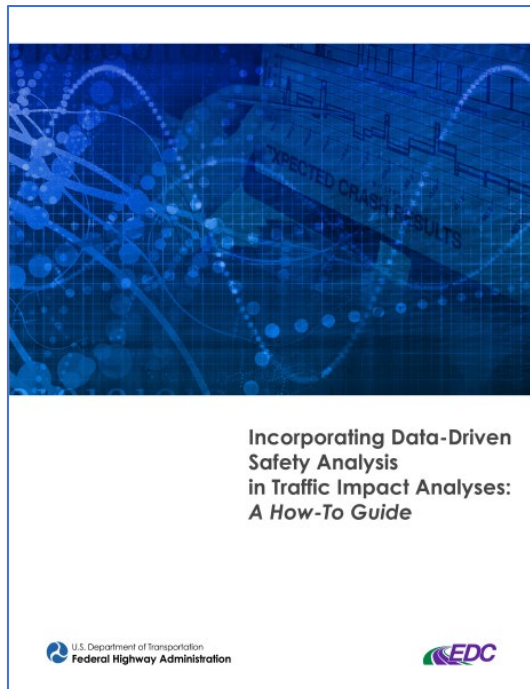
Countermeasure Service Life Guide

- to help practitioners make consistent, data-driven decisions for evaluating and ranking safety countermeasures through the use of prescribed countermeasure service lives
- provides recommended service lives for a wide range of countermeasures implemented with Highway Safety Improvement Program funding
- demonstrates the benefits to standardizing countermeasure service life application within an agency
- provides background information on factors that can impact countermeasure service life and analytical considerations when conducting benefit-cost analysis for multiple countermeasures or alternatives with differing service life
- Anticipated Completion: June 2021

DDSA How-To Guides

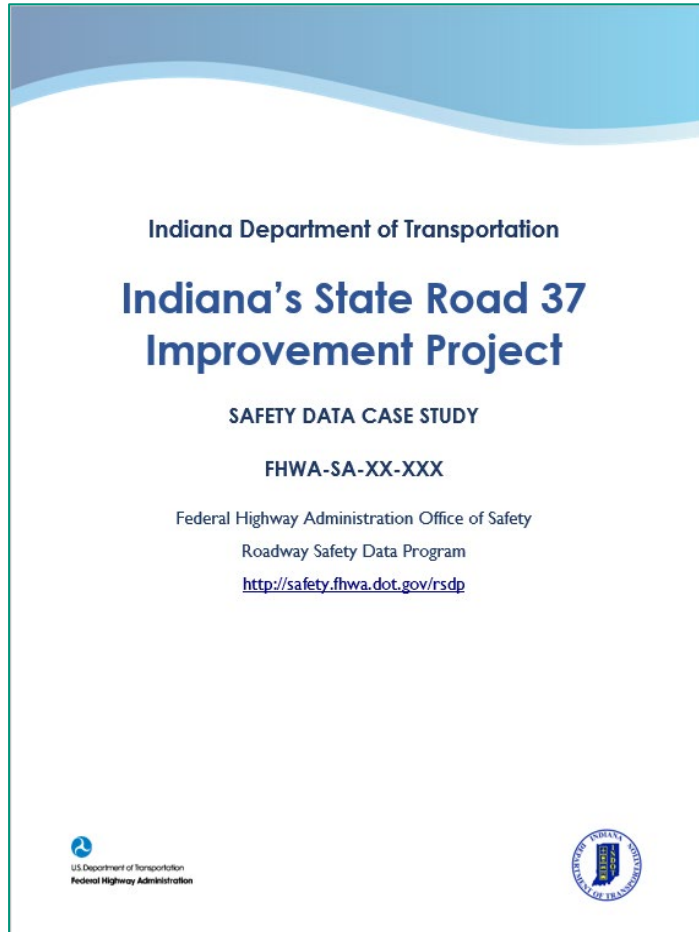
Traffic Impact Analyses
 Intersection Control Evaluation
 Road Diets
 Horizontal Curves (site-specific)

Horizontal Curves (systemic)
 Off-peak and Peak Conditions
 Allocating Lane and Shoulder
 Width



