SAFE MOBILITY CONFERENCE

2024 Safe Mobility Conference Proceedings

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FOUNDATION FOR TRAFFIC SAFETY

THE UNIVERSITY OF NORTH CAROLINA
HIGHWAY SAFETY RESEARCH CENTER

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Title

2024 Safe Mobility Conference Proceedings

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Foreword

The motivation to organize the Safe Mobility Conference is straightforward—to create a platform for transportation professionals who represent public and private entities to exchange insightful information, hold productive dialogues, and identify practical solutions to shape our transportation system so every road user can travel safely, efficiently, and reliably. The AAA Foundation for Traffic Safety organized this inaugural Safe Mobility Conference in partnership with the University of North Carolina at Chapel Hill.

Many experts and stakeholders contributed to the rich technical content of the 2024 Safe Mobility Conference. These conference proceedings capture information from the presentations in plenary and technical sessions. Researchers and practitioners who are working in the traffic safety and transportation mobility domains should find information presented in this document useful.

The AAA Foundation for Traffic Safety is committed to working with stakeholders in government, industry, and academia to achieve the Safe Mobility vision. Consequently, we plan to convene future conferences to explore multiple aspects of this important topic. Let us work together toward safer mobility for all!

C. Y. David Yang, Ph.D.

President and Executive Director

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Plenary Sessions

Plenary Session 1: Safe Mobility: What, Why, & How?

Can a Safe System get us all the way to Safe Mobility?

Dr. Jeffrey Michael

Johns Hopkins University

We are fortunate to be at a point where we are no longer focusing on whether to adopt the Safe System approach. We are now firmly on that track. The question now is how far this new approach can take us. Can it get us all the way to Safe Mobility, or do we need to consider what comes next?

Looking back, we have come a long way in reducing traffic deaths, but our experience reminds us that our rate of progress is variable and dependent on a range of factors. The four E's of traffic safety—Engineering, Education, Enforcement, and Emergency Response—brought substantial improvement, especially in the 1980s and 1990s, but the

trend flattened in the early 2000s motivating a search for further strategies to reach our goal of Safe Mobility.

The Safe System approach is a relative late-comer in this trend, and we are fortunate to be in a period of rapid adoption and institutionalization of this new method. But changing a system with 4 million miles of roads, 300 million vehicles, and 230 million drivers will take time, and influence on overall traffic fatality rates is likely some years in the future.

The question of whether a Safe System will be sufficient to bring us Safe Mobility was addressed by the Academic Expert Group convened by the Swedish Government to provide recommendations for the 2nd Decade of Action for Global Road Safety. That group considered several phases of evolution in road safety strategy, the first being a dedication to the Road Safety Pillars, the five pillars of the Global Road Safety Strategy which are comparable to the four E's of traffic safety. These are the basic tools of road safety and this was the focus of road safety efforts around the world until the late 1990s, and in most of the United States until very recently.

If we look at these pillars or E's as What to do to do make improvements, the focus of the next phase in our safety evolution, the Safe System approach, is about How to do it. The Safe System approach provided a strategy to arrange and prioritize these interventions for sustainable and human-centered benefit.

The Academic Expert Group proposed a subsequent phase focusing on Who can make the needed changes in road safety happen. Their recommendation is that responsibility for road safety should not be limited to governments. They emphasized meaningful engagement of the private sector because of the scale of multi-national corporations and their capacity through their business processes to affect change. This was deliberately not a shifting of responsibility from government, but rather an expansion beyond government. The view is that the scope of effort required to change road safety around the world is just too big for governments alone.

Others are taking a similar view of the need for evolution in implementing the Safe System approach. An important recent paper by Ederer et al. uses the Health Impact Pyramid as a model for effective road safety action and notes that the public health model is built on a broad base of socioeconomic factors. The authors propose a Safe System pyramid that highlights the need for a broader base of socioeconomic factors that influence exposure to risk—factors such as transportation equity that is affected by urban design and community planning, modal shift, and car dependence. This is a much expanded view of the Safe System.

While we are still many years from a system that could be described as Safe Mobility, the Safe System approach puts us on a course that can get us there. We know what to do—we have proven safety countermeasures; and we know how to do it—we are adopting the Safe System approach; and we are moving toward a sustainable plan for who can do this—a partnership between the public and private sectors.

Adopting the Safe System approach is a huge step forward. We now have a method that is scalable and sustainable. But implementing such a change across our transportation system is a challenge, even with a $5 billion grant program. Consensus is growing that the next step is to recognize that road safety is a part of a larger societal system and that we will need to use the resources of that system—such as the power of the private sector—to achieve our goal.

Moving the Needle with Safe Mobility

Dr. David A. Noyce

University of Wisconsin–Madison

In 1984, the United States experienced 39,631 fatal crashes on our transportation system leading to 44,257 fatalities. In the nearly four decades that have passed since, billions of dollars have been invested to improve transportation safety and reduce the number of injuries and fatalities on our roadways. Investments in transportation safety were highlighted within a number of monumental funding programs, including the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), with larger investments through the Transportation Equity Act For the 21st Century (TEA-21); Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU); Moving Ahead for Progress in the 21st Century Act (MAP-21); Fixing America's Surface Transportation (FAST) Act; and most recently, the Infrastructure Investment and Jobs Act (IIJA). After investing these tens of billions of dollars to improve safety, has the transportation engineering and traffic safety community made an impact? The answer is obviously yes. Countless improvements in transportation safety features associated with vehicle design and technologies, roadway systems, and road user performance can be identified that have clearly saved lives. Nevertheless, preliminary data from 2023 shows approximately 44,450 fatalities on our roadway system, nearly identical to the number of fatalities in 1984. So, the same question can be asked—have we made an impact?

Safe mobility, through the Safe System approach, has redefined our efforts in traffic safety incorporating a more multi-modal and holistic approach, focused on preventing crashes and creating environments where crashes are less likely to occur. Further, the Safe System approach highlights a data-driven approach to safe behavior, safe vehicles, safe roads, improved post-crash care, and a collaborative partnership with road designers, vehicle manufacturers, policymakers, and road users. Can this approach lead us to a "Vision Zero" goal where fatalities are not part of the transportation environment?

Several critical issues provide challenges to achieving a vision zero goal. More than 12,000 people were killed in speed related crashes in 2021, increasing in total each year since 2018 (NHTSA). The inability to control speeding and the resulting high-profile fatal crashes led the National Transportation Safety Board (NTSB) to recommend an intelligent speed assistance technology requirement in all new vehicles, i.e., automated speed control. This recommendation has not gained traction. Enforcement through speed cameras has proven to be an effective countermeasure, yet significant resistance remains in the perceived purpose, effectiveness, and privacy concerns. Similar challenges exist in the 'vulnerable road user' community as the number of fatalities

among pedestrians and bicycles have been increasing rapidly (FARS). Safety issues in roadside design and signalized/unsignalized intersections further complicates the challenge.

Our international traffic safety partners have found success with legislative changes that provide stricter enforcement and more significant penalties for road safety violations. Driver behavioral changes are foundational to reaching Vision Zero, supported by strict enforcement mechanisms. Yet, as highlighted by the American Society of Civil Engineers (ASCE) through their “Future World Vision” effort, forced behavioral changes through policy, legislation, and legalities may not be enough. Rather, the transition to an automated world supported by advancement in AI may be the only way to get us to the Vision Zero that we all hope to achieve. Can we move the safety needle?

Raising the Bar for Safer Vehicles

Dr. David Harkey

Insurance Institute for Highway Safety

The Safe System approach to improve road safety has been applied successfully in other countries for decades and was recently adopted as part of the U.S. Department of Transportation's National Roadway Safety Strategy. Adoption is easy; implementation will be key to changing the trajectory of road safety in the U.S. For three decades, the Insurance Institute for Highway Safety has been focused on improving vehicle safety, one part of the Safe System, through our research and evaluation programs. Our ratings of vehicle safety have driven the automotive industry to make continual improvements to provide better occupant protection when a crash occurs and develop and refine technology to avoid crashes altogether. Vehicles that perform well in our tests save lives on our roadways.

As we look to the future, we are focusing on new evaluations to provide even better occupant protection. This includes a new side crash test that reflects the heavier vehicles and higher speeds in these crashes. It includes an updated frontal crash test that evaluates the protection of the rear passenger in addition to the driver. Finally, it includes a new test that encourages a longer and more audible seat belt warning to encourage more people to buckle up.

With respect to technology, new tests are being developed to encourage improvements in proven technology like automated braking systems. Ratings are also being developed for partial driving automation systems, which are becoming more prevalent on new vehicles. Finally, we must continue to evaluate and consider how to best implement technologies like intelligent speed assistance and passive alcohol detection to address two of our largest behavior problems—speeding and impaired driving.

