2024 TRIENNIAL STRATEGIC PLAN

Committee Code
ACS20

Committee Name
Standing Committee on Safety Performance and Analysis

Committee Scope
This Committee deals with the advancement, integration and institutionalization of quantitative highway safety information to support transportation decision-making at all levels. The function of this committee is to foster continual development, validation and increased knowledge of science-based methods, procedures and measures that will increase the safety of the nation's highways and roadways.

Committee Future Outlook Statement
The Committee is dedicated to enhancing the integration and use of safety data, advancing safety performance analytics, and promoting equitable safety strategies through both proposing and promoting targeted research. In alignment with the Safe System Approach, the Committee will prioritize activities that reduce crashes resulting in deaths and serious injuries, since no one should experience either when using the transportation system.

During the TRB Strategic Alignment efforts in 2019, the Committee combined memberships and responsibilities from the Standing Committee on Safety Data, Analysis, and Evaluation (ANB20) and the Standing Committee on Highway Safety Performance (ANB25). This Committee moved forward the priorities of both committees. The Triennial Strategic Plan process provided the forum to focus the Committee's efforts to meet the priorities of today and the needs of tomorrow.

In the short-term, the primary factors shaping our efforts will include the rapid advancements in data collection technologies, increased availability of real-time data, and the growing emphasis on equity in transportation safety. We will focus on integrating new data sources to fill existing gaps, improving the accuracy and applicability of safety analysis methods, and developing data-driven strategies that address the safety needs of vulnerable and underserved populations. The analysis methods, tools, and recommendations will be scalable to support safety decision making at all levels of government.

We strongly agree that deaths and serious injuries on our transportation network are unacceptable. We will actively contribute to the five elements of the Safe System Approach—users, vehicles, speeds, roads, and post-crash care—by fostering research that informs safety improvements. This includes identifying new and supplemental data sources, leveraging advanced technologies, and fostering interdisciplinary collaboration to develop proactive safety measures. Proactive strategies will go beyond predictive safety assessments to include new methods involving surrogate measures, machine learning, and simulations.

A key priority will be championing research efforts that address the safety needs of historically underserved and vulnerable populations. By collaborating with other TRB committees, public agencies, and other key stakeholders, we will strive to make data-driven safety research inclusive and impactful.

In the long-term, we anticipate that advancements in connected and automated vehicles (CAVs), artificial intelligence (AI), and machine learning; and innovations in planning, design, construction, operations, and maintenance of the transportation network will significantly influence the profession and research initiatives. This committee will continue to champion innovative research that leverages these technologies and strategies to enhance real-time safety analysis, proactive safety measures, and comprehensive safety strategies that can adapt to the changing transportation landscape.

We are committed to continuous improvement and innovation, advocating for the integration of the latest research and technological advancements into safety analysis. Through these efforts, the Committee aims to provide valuable insights and research that contribute to a safer and more equitable transportation system.

Committee Three-Year Plan

The Committee will make progress in the following three (3) goal areas through research, collaboration, outreach, and friendly debate. The committee will double-down on efforts to collaborate with other TRB committees, AASHTO Councils and Committees, public health officials, and equipment and vehicle manufacturers. We will also strategically build the committee membership to include expertise in these areas. Finally, we will identify subcommittees when needed to ensure emphasis and time is provided to critical elements related to the goals.

Goal 1: Enhancing Safety Data Integration and Utilization

Description:

Identify and address gaps in current data sources by promoting research that integrate new and supplemental data to advance comprehensive safety analytics.

Key Actions:

- **Data Needs**: Promote research to explore new and supplemental data sources, such as crowdsourced information, real-time data, and user-generated content to fill existing gaps in current data sources. Encourage collaboration with data providers and the development of partnerships to access a broader range of data. Support efforts to simplify data acquisition, data sharing, and descriptive data analytics to improve data quality, timeliness of availability, interpretation of trends, and contributing factors.

- **Equity Factors in Data**: Advocate that research incorporate equity measures into safety data collection and analysis, identifying metrics and data sources that reflect the needs of diverse and underserved communities. Support efforts to work with community organizations and stakeholders to understand the unique safety challenges faced by these populations to advance safety analytics.

- **Diverse Data Integration**: Support research that combines traditional data sources with new and supplemental data types, such as environmental factors, human factors, enforcement, emergency services, hospital records, and public health information, to create a holistic safety analysis framework. This approach will enable a more comprehensive understanding of the factors

influencing highway safety for all users and support the implementation of targeted countermeasures that align with the Safe System Approach. This approach will ultimately reduce the reliance on crash data for transportation decisions.

- **Collaborative Efforts**: Collaborate with stakeholders, including other TRB committees, public agencies, and key private and non-profit entities, to enhance data sharing and use practices. Facilitate workshops and seminars to promote knowledge exchange and identify common priorities.

Goal 2: Advancing Safety Performance Analytics

Description:

Improve and validate safety performance methods with research and leverage emerging technologies to enhance safety analysis and decision-making.

Key Actions:

- **Model Improvement and Validation**: Advocate for research focused on improving and validating safety performance models to ensure their accuracy and applicability, including the development and testing of predictive analytical tools. Support rigorous efforts to validate current methods and the advancement of models based on feedback from practitioners.

- **Emerging Technologies**: Promote research that leverages advanced technologies such as artificial intelligence, machine learning, and simulation techniques to enhance real-time safety analysis and decision-making. Encourage the exploration of big data to uncover new insights and advance safety analytic methodologies.

- **Practical Applications**: Support the practical application of safety analytics for transportation decision-making at all levels by promoting research that translates complex analytical methods into actionable insights. Advance methods that are proactive and prevent the occurrence of fatal and serious injuries. Advocate for the development of user-friendly tools and resources that practitioners can easily apply in their work.

- **Education and Training**: Promote training and resources to practitioners on the use of advanced safety analytical tools and methodologies to ensure appropriate application in practice. Facilitate training sessions, webinars, and the development of online resources to support continuous learning and capacity building.

Goal 3: Promoting Equitable Safety Strategies

Description:

Develop and implement safety strategies by supporting research that prioritizes the safety needs of vulnerable and historically underserved populations.

Key Actions:

- **Inclusive Approaches**: Promote research that develops data-driven safety strategies focusing on reducing fatal and serious injuries in vulnerable and underserved communities. Support efforts to identify and address the unique safety challenges faced by these populations by recognizing important differences across the United States.

- **Evaluation Strategies**: Develop methods to evaluate the effectiveness of implemented safety strategies in various underserved communities. Advocate for regular assessments and refinement to improve safety measures over time based on community needs and adoption.

- **Interdisciplinary Collaboration**: Advocate for partnerships with organizations and committees focused on equity to ensure that safety strategies are inclusive and address the specific needs of all road users. Promote collaboration with public health organizations, advocacy groups, and other stakeholders to develop comprehensive safety strategies.