Safety Data and Analysis Case Studies

Partially Funded by the HSM
Implementation Pooled Fund, TPF-5(255)



- 18 total case studies with 12 focused on HSM related applications
- Case Study Template provided by User Liaison Subcommittee ACS20(1)
- ~ 30 potential case studies submitted
- Various applications, methods, tools, and facility types
- HSM Implementation Pooled Fund Members ranked and prioritized potential case studies

Local Road Safety Plan DIY Site

LOCAL ROAD SAFETY PLANS:
Your Map to Safer Roadways

Step 1 Identify Stakeholders **Step 2 Use Safety Data** **Step 3 Choose Proven Solutions** **Step 4 Implement Solutions** **Finish Line**

Welcome to the local road safety plan do-it-yourself website! We are so happy you are here. On this site, you'll find everything you need to make plan that fits your community and gets people home safely. Watch the video below to learn how to use the site and build your plan. If you need help contact us anytime.

How to Use This Site

LRSP DIY: Introduction Watch later Share

LOCAL ROAD SAFETY PLANS:
Your Map to Safer Roadways

INTRODUCTION

More videos

SCROLL DOWN FOR MORE VIDEOS

▶ Welcome - FHWA Leadership

LOCAL ROAD SAFETY PLANS:
Your Map to Safer Roadways

Welcome

▶ Local Road Safety Plans Overview

Tools and Resources

▶ Guides & Training ▶ LRSP Examples ▶ LRSP Sites

U.S. Department of Transportation
Federal Highway Administration

<https://safety.fhwa.dot.gov/LRSPDIY/>

Transportation Research Informatics Platform (TRIP) Maturity and Use Cases:

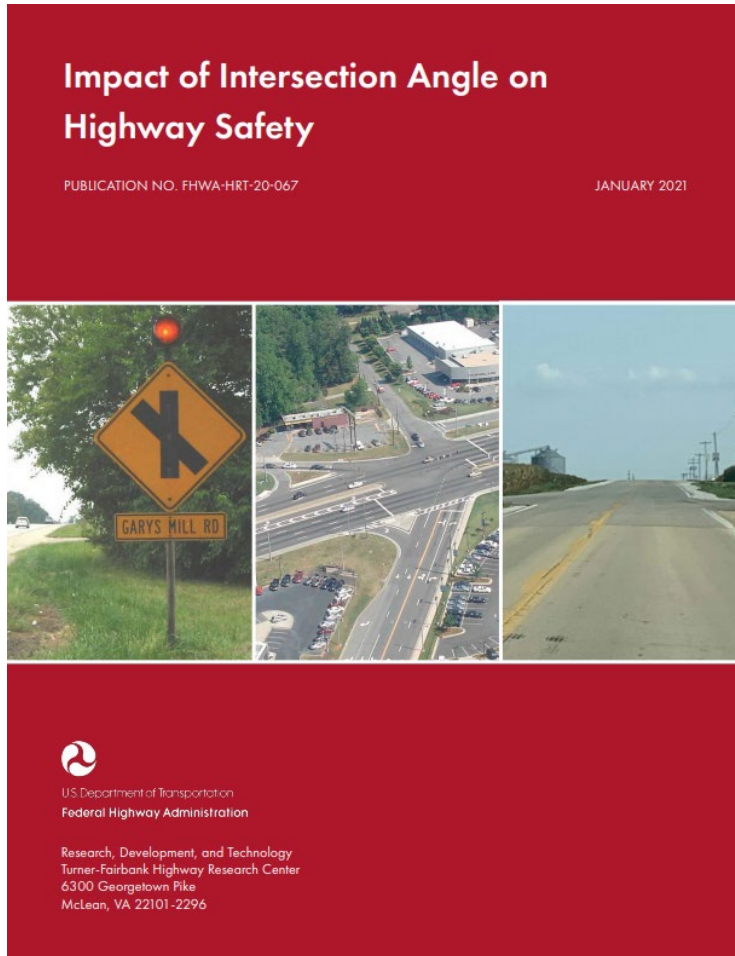
- 1) Measuring and Monitoring Operational Performance of TSMO Strategies
- 2) Identifying Secondary Crash Occurrence and Contributing Factors.
- 3) Non-Recurring Congestion Monitoring and Analysis.
- 4) Pedestrian Activity and Safety