IIHS has a proven track record of influencing the automotive industry to create safer vehicles. We will continue our efforts in this space moving forward. However, changes in new vehicles take time to produce results; many owners hold onto to vehicles for 12 years or more. For this reason, safe vehicles alone cannot produce a Safe System. We need a comprehensive approach to road safety, and we need safety professionals, policymakers, advocates, communities, and others to work together in an urgent and persistent manner to save lives today.


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Plenary Session 2: Safe Mobility: Challenges, Solutions, & Best Practices

Summary Discussion Featuring Remarks from Nat Beuse, Carlos Braceras, Lorraine Martin and Jeff Paniati

The second plenary session of the 2024 Safe Mobility Conference boasted a distinguished panel, which discussed challenges, solutions, and best practices in achieving Safe Mobility. The panel included Lorraine Martin, President and CEO of the National Safety Council; Jeff Paniati, Senior Advisor and former Executive Director and CEO of the Institute of Transportation Engineers (ITE); Carlos Braceras, Executive Director of the Utah Department of Transportation (UDOT); and Nat Beuse, Chief Safety Officer at Aurora. At the start of the session, each panelist provided brief remarks followed by a moderated discussion, including audience questions. The general themes that emerged from the remarks and discussion are described below.

In her remarks, Lorraine Martin provided important information about the current traffic safety landscape, calling out the safety record in the United States and how it is lagging far behind other developed nations. She also called out numerous disparities in roadway deaths among different driving populations and across different communities, including women, communities of color, and in rural areas. She underscored the

importance of Vision Zero initiatives and the urgency for action to address the national crisis on our roadways.

Jeff Paniati reflected on his past experiences working in the federal government and later at ITE and how perspectives and challenges change when moving from the national or systems level to the local level. Drawing upon some real-world examples, he noted that working at the community level, with input from and partnerships among county and city stakeholders as well as advocacy groups, holds the key to achieving national Vision Zero. By focusing on safe mobility at the community level, planning, land-use, and transportation decisions can accommodate all different users and their needs.

In his remarks, Carlos Braceras provided some perspectives on Utah's Zero Fatalities initiative, which aims to reduce traffic fatalities through partnerships with local governments, healthcare providers, educators, law enforcement, and emergency responders. He touted some of the legislative successes, including the passage of a primary seat belt law in 2015; however, he noted that preserving gains and momentum is challenging, especially amidst changing demographics and political landscape. He espoused strategies that focus on stepwise progress with manageable scope and safety targets at each step.

Nat Beuse discussed the role of technology and cultural change in improving roadway safety. He noted that, while vehicle technology and automation have great potential to improve safety, there needs to be a shift away from unrealistic expectations from the public, especially when considering the current safety outlook and where technology might help. He called out that changing public perceptions and attitudes toward risky driving behaviors requires a re-evaluation of approaches to prevention campaigns. He cited changing the storytelling and partnerships as key elements.

In the ensuing discussion, the panel fielded questions on a variety of topics, including focusing on engagement and storytelling at the local level, prioritizing places with the greatest need, leveraging safety culture through workplaces, engaging younger generations, increasing the impact of victim advocates, and safety metrics, among others. The panel shared many insights that have been captured and distilled below.

The panel continued to underscore the power of local and authentic community involvement in transportation initiatives and storytelling, including local champions that can help drive change. In application, there is a need for community leaders to emphasize the importance of inclusive, collaborative approaches to addressing transportation needs through community-centered transportation planning.

In terms of prioritization, resources and attention should be focused on locations where people are getting hurt and killed, particularly in underserved communities. The panel

also emphasized the importance of respecting communities and acting with integrity during projects, rather than solely focusing on project outcomes such as timeliness and budget adherence.

Following the conference, panelists were given the opportunity to provide written responses to some of the questions asked during the session. Their answers are noted below.

Q&A Session

1. **Did you hear something from the other panelists that you thought was particularly noteworthy or spurred some other ideas or points you wanted to convey?**

Nat Beuse: It was clear throughout the conversation that we all desire a future where our roads are safer. As safety practitioners, we know that we are in the midst of a road safety crisis in the United States and we need all the tools at our disposal, including autonomous vehicles, to address this issue. We also know that when safety issues arise with any new technology, we must take the opportunity to learn what we can and explain it to the public in a way they can understand but not use such events as a way to stifle innovation.

Lorraine Martin: The other panelists represented some amazing progress happening across the country to use data and lived experience to make our roads safer for all. Their stories and presentations left me wondering how we can share this information out more broadly, to as many stakeholders as possible, and turn it into a catalyst for further change. I was also struck by how much data can drive not only well-purposed action but also ensure implementations truly improve safety. The effort to digitally map our roads and infrastructure is key to finding the most urgent areas for action and investment, and to sharing what we learn.

Jeff Paniati: The discussion of safety culture reminds us that to effectively implement the Safe System approach we must first create a positive safety culture in our communities and organizations. Acting differently starts with thinking differently. Embracing a safety-first mindset is crucial when it comes to changing our practices in the planning, design and operation of the transportation system.

2. **In your opinion, what is the importance of acknowledging historical legacies of oppression and their impact on current partnerships and community engagement?**

Nat Beuse: We know that for our technology to have its intended safety impact in the world we need broad application. It's in our DNA. We also appreciate and respect the role of local communities as we are developing and deploying our technology. This is why we work very hard to be transparent in what we are doing. For us, we believe building trust means communicating how and why we prioritize safety, and then openly showing what responsible development and deployment looks like. We share as much information as we can on our website and social media, but also work with the communities in which we operate to help them learn about the technology before it is deployed.

Lorraine Martin: Recognizing historical inequities is paramount to ensuring we do not repeat the oversights, mistakes, and decisions that led to them. We know that what happened in the past impacts our present. For example, fatality rates are much higher for Black and Hispanic road users than their White counterparts. Research points back to structural racism within the U.S. transportation system as the cause of these disparities, including urban road widening projects that targeted low-income communities and communities of color, and the lack of road safety infrastructure investments in these communities. We must ensure that every partnership and project is aware of these historic disparities and seeks out input from those communities every step of the way. We cannot call our roads safe until everyone is safe on them.

3. **How does roadway safety intersect with workplace safety?**

Nat Beuse: There are basics such as having effective safety policies that are monitored for their intended impact. So, whether that is safety vests at our terminals or ensuring that our vehicle operators are empowered while testing on public roads, road safety and workplace safety can and do intersect. At Aurora we use a Safety Management System to help ensure safety is prioritized at every level of our organization—from the newest hire to the CEO. In fact, we often say that safety at Aurora is not the responsibility of the Safety Team, it is the responsibility of every member of our organization.

Lorraine Martin: Roadway safety is workplace safety. The U.S. lost nearly 5,500 people at work in 2022, and nearly 40% of them died in vehicle incidents. At the same time work zone deaths have risen 52% since 2010. Using our roadways is the most dangerous thing we do both off and on the job. Businesses should teach employees to drive safely and put safe policies in place, such as a ban on distracted driving. Policies like these save lives on

the job, and it doesn't stop there. Employees carry those lessons into their personal life, making for safer roads every day.

Jeff Paniati: Achieving and sustaining gains in roadway safety and workplace safety both require a strong safety culture. That safety culture must start with the leaders of the organization and permeate throughout. It cannot be a "check it and forget it" approach, it must be a core value and embedded in all actions and decisions.

4. **What are some other factors that could be affecting safety culture or roadway fatalities in the coming years, for example NHTSA 2019 fatality data was showing promise but progress is backsliding (e.g., Utah became the first state to lower its legal blood alcohol concentration (BAC) limit for driving from 0.08% to 0.05%)? (Question from the audience)**

Lorraine Martin: While we did lose a lot of ground after the pandemic, we are starting to see fatalities fall again—by 4% in 2023. And in the last few years we have seen some important progress, including NHTSA's recent rulemaking to make automatic emergency braking standard on all vehicles by 2029. That rulemaking will, without a doubt, save lives in the years to come. Of course, despite this progress, we still have a long way to go to reach our goal of zero. We are starting to see a shift in our culture to prioritize safety above convenience and speed and we need to continue this trend. We also need to recognize how new technologies will shape the future of roadway safety. Whether inside the vehicle or incorporated in the infrastructure, technology can help create safer roads and make us all safer drivers. We must shift our policies, our thinking, and our culture to more quickly accept and adapt to new tools and resources.

