

TRB ACS20(1)

Safety Analytical Methods Subcommittee

**A subcommittee of the TRB Committee
on Safety Performance and Analysis**

Midyear Meeting TRBACS20 2023



First time attendees

Welcome!

Scope of subcommittee

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 of subcommittee

The following **activities** will be undertaken **as needed**:

- Generating Research Need Statements for consideration by the Committee related to analytical methods and procedures for highway safety performance
- Serving as the Committee's primary resource for assessing technical issues in data-driven highway safety performance analysis methods
- Evaluating 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*).
- The Subcommittee will monitor emerging ideas and approaches in safety analysis, i.e., include artificial intelligence, safety simulation, causal and structural modeling and surrogate measures of safety.
- The Subcommittee will monitor applicable analytical methods from other disciplines, such as econometrics, epidemiology and biostatistics.
- The Subcommittee will 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 emergency medical transport and care, 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.
- Serving as a resource for analytical methods pertinent to other ACS20 subcommittees and task groups, including the *Surrogate Safety Measures Subcommittee* and the *Pedestrian and Bicycle Safety Analysis Subcommittee*.

Agenda

1. Subcommittee participants and task forces/working groups

- New methods/theories (e.g. white papers, e-circular, special issues, RNS)
- Promotion of applications (e.g. workshops, training, RNS)
- Ad hoc issues with the Highway Safety Manual (e.g., RNS)

2. Replicability and Reproducibility of Research

- RFP standard language
 - Compatibility with existing research
 - Model scope, sensitivity testing and edge cases
 - Pilot testing of models and tools
- Research documentation
- Data discussion
- Program code for model development
- Validation and pilot testing

6. Research Needs Statement (RNS) discussion

7. Liaisons with other committees/subcommittees

8. Adjourn

Subcommittee participants and task forces/working groups

New methods/theories (e.g. white papers, e-circular, special issues, RNS)

Promotion of applications (e.g. workshops, training, RNS)

Ad hoc issues with the Highway Safety Manual (e.g., RNS)

Replicability and Reproducibility of Research

RFP standard language

- Compatibility with existing research
- Model scope, sensitivity testing and edge cases
- Data
- Pilot testing of models and tools

Research documentation

Data discussion

Program code for model development

Validation and pilot testing

Compa- tibility with existing research

Draft RFP Language

New research should produce outcomes which (a) are consistent and compatible with existing research products or (b) clearly define divergences from existing research, explain their purpose and relative value, and provide guidance for practitioners and future researchers to reconcile differences and harmonize relevant applications and approaches.

Reasons for divergences from existing research should be reviewed by practitioners and may include correcting erroneous methods, updating methods in response to changes in technology, or evolving methods to better serve the goals of practitioners.

Researchers should document how the scope of developed models relates to existing models and provide guidance on how practitioners should select between new and existing models where their scopes overlap.

Model scope, sensitivity testing and edge cases

Draft RFP Language

Relevant analysis models developed under new research should include thorough documentation of the full scope of their application and sensitivity analysis of the models within this scope.

New research should provide documentation for the impacts of use cases outside the scope of the models, assess common edge cases, and provide quantitative metrics for the precision and significance of the models.

Draft RFP Language

Data collected and archived during the project should be delivered to NCHRP prior to the end of the project and should be accessible to future users to the extent practical and appropriate, following a data archiving and sharing plan developed by the researcher in accordance with National Academies policy regarding data use by others and approved by the panel.

Pilot testing of models and tools

Draft RFP Language

When relevant, analysis models developed under new research should be pilot tested by a geographically diverse working group of practitioners who reflect the target audience of the models prior to finalizing the research.

Pilot testing should cover diverse test cases and help to refine the models and related developed tools, produce examples and case studies to supplement documentation, and ensure that developed models are practical to apply (e.g., accessible, understandable, not overly burdensome data requirements).

When relevant, pilot tests should include comparisons between new and existing models when applied to the same or similar facilities.

Research topics

Topics

Keep this in mind... evaluation criteria:

- a) the overall importance of conducting research on this topic
- b) do you believe that State DOTs will consider completion of research on this topic to be a key priority

Topics

Keep this in mind... evaluation criteria:

- a) the overall importance of conducting research on this topic
- b) do you believe that State DOTs will consider completion of research on this topic to be a key priority

Liaisons with other committees/subcommittees



Open floor





Xiao Qin
qinx@uwm.edu

Ida van Schalkwyk
vanschi@wsdot.wa.gov

Committee
website:
trbacs20.org

Thank you