Development of two Realistic Artificial Datasets (RAD)

1. Multidisciplinary Initiative on Methods to Integrate and Create realistic artificial dataset (MIMIC)
2. Development and Application of a Disaggregate Realistic Artificial Data Generator for Computationally Testing Safety Analysis Methods (DREDGE)

Impact of Intersection Angle on Highway Safety – Ana Maria Eigen

TRB
2021



Objectives

- to derive quantitative relationships between intersection angle and safety performance
- to determine appropriate crash modification functions (CMFunction) for reducing or eliminating the skew angle of an intersection
- determine if there is a critical minimum angle at which safety is substantially diminished
- assess the need for revising current geometric design policies and practices

Conclusion: The CMFunctions differ from previous studies and agencies should consider modifying the critical angle for intersections in design policies

<https://www.fhwa.dot.gov/publications/research/safety/20067/20067.pdf>

Pedestrian and Bicycle Crash Analysis Tool

TRB
2021

Pedestrian & Bicycle Crash Analysis Tool (PBCAT) – Version 2.0

File Form Design Reports Database Countermeasures Help

Ped_All_Data_Milepost - PBCAT.MDB

Principal Information

Report Number: 0001

Date of Crash (mddyymm): 12311999

Time of Day (military - hhmm): 2210

No of Peds: 1

Location

Jurisdiction 1: [Dropdown]

Jurisdiction 2: [Dropdown]

Route Name: [Dropdown]

Route Number: [Dropdown]

Milepost: [Text]

GPS Data

GPS Longitude: [Text]

GPS Latitude: [Text]

Motorist turning left, struck pedestrian on far leg of intersection (...)

Select the scenario that best illustrates the pedestrian's movement when struck.

Pedestrian within crosswalk area, approached from same direction as motorist

11a, 11b, 11c, 12a, 12b, 12c

Back Close

- Version 3 under development
- Beta-testing to occur in mid-to-late February

Evaluation of Low-Cost Safety Improvements PFS (40 states) – Roya Amjadi

- HRT-19-036; Report _ *Safety Evaluation of Flashing Yellow Arrow at Signalized Intersections*
- HRT-19-035; Techbrief _ *Safety Evaluation of Flashing Yellow Arrow at Signalized Intersections*
- HRT-20-052; Report_ Contributing Factors for Focus Crash and Facility Types
- HRT-20-053; Report_ Contributing Factors for Focus Crash and Facility Types: Quick Reference Guide
- HRT-20-061; Report_ Developing Crash-Modification Factors for High-Friction Surface Treatments
- HRT-20-062; Report_ Developing Crash-Modification Factors for High-Friction Surface Treatments: Friction Change Report
- HRT-20-069; Report _ The Development of Crash Modification Factors: Highway Safety Statistical Paper Synthesis

<https://highways.dot.gov/research/safety/evaluations-low-cost-safety-improvements-pooled-fund-study/evaluations-low-cost-safety-improvements-pooled-fund-study-elcsi%E2%80%9393pfs>

SHRP2 Naturalistic Driving Study PF (7 States) – Charles Fay

- Verification and Calibration of Microscopic Traffic Simulation Using Driver Behavior and Car-Following Metrics for Freeway Segments
- Incorporating the Impacts of Driver Distraction into Highway Design and Traffic Engineering
- Freeway Guide Sign Performance at Complex Interchanges: Reducing Information Overload
- Investigating How Multimodal Environments Affect Multitasking Driving Behaviors
- Validation of Performance-Based Design
- Developing Speed Crash Modification Factors (CMF) Using SHRP 2 RID Data

<https://www.pooledfund.org/Details/Study/613>

Automated Vehicles Human Factors and Safety Research

- **Driver Acceptance of Vehicle Automation – Function Specific (L1 – L2) Automation Applications**
- **Automated Vehicle Human Factors Safety Issues Related to Transportation Systems Management and Operations (Congestion, Work Zones, Weather, and Traffic Incident Mgmt)**
- **Automated Vehicle Human Factors Safety Issues related to Infrastructure**
- **Human Factors Issues Related to Truck Platooning Operations**
- **ADS for Rural America Demonstration Grant project (U. of Iowa)**
- **Ensuring Cooperative Automated Driving System (C-ADS) Vehicles and Vulnerable Road Users (VRU's) Safety Through Infrastructure**