5. **What topics and approaches can educators and practitioners use to engage younger generations to get them interested in safe mobility practices? What emerging topics and research areas in safety should be prioritized by future generations? (Question from the audience)**

Jeff Paniati: Engaging younger generations in safe mobility practices requires making these practices an essential part of creating livable and sustainable communities. We must find ways to make safe mobility part of the conversation in our homes, schools, and communities. It must be an essential element, not an afterthought. Research on how new technologies and tools, such as AI, can be used in a positive way to improve safe mobility should be a priority. Rather than be afraid of these changes we must find ways to harness them for good.

6. **What are your thoughts about the lack of adequate metrics or safety protocols in public/private regulatory frameworks that fail to address safety issues holistically? (e.g., helping cities allocating federal/state resources in the right place where crash injuries are most severe, overcoming challenges when corporations may be primarily motivated by the pursuit of profits, and OEMs in the auto industry are driven by the goal of selling as many SUVs as possible) (Question from the audience)**

Nat Beuse: There remains much work ahead, but we cannot just rely on regulations to do everything. In fact, in this country we have a long-established history in the motor vehicle space of using lots of different tools to support safety on our roadways. One of those tools is voluntary industry standards, and our team at Aurora has been instrumental in defining standards and best practices for the autonomous vehicle industry. This has included coordination with organizations like the SAE, Underwriters Laboratory, IEEE, and others to define the safest ways to develop, operate, and deploy self-driving technology. Remember, companies are made up of human beings who also want safe roads for themselves and their families. We believe we can build a safer future for transportation, and we take that responsibility seriously.

Lorraine Martin: The old adage of "you can't fix what you can't measure" applies to traffic safety. Harmonization of crash data is paramount in identifying and addressing high-risk traffic networks. The National Safety Council has called for law enforcement and the traffic safety field to take a series of actions to attain the desired goal of harmonized, actionable traffic safety data, which will undoubtedly aid in creating safer communities. Standards and regulations, while important, do not always take into account the changing behaviors and environments of today's roadways. We need coordinated, comprehensive traffic records and data in order to create regulations and standards that are effective and that allow and encourage innovation.

Plenary Session 3: Safe Mobility: Moving from Vision to Reality

Safe Mobility? Progress Made, Opportunity Lost

Dr. Paul P. Jovanis

Penn State University (Professor Emeritus)

Safe Mobility includes the concept of the demand for travel with the provision of a transportation system that performs at an expected level of safety. This presentation examined Safe Mobility in the context of the progress made in road safety research over the last 50+ years along with missed opportunities that likely would have resulted in improved safety.

The first national-scale road safety research project was funded in 1968, 6 years after initiation of the National Cooperative Highway Research Program (NCHRP).[1] The

[1] Project 17-1, Devalopment of Improved Methods for Reduction in Traffic Accidents, 1966, $247,847 (*equivalent to $2.229 Mil in 2024*).

primary focus of the study concerned methods of crash investigation and *causes of crashes*. There were five recommendations:

1. Create crash record systems
2. Accident data coordinated with appropriate non-accident data
3. Improved cooperation between agencies involved
4. In-depth investigation of selected crash types; less detail for all crashes
5. Increase dissemination and utilization of available knowledge (education of safety professionals)

Progress made in response to each of these recommendations provides a useful framework for discussion:

1. Crash record systems evolved substantially. Definition and collection of standardized elements for crash data, Model Minimum Uniform Crash Criteria (MMUCC), facilitated the analysis of crash data.
2. Standardization of roadway data, Model Inventory of Roadway Elements (MIRE), when tied to location along a road, using Geographical Information Systems (GIS), allowed researchers to connect crashes at a location to attributes of the surrounding roadway. Concurrent evolution from paper to electronic records (at point of investigation in law enforcement vehicles and in permanent records at central locations) facilitated data analysis.
3. Cooperation between municipal, county, and state agencies in road safety is now common. Bureaucratic inertia continues to limit collaboration at the national level.
4. In-depth crash investigations have been facilitated using the conceptual model of the four E's of road safety: Engineering, Enforcement, Education, and Emergency response. This model evolved to include Electronics as a fifth "E." Research concerning the interface of in-vehicle electronics and human factors led to numerous safety enhancements, including warnings provided to the driver and, more recently, electronic enhancements to vehicle stability and control. In-depth multi-disciplinary crash investigations started in the 1960s[2] and have continued into the 2000s.[3]

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[2] Treat, John R.; Tumbas, Nicholas S.;McDonald S. T.;Shinar, David;Hume, Rex D.;Mayer, R. E.;Stansifer, Rickey L.;Castellan, N. J.. Tri-level Study of the Causes of Traffic Accidents. 1975. Vol. 1, Causal Factor Tabulations and Assessments, Indiana University, Bloomington, Institute for Research in Public Safety, National Highway Traffic Safetyt Administration, 668p.

[3] https://www.trb.org/StrategicHighwayResearchProgram2SHRP2/Blank2.aspx. accessed 7/16/2024

5. The science of road safety emerged through a series of research papers, leading to the publication of the first Highway Safety Manual (HSM[4]) in 2010 and the concurrent development of the Crash Modification Factor (CMF) Clearinghouse.[5] These resources allowed practitioners to conduct evidence-based analyses of road safety investments, providing the safety professional with the ability to understand the consequences of their actions, expressed as the change in safety *with* the countermeasure in place compared to the level of safety *without* the countermeasure.

6. Safety education was formalized in 2010 with development of a core curriculum as part of NCHRP research and initiatives undertaken by the Institute of Transportation Engineers (ITE) targeting professional development and certification. Universities (e.g., Clemson and University of North Carolina) using remote learning to build upon the core competencies. Educational opportunities were also available through National Highway Traffic Safety Administration (NHTSA) and Federal Highway Administration (FHWA)-sponsored programs.

While impressive in scope, these enhancements have been insufficient to stem the tide of road safety fatalities. After dropping from 1975 to 2010, U.S. fatality rates per million in the population and per 100 million vehicle miles traveled leveled off from 2011 to 2018, increasing in 2019 to 22.[6] Several factors have contributed to these trends (in my personal view).

Tools developed to quantify the effect of safety countermeasures have evolved outside revisions to road engineering's traditional manuals (i.e. Manual on Uniform Traffic Control Devices (MUTCD)) and the AASHTO Policy of Geometric Design of Roads and Streets (the "Green Book"). Practitioners are provided little consistent guidance in choosing between these traditional guidelines and the contemporary HSM and CMF Clearinghouse. The recent release of the MUTCD continues a reliance on traditional rule-based methods, focusing on vaguely defined traffic engineering studies and judgement; quantifiable comparisons with/without treatments are recommended. A major revision to the Green Book is under development at this writing. It is unclear if the new policy will continue the emphasis on rule-based safety, largely unchanged in concept since well before the 1970s.

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[4] https://www.highwaysafetymanual.org/Pages/default.aspx. accessed 7/16/2024

[5] https://www.cmfclearinghouse.org/about_cmf.php. accessed 7/16/2024

[6] LDI/IIHS Fatality Facts, Yearly Snapshot, accessed 7/16/2024, https://www.iihs.org/topics/fatality-statistics/detail/yearly-snapshot. Accessed 7/16/2024

Many traffic control devices and countermeasures lack evidence-based evaluation even though implemented for decades (e.g., design of bicycle lanes).[7] Funding sources such as pooled fund studies are used to evaluate some innovative new countermeasures, but resources are limited and there is no mandate to quantitatively assess legacy traffic control devices.

Regrettably, the equitable implementation of road safety countermeasures is only now being pursued, while there has been strong evidence over decades and across many countries that economic deprivation is associated with poor road safety performance.[8]

In sum, U.S. improvements in road safety are substantial over the last 50+ years, but more can be done. The system needs to focus on driving down fatalities and serious injuries (and their associated rates) using actions such as those suggested above.

[7] Hauer, E. An exemplum and its road safety morals. *Accident Analysis and Prevention*. 2016. Vol. 94:168-79.

[8] For example, Aguero, J, and P. Jovanis. 2006. Spatial analysis of fatal and injury crashes in Pennsylvania, *Accident Analysis and Prevention,* Vol .38(3):618-25.

Moving from Vision to Reality

The Honorable Thomas Chapman

National Transportation Safety Board

The National Transportation Safety Board is an independent federal agency charged with investigating accidents in all modes of transportation and issuing safety recommendations for the purpose of preventing similar tragedies in the future. There were 45,090 fatalities in all of U.S. transportation in 2021. About 95% of transportation deaths occurred on our roads. Based on NHTSA data, during the period from 2011 to 2021, traffic fatalities increased by 32%. During the same period, there was a 46% increase in vulnerable road user deaths (63% increase in pedestrian and bicyclist deaths). So, disproportionately, increasing numbers of vulnerable road users, especially pedestrians and bicyclists, are being killed on our roadways. For comparison, during the same period, we saw a 25% decline in general aviation fatalities. We are all familiar with the principles and elements in the Safe System approach. However, it is important to emphasize that the aviation industry's approach is fundamentally grounded in the same principles as what we know as the Safe System approach. The steady improvement of our aviation safety record is not a coincidence.