Looking Ahead



Workshop 1027

*Safety Performance Decision
Making: Advancing Research
Through Implementation*

Friday, January 22
10:00 AM - 1:00 PM ET

*#TRBAM
@NASEMTRB*

Event 1169

*Safety Performance and
Analysis, Act 1: Pedestrians,
Bicyclists, E-Bikes, and Couriers*

Tuesday, January 26

01:00 PM-

02:30 PM ET

#TRBAM

@NASEMTRB



Event 1202

*Safety Performance and
Analysis, Act 2: Surrogates,
Conflicts, and Other Safety Data*

Tuesday, January 26

01:00 PM-
02:30 PM ET

#TRBAM
@NASEMTRB





Event 1295

*Safety Performance and
Analysis, Act 3: Evaluations,
SPFs, and CMFs*

Wednesday, January 27

**01:00 PM-
02:30 PM ET**

**#TRBAM
@NASEMTRB**



Event 1327

*Safety Performance and
Analysis, Act 4: Methods and
Models*

Wednesday, January 27

04:00 PM-

05:30 PM ET

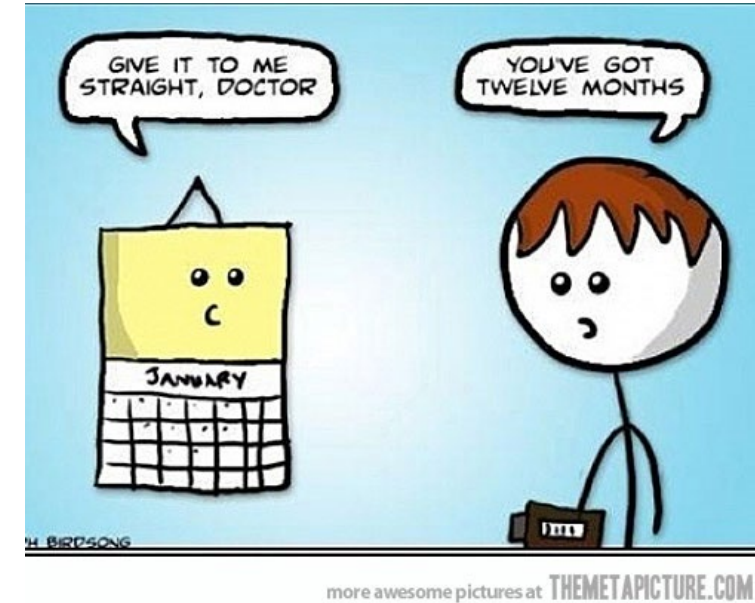
#TRBAM

@NASEMTRB

2021 Meetings and Other Upcoming Events

TRB
2021

- Plan for mid-year meeting
- Plans to have periodic research updates throughout 2021 regarding active research projects (John Nitzel to coordinate)
- Status of the 6th International Symposium on Highway Geometric Design featuring the Urban Street Symposium (Amsterdam)
- Open floor for other meetings or events of interest



Emerging Data

- **Open floor**
 - What is the potential use to advance highway safety?
 - How are the data accessed?
- **Enter information in chat and we will compile**



Other Updates?



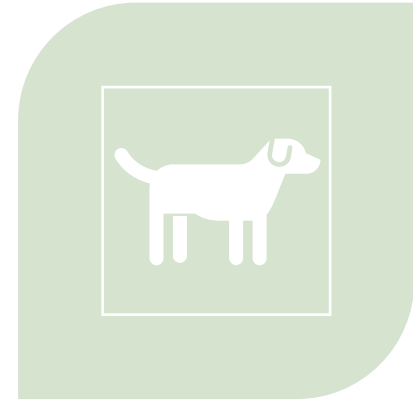
Thank you!



**IDA, DEREK, AND JOHN FOR
BEHIND THE SCENES**



CHAT POD RESPONDERS



**DOGS, THANKS FOR NOT BARKING
AT THE POSTAL CARRIER**