Two recent NTSB investigations highlight two persistent safety issues: impaired driving and excessive speed. On the evening of January 1, 2021, near Avenal, California, a sport utility vehicle driven by an impaired driver traveling between 88 and 98 mph crossed the highway centerline and collided head-on with a pickup truck occupied by an adult driver and seven children. Among the recommendations, the NTSB urged that NHTSA require all new vehicles be equipped with passive vehicle-integrated alcohol impairment detection systems, advanced driver monitoring systems, or a combination of the two. The systems should be capable of preventing or limiting vehicle operation if driver impairment by alcohol is detected. We also reiterated a previous recommendation, calling on NHTSA to incentivize vehicle manufacturers and consumers to adopt Intelligent Speed Assistance systems that would prevent speed-related crashes.

On January 29, 2022, in North Las Vegas, a 2018 Dodge Challenger traveling at a recorded speed of 103 mph in a 35-mph zone entered an intersection against a red traffic signal, collided with a Toyota van crossing through the intersection, and triggered a chain reaction crash involving a total of five vehicles. Seven occupants of the Toyota minivan were killed, all of them members of the same family. The NTSB determined the crash was caused by excessive speed, drug-impaired driving, and Nevada's failure to deter the driver's speeding recidivism due to systemic deficiencies. As a result, we urged NHTSA to require, as standard equipment in all new vehicles, Intelligent Speed Assistance systems that, at a minimum, warn the driver when the vehicle exceeds the speed limit. In

addition, we asked NHTSA to develop guidelines to assist states in implementing pilot Intelligent Speed Assistance interlock programs for high-risk drivers who speed.

These investigations demonstrated how the NTSB put the Safe System approach in practice in both our investigation and development of safety recommendations.

Technical Sessions

Technical Session 1: Safe System: Current State and Future Outlook

Summary Discussion Featuring Remarks from Mark Doctor, Leah Shahum, and Dr. Eric Dumbaugh

The session "Safe System: Current State and Future Outlook" was primarily an interactive session with the goal of introducing the Safe System approach to attendees and allowing time for discussion on among attendees and with session panelists on the guiding principles of the Safe System approach. Mark Doctor, from the Federal Highway Administration, began the session with an introduction to the Safe System approach from the perspective of U.S. Department of Transportation, which adopted the Safe System approach as part of the National Roadway Safety Strategy. The Safe System approach is grounded in six principles, fundamental beliefs that guide the elements of the approach. These principles are that death and serious injury are unacceptable, humans make mistakes, humans are vulnerable, responsibility is shared, safety is proactive, and redundancy is crucial. Within the Safe System approach are five main elements: safe road users, safe vehicles, safe speeds, safe roads, and post-crash care. These elements create the redundancy in the system, as illustrated by the "Swiss Cheese Model." Where one element may fail, other elements provide the protection necessary to not allow failure of the system that would result in a death or serious injury. A key message in introducing the Safe System approach is noting that this is a paradigm shift to improve safety culture. Within the Safe System approach, the focus is on how transportation system design and operations can anticipate human error and manage kinetic energy transfer, ultimately reducing fatalities and serious injury when crashes do happen. This paradigm shift in safety culture means that those working within the Safe System approach understand that human mistakes are normal and natural and as death is unacceptable, these mistakes must not result in impacts on the human body that cannot be tolerated. The final point of this introduction recognizes that moving toward a "Safe System" requires continuous progression. As elements of the Safe System approach are brought in line with the guiding principles, safety performance will improve incrementally.

Following the introduction to the Safe System approach, Leah Shahum and Eric Dumbaugh provided additional remarks to highlight elements of the approach. Leah Shahum focused with more detail on the "Safe People" element. Here the key message is that responsibility for a safe system is not shared equally across all people. For the Safe System approach, road users need a safe road system that encourages safe behavior. Responsibility for the "Safe People" element then relies on the system designers to build an environment of safe roads and safe speeds following the principles of the Safe System

approach. Eric Dumbaugh provided extra international context to the Safe System approach with a wheel graphic used to illustrate the elements. He noted that the graphic has been used in Australia prior to the U.S. adoption but with some differences. The main difference is at the center of the Australian graphic is the human tolerance of crash impacts. The tolerance of kinetic energy transferred in a crash is the center around which all of the other elements are built and what every piece of the approach aims to minimize. A second difference is that the U.S. graphic includes “Post-Crash Care” as a fifth element while the Australian version has only the four main elements.

In the final piece of the session, attendees were invited to form small groups to reflect on one or more of the principles of the Safe System approach. Each group reported on their discussions to the larger group and the panelists. The discussions focused on how these principles are currently at work at different levels and what needs to be done in the future to help ensure these principles are carried out. As a whole, groups discussed the role of different stakeholders in the Safe System approach with relation to the principles, how funding and data could best be used to move toward a Safe System, what cultural elements play a role, and how collaboration may promote a safer system.

Technical Session 2: Safe Mobility for People of All Ages & Abilities

Mobility Challenges for People with Disabilities

Dr. Justin Owens
University of North Carolina

Dr. Justin Owens presented an overview of the mobility challenges faced by pedestrians with a range of disabilities. It is important to consider how such challenges manifest and affect people with different types of disabilities and differences, including physical/mobility, perceptual/communicative, and intellectual/developmental. For example, people with physical mobility limitations may have difficulty traversing areas with missing, broken, or obstructed sidewalks, especially if they require the use of mobility devices such as wheelchairs or walkers; people with low vision or blindness might face challenges localizing destinations and hazards or interacting with transit systems; and people with intellectual/developmental/language disabilities or differences could have difficulty with route planning, understanding signage and navigation, or interacting with other road users. Further, it is important to consider the interplay among these for people with intersectional disabilities such as someone experiencing both mobility limitations and low vision.

Key to identifying and understanding the challenges faced by people with varying disabilities and differences is considering how environmental, infrastructural, and technological factors act in isolation and combination to complicate or exacerbate intrinsic challenges. Such factors could include but are not limited to the following:

- Road/sidewalk surface condition
- Existing infrastructure
- Available signage
- Technology, both personal (such as smartphones) and environmental (such as walking signals or electronic signs)
- Weather condition, including current surface traction
- Trip goal, distance, and modality
- Transit availability and accessibility
- Automation features of nearby vehicles

Each of these could provide further challenge and/or benefit for pedestrians with disabilities, depending on individual circumstances. For example, slippery sidewalks

would likely prove a severe challenge for people using mobility devices, while accessible transit at a convenient location could provide a functional benefit to the same person.

There are a variety of countermeasures that may support safe navigation, including current infrastructure treatments like curb cuts, tactile surface indicators, and audible crossing signals. While these are available in many locations, they may be degraded, nonfunctional, or blocked by construction or other temporary obstructions. Transit-specific support is available in some locations, but not universally; for example, the City of Chicago offers personal support and audio descriptions on vending machines.

Current and novel technological countermeasures that are being tested for potential deployment include smartphone-specific solutions like wheelchair accessibility guidance in Google Maps and Door Detection in Apple iPhones, as well as app-based positioning solutions that can make use of technologies like GPS, dead reckoning, Bluetooth beacons, and QR codes. However, there are equity concerns with many such technology solutions as people with disabilities are more often subject to unemployment and low socioeconomic status than non-disabled people, and these features may require modern smartphones that may cost hundreds of dollars in addition to costly cellular data plans.

Finally, consideration was given to ways that future countermeasures and solutions could better address the problems raised above. These include the transition from the current “marketplace of ideas” to more standardized solutions, consistent and meaningful conversation among stakeholders including policymakers, technology creators, researchers, and especially the disability community, and the need to consider disability using multiple conceptual frameworks.


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Older Driver Safety and Mobility: Considerations for Advanced Vehicle Technologies

Dr. Renée St. Louis

University of Michigan Transportation Research Institute

Driving a vehicle is a complex and dynamic task that requires a high level of skill and the ability to interact with both the vehicle and external environment instantaneously. Several factors influence the demands of the driving task, including the road environment, vehicle characteristics, and driver characteristics. Given the requirements of the driving task, the ability to safely drive requires uninterrupted integration and coordination of three areas of functioning: perceptual, cognitive, and psychomotor. While there is variability in the age at which changes in health affect functioning, in general, as people continue to age into older adulthood, there is higher likelihood of experiencing declines in areas of functioning that are needed for safe driving. Additionally, difficulties can be compounded when declines occur simultaneously in multiple areas of functioning. Older adults' well-being and quality of life are deeply intertwined with mobility, and in many parts of the world, mobility is inextricably linked with the ability to drive a personal vehicle. Research on Advanced Driver Assistance

Systems (ADAS) has suggested the potential for these technologies to preserve and extend the safe and independent mobility of older populations. However, attaining anticipated benefits of ADAS is dependent upon older adults' awareness, understanding, and use of ADAS within their own vehicles. To investigate how older adults learn about and engage with ADAS in their vehicles, data from the Longitudinal Research on Aging Drivers (LongROAD) study, sponsored by the AAA Foundation for Traffic Safety, were examined. This cohort study was comprised of 2,990 participants aged 65 or older upon enrollment and monitored participants' driving, health, and functioning for up to five years. Results showed statistically significant increases in the prevalence of all 15 ADAS technologies examined, yet despite these increases, frequency of using the technologies remained unchanged across five years. Frequency of use also varied by functionality of the technology whereby participants reported higher frequency of using technologies that provide alerts, such as forward collision warning, than technologies that take action to assist drivers with vehicle operations, such as adaptive cruise control or semi-autonomous parking assist. Further research with focus groups found that older adults recognize the value of ADAS and higher levels of automation for maintaining safe mobility as driving abilities change over time and have a strong preference for hands-on experience to learn about new technologies. In consideration of the rapid proliferation of ADAS into the vehicle fleet as well as a growing proportion of older drivers on the road, increased research into how older adults learn about and use ADAS technologies will assist in efforts to develop tailored and accessible programs for training older adults to properly utilize ADAS available in their own vehicles. Additionally, using a human-centered design process in the creation of both ADAS technologies and training programs can result in solutions that are inclusive of varying needs, preferences, and capabilities. Moreover, by recognizing and thoughtfully addressing specific needs of older adults, this approach has the potential to build trust and encourage the acceptance of these emerging technologies.

Options for the Road Ahead: Exploring Older Adults' Use of Ride Share Services

Alycia Bayne

NORC at the University of Chicago

Access to safe, affordable, accessible, and convenient transportation options is needed to help older adults stay independent. Ride share services show promise as a transportation option for older adults, particularly for those who no longer drive. This presentation describes a qualitative research study conducted by NORC at the University of Chicago on behalf of the Centers for Disease Control and Prevention. NORC explored the barriers and facilitators of older adults' (age 65+) use of ride share services and compared findings to younger adults (age 18 to 64). Methods included 96 telephone interviews, and 10 in-person focus groups with older and younger adults, including individuals who used a ride share service and those who never used a ride share service. We conducted qualitative data analysis to identify key themes. Findings revealed the most important facilitator of older adults' use of ride share services was the desire to remain independent, particularly among those with health conditions and special needs that prevented them from using other transportation. This study found that ride share

services are a promising transportation option and should be tailored to meet older adults' needs.

Technical Session 3: Centering Equity in the Safe Mobility Conversation

Summary Discussion Featuring Remarks from Dr. Jamila Porter, Dr. Anne Phillips, and Olatunji Oboi Reed

This session, moderated by Nandi L. Taylor of the University of North Carolina, featured three speakers: Dr. Jamila M. Porter of the de Beaumont Foundation, Dr. Anne Phillips of the Just Cities Collective, and Olatunji Oboi Reed of the Equiticity Racial Equity Movement.

Dr. Porter provided some opening remarks that connected present-day traffic issues (such as congestion and crashes) to the legacy of segregation. She underscored the importance of knowing the past—and specifically the history of structural racism in the U.S.—in order to understand and address current transportation issues. She described the effects of Jim Crow laws, redlining policies, "Urban Renewal" practices, and the Interstate Highway Act in terms of creating and/or perpetuating disparities in transportation access, mobility, and safety. She also laid out definitions to differentiate the principles of equity, equality, and justice and noted that all of these concepts must be understood and applied—particularly those of equity and justice—to make lasting progress in achieving safe mobility for all.

Dr. Phillips brought additional perspective and examples from local practice in her opening remarks. She highlighted work as part of Durham's Transportation Equity Action Plan that sought to leverage data to help identify and respond to disparities. She described several different approaches that can be used to examine access and safety needs through an equity lens, including safety analyses, network analyses, and applying an equity index. She highlighted the importance of using data to help understand how community experiences, such as violence, may shape mode choice and affect access to employment and other needs. She also connected back to Dr. Porter's remarks by describing how redlining data can be an important source of information reflecting historical housing, transportation, and economic policy.

Mr. Reed added to the conversation by calling for new policies, systems, and moves to address the needs of racially marginalized communities and re-imagine transportation safety. He offered examples of new policies by discussing agency infrastructure that prioritizes community collaboration and ownership over traditional forms of simple "engagement" and communication. He defined new "systems" in terms of the work coming out of agency changes to build social infrastructure. Examples of this included activities he leads in Chicago such as community mobility rituals and neighborhood mobility hubs, in which community members are directly involved in shaping the transportation system and are focusing on identifying equitable approaches and repairing historical harms. These approaches have brought about different results (new moves) that have helped to increase community ownership, reduce violence, and create economic opportunities, as well as improve livability.

In the subsequent panel discussion, the three panelists expanded upon these themes. They discussed the importance of centering principles of equity and justice, recognizing and rectifying historical and present-day impacts of unjust policies and practices, bringing the voices of community members to the table, and recognizing the invaluable data (i.e., stories, information, and lived experiences) that communities offer in terms of critical context and possible solutions. The panel also reflected on the harmful effects of common transportation planning practices. One example shared is when an agency decides a solution in advance, announces it to the community without consulting them, defends the plan without accepting constructive criticism, and leaves the community feeling that the agency's plan will move forward whether the community wants it or not, and the input process utilized by the agency was deeply extractive and bereft of community ownership. The panelists offered up an alternative model of collaborative governance with community-based organizations and community members that is more formal, consensus-oriented, and purposeful in shifting power to communities in ways that build trust and lead to concrete and collaborative decision-making.

Technical Session 4: Delivering Safe Transportation Systems for All Road Users

Summary Discussion Featuring Remarks from Dr. Matt Palm, Bergen Watterson, Bonita Green, and Hart Evans

This session focused on unpacking the challenges of ensuring safe, comfortable, and convenient access to and from public transit in North Carolina. Our four panelists described some of the conditions transit users face and explored barriers to improving safety and convenience for transit users getting to, waiting for, and getting from bus stops. The conversation focused on North Carolina's Triangle area but is generally relevant across the southeast. The session was moderated by Dr. Tabitha Combs of the University of North Carolina.

Bergen Watterson, Manager of the Office of Mobility and Greenways for the Town of Chapel Hill, kicked things off with a presentation on Chapel Hill's recent efforts to improve safety and comfort for riders of the town's extensive fare-free transit system. These efforts include new bus stop shelters, stop area design changes, and investments in safe walking and cycling options in transit-served areas. Ms. Watterson described both the motivations and theories behind these improvements, and described ways the town is gathering data to assess their impacts. However, as Ms. Watterson pointed out, the

town's most heavily-used transit lines are located on state-owned roads, where the town has limited ability to implement safety upgrades. Given that most of the town's high injury network also follows state roads, the need for better coordination between local and state road safety efforts is critical.

Hart Evans, Statewide Planning and Programming Manager with North Carolina Department of Transportation's Integrated Mobility Division, acknowledged the challenges of implementing local transit safety improvements along state-owned corridors, and shared information on state-level initiatives to improve interagency coordination of transit and pedestrian/bike safety planning efforts.

Next, we heard from Dr. Matthew Palm of the University of North Carolina. Dr. Palm shared findings from his research into safety and comfort for people using transit after dark. He explained that nighttime travel conditions intensify the need for safe, reliable access to and from transit stop locations. Yet most transit systems, particularly outside major metro areas, reduce frequencies and route coverage after dark. These service reductions force nighttime travelers to walk farther and wait longer, increasing their risk of experiencing traffic violence.

Our final speaker was Bonita Green, President of the Merrick-Moore Community Development Corporation (Durham, North Carolina). Ms. Green spoke of decades-long efforts by residents of Durham's formerly redlined communities to get sidewalks and bus shelters on bus lines. She showed photographs of neglected, muddy bus stops, bus stops on multilane roadways with no crosswalks, and of transit riders walking in ditches and using wheelchairs in high-speed traffic lanes. She then shared a map showing disparities in road safety investments in affluent vs. lower income and formerly redlined neighborhoods, and called on the transportation professionals in the room to commit to dismantling classist and racist power structures that undermine efforts to center mobility justice in transportation planning efforts.

Technical Session 5: Safe Speeds for a Safe Transportation System

Speed Management in Austin, Texas

Lee Austin

City of Austin, Texas

The City of Austin, Texas, has been able to use low-cost countermeasures informed by data to manage speeds despite a regulatory environment that precludes the use of many common countermeasures.

A recent Global Benchmarking Study by the Federal Highway Administration focused on improving pedestrian safety on urban arterials. For this study, a U.S. delegation including Ms. Austin traveled to New Zealand and Australia—which have far lower pedestrian fatality rates than the U.S.—and met with transportation officials. Contrary to expectations that their superior traffic safety performance was attributable to novel countermeasures not in use in the U.S., a significant finding of the benchmarking study was that these countries have been following a Safe System approach to road safety for

20 years and are now benefitting from it, whereas the U.S. has only recently begun thinking about road safety in a Safe System context.

The City of Austin, Texas, is the 10th largest U.S. city, and has been growing rapidly in recent years, with an accompanying increase in crashes and fatalities. The regulatory environment of the state imposes some constraints on the universe of countermeasures available to engineers, law enforcement, and other practitioners to combat the increasing trend in fatalities. For example, the state prohibits DUI checkpoints, red light cameras, and speed safety cameras, and requires that posted speed limits be based primarily on 85th percentile speeds.

In this context, the City of Austin performed an engineering study of prevailing speeds in relation to street characteristics, finding, for example, that speed increases nearly linearly with street width and that speeds were most influenced by factors including on-street parking utilization, conflicts with driveways, and visual cues from adjacent front-facing residences, but not by traffic volume or speed limit alone. Based on these results, the city proposed establishing a speed limit of 25 mph on neighborhood streets with widths of 36 ft or less, based on individual evaluation or by implementation of appropriate speed mitigation measures on streets 36-40 feet in width, and on most downtown streets. Pedestrian refuge islands, for example, if properly designed, can both reduce vehicle speeds and increase the proportion of drivers who yield to pedestrians.

The city also has been re-examining speeds on its urban arterial roads, systematically collecting speed data and using Federal Highway Administration's expert speed limit tool USLIMITS2, which takes a wide array of factors into account to recommend appropriate speed limits. A recent pilot project illustrates how low-cost countermeasures can be deployed to reduce excessive speeds and improve safety. Barton Spring Road is a 4-lane divided arterial that provides the main access to a large park and connects to a limited access highway. The road had 85th percentile speeds slightly greater than the posted speed limit of 35 mph, with many vehicles exceeding 40 mph and a substantial history of crashes and injuries. After installation of several low-cost speed-reduction measures, the numbers of vehicles traveling over 40 mph decreased by nearly 80%, with minimal impacts and even some slight improvements to average travel times. This work in the City of Austin illustrates how practitioners can apply appropriate speed mitigation measures informed by data to manage speeds and improve safety, even in the context of regulatory constraints.

Intelligent Speed Assistance

Eric Richardson

New York City, New York

Speeding is a crisis in New York City as it is nationwide. Higher speeds increase vehicle stopping distance and will significantly increase a victim's chance of injury or death in the event of a crash. The consequences of speeding increase as vehicles become larger and heavier. Conventional countermeasures such as lowering speed limits, speed safety cameras, changes to road design, education, and law enforcement are necessary and important but are not enough to combat speeding.

New York City operates a fleet of over 28,500 on-road city-owned vehicles including police, fire, sanitation, environmental protection, transportation, parks, and more. Through its Safe Fleet Transition Plan, Mayoral Executive Orders, and NYC Local Laws, New York City has been a leader in implementing vehicle technology to promote traffic safety, installing or retrofitting more than 85,000 safety systems on city fleet vehicles. Examples include telematics, truck sideguards, automatic emergency braking and pedestrian collision avoidance, in-vehicle driver alerts, and surround cameras.

In 2022, New York City initiated a pilot study that retrofitted 50 city fleet vehicles with active Intelligent Speed Assistance (ISA). In general, ISA is fundamentally different from a "speed governor" in that it uses technology such as GPS and in vehicle cameras to discourage or prevent the driver from exceeding the posted speed limit on a road, as opposed to an arbitrary maximum speed unrelated to the speed limit of the road. ISA can be passive (providing warnings to drivers) or active (preventing speeding). This pilot used an active system, which prevents exceeding the speed limit except in the event of a brief (15-second) manual override. The pilot subsequently was expanded to include 300 vehicles from 13 agencies and including 14 types of vehicles, leading the nation in promoting active ISA. New York City vehicles with ISA have been driven more than 1.7 million miles to date, with 99% of miles driven within the set speed parameters. A 37% reduction in hard braking was also observed among vehicles in the pilot. The New York City Department of Citywide Administrative Services (DCAS) and the U.S. DOT Volpe Center are anticipated to issue a report on the pilot later in 2024. Since the initial pilot, the U.S. DOT awarded New York City $2.4 million in federal Safe Streets for All (SS4A) grant funding to expand the ISA program, which combined with matching funds from the city will enable ISA installation on an additional 1,700 city vehicles.

Insights from the New York City pilot program can inform recommendations for future ISA implementation elsewhere. It is important to educate drivers, labor representatives, and the public on what ISA is and how it works. It is critical that stakeholders have a

clear understanding of different ISA options. Implementation can begin with a higher speed setting (e.g., restricting exceeding speed limits by >10 mph) to facilitate transition and adoption. Alternatively, in sensitive areas (e.g., near schools) ISA can be set for even lower speeds. Fleet implementations can be targeted at high-risk vehicles/drivers as identified by citations, telematics, or other data. ISA can have additional benefits beyond safety, such as reduced emissions and fuel costs, and reduced insurance costs. For private vehicle owners, inexperienced drivers, particularly young drivers and their parents, may present an opportunity to introduce the technology. Finally, several jurisdictions are now considering legislation involving ISA; they can benefit from New York City's experience and lessons learned from this work.

A Rural Speed Management Pilot Program in Bishopville, Maryland

Dr. Wen Hu

Insurance Institute for Highway Safety

Speeding has been a factor in more than a quarter of crash deaths over the past decade. In 2021, more than 12,000 deaths occurred in speed-related crashes. Safe speeds are central to a safe transportation system. According to public surveys by the AAA Foundation for Traffic Safety, the vast majority of Americans recognize that speeding is dangerous; however, more than one in three drivers admit exceeding the speed limit by 10 mph or more on residential streets in the past month, and nearly half admit driving 15 mph over the speed limit on freeways.

In 2021, Maryland received $100,000 in grant funding to implement a speed management pilot program on a 2.4-mile corridor on MD 367 in Bishopville, on Maryland's Eastern Shore. The corridor was a rural two-lane undivided road popular for beach traffic in summer. The road has a known speeding problem.

The pilot program took place in summer 2021. It utilized a multi-pronged approach to address speeding through engineering treatments, increased law enforcement, and public outreach. Engineering treatments included widening centerlines and edge lines to visually narrow travel lanes, and speed feedback signs to alert drivers of their speed. Throughout August 2021, four 5-day waves of paid media and high-visibility enforcement were conducted. Educational signs, billboards, newspaper advertising, and social media promoted safe driving and warned drivers of increased speeding enforcement.

Surveys showed high levels of public awareness of all elements of the pilot program. The percentage of survey respondents who said speeding was a major problem on MD 367 decreased significantly, and the percentage of respondents who said that speeding drivers were likely or very likely to be stopped by the police on MD 367 increased significantly after the pilot program, compared with survey responses before the program. Measured speeds during the program showed a small reduction in mean vehicle speeds but large reductions in the odds of speeding and odds of speeding by >10 mph. After the program ended and engineering treatments were removed, the odds of vehicles exceeding the speed limit were still lower than expected had there been no such program, but mean speed returned to pre-program levels and the odds of exceeding the speed limit by >10 mph were slightly greater than expected without the program, illustrating the importance of ensuring that speed management programs are sustainable long-term.

The speed management pilot program in Bishopville, Maryland, shows that a comprehensive approach to speed management—including engineering treatments,

public outreach, and enhanced enforcement—can effectively reduce speeding. Similar programs are recommended for use in other communities to reduce speeding and change speeding culture. The sustainability of speed management programs is important; the use of speed safety cameras, permanent engineering treatments, and periodically repeating enforcement and outreach efforts could help to sustain the benefits of such a program.

Safe Speeds for A Safe Transportation System

Ivan Cheung

National Transportation Safety Board

In 2017, the National Transportation Safety Board (NTSB) adopted a safety study titled "Reducing Speeding-Related Crashes Involving Passenger Vehicles." In the study, the NTSB examined causes of and trends in speeding-related passenger vehicle crashes and countermeasures to prevent these crashes. When the study was published and recommendations issued, speeding-related deaths stood at 9,947.

The study focused on five safety issues pertaining to the effective application of proven and emerging countermeasures for speeding:

1. Speed limits
2. Data-driven approaches for speed enforcement
3. Automated speed enforcement
4. Intelligent speed adaptation
5. National leadership

As a result of this safety study, the NTSB makes recommendations to the U.S. Department of Transportation, the National Highway Traffic Safety Administration (NHTSA), the Federal Highway Administration (FHWA), 50 states, the Governors Highway Safety Association, the International Association of Chiefs of Police, and the National Sheriffs' Association.

Unfortunately, speeding-related fatalities have increased since 2017. Between 2017 and 2021, traffic deaths attributed to speeding increased by 24 percent. In fact, 42,929 road users died as a result of speeding between 2018 and 2021. Unfortunately, that is not a trend that we want to see. Certainly, many safety recommendations take time to be adopted and implemented. In addition, safety benefits may take time to materialize.

While slow, the NTSB is encouraged by some progress at the federal and state levels. For example, the 11th Edition of the Manual on Uniform Traffic Control Devices (MUTCD) includes some promising changes that are in line with the intent of two safety recommendations issued to the FHWA. These two recommendations were intended to de-emphasize the use of the 85th percentile approach and to incorporate the Safe System approach to strengthen protection for vulnerable road users. On the other hand, many of the recommendations issued to states that were intended to encourage the use of speed safety cameras remain open (many are currently classified as open–unacceptable). However, based on data published by the IIHS, there have been an uptick in the number of U.S. communities with speed safety cameras since 2017.

Unfortunately, the NTSB also recently investigated some crashes in which excessive speed played critical roles. One such crash occurred in North Las Vegas, Nevada, in 2022. The NTSB determined the crash was caused by excessive speed, drug-impaired driving, and Nevada's failure to deter the driver's speeding recidivism due to systemic deficiencies. As a result, we reiterated an open 2017 recommendation urging NHTSA to incentivize the adoption of ISA. In addition, the NTSB urged NHTSA to (1) conduct research and develop guidelines to assist states in implementing pilot intelligent speed assistance interlock programs, limiting the vehicle speed, for repeat speeding offenders; (2) develop a communication plan to educate the public about the capabilities and benefits of intelligent speed assistance to mitigate speeding, and (3) require as standard equipment in all new vehicles intelligent speed assistance systems that, at a minimum, warn the driver when the vehicle exceeds the speed limit.

Technical Session 6: Building a Healthy Traffic Safety Culture

Recovering Our Common Mobility Safety Culture

Dr. Peter Norton

University of Virginia

We cannot make mobility substantially much safer until we normalize, accommodate, and prioritize practical walking. Efforts to make car dependency safer inevitably fail because they deter safer mobility modes and increase per-person driving, thereby increasing total personal risk exposure. The reluctance to promote practical walkability as a major means of improving overall safety originates in misleading versions of history that misattribute car dependency to national culture, popular preferences, consumer demand, or democratic processes. In fact, transportation experts are the heirs of a forgotten revolution in the governing axioms of their discipline. Their predecessors of a century ago agreed that automobiles can play only a limited part in passenger transportation. Following an ideological revolution that its proponents themselves called a “radical revision,” American traffic engineers prioritized driving over all other modes of everyday passenger transport. In this effort, their greatest obstacle was the popular

demand for safely walkable and inclusive streets. Constructed versions of history legitimized the revision, invocations of state-of-the-art technology lent it a specious credibility, and attractively packaged futures made it seem both inevitable and desirable. While generations of such efforts have failed, the misguided enterprise continues. The hard-earned lessons of the past are neglected. The fault lies not in the technology but in the vision. To achieve much safer and more sustainable urban mobility, we must overcome the persistent legacy of the “radical revision.” We can best begin by making practical walking our highest priority in everyday mobility.

Realizing a Safe System: The Role of Language in the Transition

Seth LaJeunesse

University of North Carolina

Policymakers and transportation professionals seldom know what people most desire from their transportation system. Instead, they interpret the world through metaphor. For example, transportation professionals draw from biology when describing large, multi-lane facilities such as arterials, which evokes images of arteries in the human body. They also borrow from physics when they reference traffic flow, as though people traveling in groups are particles floating through vacuous space. These metaphors provide language frames that do not reflect objective reality. Rather, they shape our understanding of reality, emphasizing some aspects, while obscuring others. Frames, in turn, often obscure the way we think about social issues. When how most others think about an issue is hidden from us, we can feel alone in our beliefs, which might lead to us to conceal our concerns about issues, such as climate change. Our research team discovered that in North Carolina, about 44% of survey participants mistakenly believed others prioritized avoiding congestion more than they actually do. These findings should not be surprising, as a sizable number of local news stories frame traffic injuries as

phenomena that delay traffic. The problem is, equating traffic injury to travel delays pits people's inherent concern for the wellbeing of their families and communities with their desire to dominate space and time via swift transportation. This internal values conflict can sow widespread indifference to road trauma. Needed are communicative strategies that appeal to people's pro-social values, connect these values with Safe System visions, speak to the social benefits of safety solutions, and propose actions to express support for safety improvements. Each of these elements are at the core of the Johns Hopkins University-University of North Carolina-AAA Foundation for Traffic Safety-developed Values-Solutions-Action messaging framework, which emphasizes that realizing a Safe System future is possible and would benefit everyone in sundry ways.

SSA Readiness: Agency culture and the process of change

Dr. Nicholas Ward

Leidos

For many agencies, adopting the Safe System approach represents a transformative change in how they operate. To be successful, transformative change requires a change management process. A key part of this process is to prepare the agency for change. Change Readiness can have several components, including being motivated and committed to change, being confident in one's ability to change, and having the resources necessary to make the change. This presentation discusses a model that lets an agency assess its readiness to implement the Safe System approach and provide recommendations on strategies to increase readiness.

In the model presented, three growth factors contribute to making organizations more willing to change (called Change Readiness): Culture Readiness, Commitment Readiness, and Capacity Readiness. Culture Readiness refers to the current organization's alignment with Safe System approach goals and principles. For instance, an organization culture that emphasizes and highlights shared responsibility for mistakes, underscores that any

mistakes should not result in fatalities, and that there should be multiple reinforcing strategies to avoid fatalities. Commitment Readiness refers to perceptions of leadership's dedication to the Safe System approach. Capacity Readiness refers to perceptions of availability of resources necessary to implement the Safe System approach; factors such as funding, training, and enabling policies.

Once an organization is ready to adopt the Safe System approach, maintenance factors help lead to effective change engagement. Change feedback, defined as monitoring and celebrating successful change, can help encourage actions that embody change. In addition, encouraging Safe System approach citizenship by creating conditions that acknowledge and reward citizenship behaviors outside formal roles, can contribute to significant change engagement.

Engaging Youth and Teen Drivers in Your Traffic Safety Efforts

Bryan Delaney

National Transportation Safety Board

Building a healthy traffic safety culture MUST involve youth. Today's youth and teen drivers are the future advocates, engineers, and law enforcement of tomorrow. If we leave youth out of the discussion and planning, the relevance and relatability of what we want to achieve in the future is lost. Youth are creative and can help develop strategies and campaigns that will reach their peers. However, finding and engaging youth can be challenging. This presentation provides guidance on how to go where the youth are and create a collaborative environment, where youth can be empowered to create and engage with traffic safety culture. Key strategies include putting youth at the head of the table rather than in the seat to the side, communicating with youth in their language, and creating a mentor rather than a managerial relationship.

Technical Session 7: Leveraging Technology for Safe Mobility

Historical Transitions, Interactions, and Mingling of Human Driven Vehicles in the Roadway Environment

Dr. Daniel McGehee

Driving Safety Research Institute, University of Iowa

Since the advent of human- and animal-powered transportation at the dawn of civilization, various modes of transportation have co-existed, each with its own characteristics and unpredictability. From human- to animal-powered vehicles, the transition between these modes has been marked by differing speeds and behaviors. In historical contexts, such as the era when horse-drawn carriages were prevalent, there existed certain expectations regarding the operation of horses, which were the primary mode of transportation. The introduction of automobiles into this landscape undoubtedly resulted in conflicts, given the loud and sooty nature of these new vehicles.

Fast forward to the 21st century and we are witnessing a new phase of transition, interaction, and mingling between human-driven automobiles and self-driving vehicles. Whereas horses introduced uncertainty among human-driven vehicles in the past, self-driving vehicles now contend with uncertainties presented by human-driven automobiles, bicyclists, and pedestrians.

When digging deeper, there has been a gradual transition towards automation within human-driven vehicles. This transition began in 1942 with the introduction of the first “automatic” transmission into production vehicles. The Oldsmobile Custom 8 Cruise featured what was termed “Hydra-Matic Drive,” automatically shifting gears. Although manual automatic transmissions may seem distant from full automation, they provided an initial glimpse into a more comfortable driving experience. Instead of the physically demanding task of operating a clutch and manually shifting gears, drivers could now simply shift into drive or reverse and proceed. Approximately 25 years later, the first electronic conventional cruise control was introduced on the 1958 Chrysler Imperial. This feature eventually became commonplace on nearly all vehicles 50 years later. Advanced Driver Assistance Systems (ADAS) emerged in the mid-2010s and are set to become standard on all passenger vehicles sold in the United States by 2025. Historically, the typical lifespan of a U.S. vehicle fleet is around 20 years. Therefore, by 2045, approximately 90% of the U.S. vehicle fleet is projected to be equipped with ADAS technologies.

The concept of technology and social ubiquity is significant. Few technologies achieve widespread adoption rapidly. While ownership and usage rates may vary, smartphones serve as a prime example of a technology that has rapidly gained widespread use across both the Western world and less mechanized regions. Similarly, social media has become ubiquitous, with most Americans engaging with it in some capacity daily.

One of the most frequently asked questions posed to vehicle safety researchers is "When will self-driving cars be available?" The answer, of course, is that they are already here, albeit in limited numbers. However, a more pertinent question to consider is "When will self-driving cars become ubiquitous in the Western world?" Likely a long time from now…

Crash Avoidance Technology Works, and It Can Be Even Better

Dr. Jessica Cicchino

Insurance Institute for Highway Safety

Research from IIHS and others have demonstrated that crash avoidance systems like vehicle-to-vehicle and pedestrian automatic emergency braking (AEB), blind spot monitoring, and lane departure warning are preventing crashes in the real world. IIHS began testing and rating pedestrian AEB systems in the daytime in 2019. In the five years since we began these tests, we have seen big improvements—we've gone from 21% of vehicles tested earning the top rating of Superior in 2019 to over 60% so far in 2024. However, most pedestrian fatalities occur in the dark, and so these systems need to work well in the dark to prevent pedestrian deaths. IIHS research has shown that early pedestrian AEB systems were effective at preventing crashes in the daylight and in the dark when street lighting was present, but not in dark conditions without external lighting. In 2022 IIHS added a nighttime evaluation to our pedestrian AEB testing. While vehicles still do not perform as well in this test as they do in the daytime evaluations, they are improving.

IIHS began testing vehicle-to-vehicle AEB in 2013. Our original test was run at 12 and 25 mph and simulates a rear-end crash into the back of a car. Yet, few police-reported rear-end crashes occur on roads with speed limits of 25 mph or less, indicating that vehicles are traveling faster than our test speeds when they crash. We also saw that while most rear-end crashes involve a passenger vehicle striking the back of another passenger vehicle, 32% of fatalities involve striking the back of a medium/heavy truck and 11% striking a motorcycle. Our research additionally shows that AEB is not as effective in preventing real-world rear-end crashes where medium/heavy trucks or motorcycles are struck than those where another passenger vehicle is struck. In April 2024, IIHS debuted a new ratings program that tests vehicle-to-vehicle AEB at higher speeds (31, 37, and 43 mph) and adds tests with a motorcycle target and semitrailer as the struck vehicles.

It can take a long time for technology to make its way through the fleet. The Highway Loss Data Institute estimates, for example, that it won't be until 2045 that 95% of registered passenger vehicles will be equipped with AEB, even though automakers have been equipping it on virtually their entire new passenger vehicle fleet since 2022 and the first U.S. vehicle was equipped with AEB over 15 years prior to that. Newer technology designed to improve driver behavior, like driver monitoring for distraction and drowsiness, intelligent speed assistance, stronger seat belt reminders, and impaired driving prevention technology, hold exciting promise. Nevertheless, the safety community needs to continue to pursue other behavioral and roadway safety solutions

to major safety problems that can be implemented more quickly rather than waiting for technology to become widespread.

Safety21 Innovating Safety for All

Karen Lightman

Metro21, Carnegie Mellon University

Safety21 is a U.S. DOT National University Transportation Center (UTC) for Safety, led by Carnegie Mellon University along with the University of Pennsylvania, The Ohio State University, the Community College of Allegheny County, Morgan State University, the Community College of Philadelphia, and the University of Texas–Rio Grande Valley. Its overarching objectives are: (i) to improve the safety, equitability, and comfort of vulnerable road users on the road, (ii) to deploy solutions and impact real-world usage, and (iii) fostering faculty and students through education and workforce development initiatives. Safety21 projects involve collaboration with deployment and/or equity partners—a partnership that touches all phases of the research cycle, from design through deployment and evaluation. As part of its mission, innovating safety for all, Safety21 is very active in its outreach and stewardship of several annual national-level summits and initiatives.

Many ongoing projects connect with key U.S. DOT priorities concerning automated and connected vehicles and smart physical and digital infrastructure. A few studies were highlighted in the presentation, including the development of an app for safe intersection crossing (PedPal Lite), which stands to lower the cost barrier to wide-scale deployment and lead to significant safety and mobility improvements for persons with disabilities. Another study, transforming transportation planning and policy for safety, aims to improve intelligent transport system (ITS) tracking methods, enhance electric vehicle safety, and further transportation research initiatives. Outcomes from this project include a database and data sources to provide metrics and reports on ITS progress, the implementation of PennSTART, the Pennsylvania Safety Transportation and Research Track, and policy briefs to inform decision makers and researchers about approaches and options to vehicle and road safety.

Technical Session 8: Building Community Ownership of Road Safety Programs

Building Community Ownership of Road Safety Programs: Systems-oriented tools explained

Dr. Kristen Hassmiller Lich

University of North Carolina

This session introduced the what and why for the use of systems-thinking tools to advance road safety and increase community ownership of efforts. To begin, a “system” is defined as a collection of parts that interact with each other to form an interdependent whole, which serves a particular function or purpose. Systems can be nested within other systems and can also be dynamic, meaning they can adjust inputs and outputs to meet their purpose. Finally, systems are more than the sum of their parts, as relationships between components reflect important attributes. Therefore, systems thinking is about uncovering how systems are working in order to reach the desired outcomes—systems are never broken, they achieve what they are designed to.

Participatory systems thinking represents one strategy for involving key partners and community members to elucidate the internal dynamics of the system. Systems-thinking tools can be utilized to collaboratively define desired results and identify the leverage points, or the key components or relationships within a system that can be changed in order to achieve the community's desired results. Participatory systems thinking, therefore represents the combination of creating a visual of a system and its components and a participatory model building exercise.

Five systems-thinking tools can be used as part of a participatory planning approach:

1. System support mapping
2. Balance of petals
3. Causal loop diagramming
4. Goal and action alignment mapping
5. The five R's

Each tool works best with different goals and target audiences. Through a project funded by the Collaborative Sciences Center for Road Safety, a how-to guide and case study for each tool can be found at https://www.roadsafety.unc.edu/profdev/resource-hub/.

First, is system support mapping, which helps partners across or within organizations to map the system of work on a particular initiative to identify opportunities to strengthen collaboration and effectiveness. This is most helpful when you want to discover what the needs are beyond "time and money" and discover the different things that people are doing within a system. Second, is balance of petals, which can be used to assess the variety of needs and benefits across partner groups to motivate investment, identify assets, and prevent burnout though creating better balances between partners. Third, is causal loop diagramming, which can be used to understand complex systems to identify "vicious cycles" and potential leverage points for change. Fourth, is goal and action alignment mapping, which helps partners find overlap in goals and determine opportunities for working better together. Last, is the five R's, which help partners create a shared understanding of a system/context in order to improve decision-making and inform actions.

Results Focused Action Planning and Participatory Decision-Making

Wannetta Mallette

Burlington-Graham Metropolitan Planning Organization

The Burlington-Graham Metropolitan Planning Organization (BGMPO) is one of 20 MPOs in North Carolina and the first to have a regional safety plan. In 2020, MPOs in North Carolina were instructed to adopt the state's safety performance goals or develop their own. The BGMPO then provided an overview of the timeline for developing a Safety Subcommittee to meet the need for a plan to zero roadway deaths to the Technical Advisory Committee. The Safety Subcommittee then determined the strategic guiding principles to include in the plan: Transparency, Shared Accountability, Data-driven, Enhanced Engagement, and Continual Improvement. The Subcommittee created 40+ short- medium- and long-term action items identified in the plan, which was approved by the TAC, alongside local Complete Streets and Vision Zero policies.

In order to keep momentum, the BGMPO worked with a team of researchers from the University of North Carolina (UNC) to conduct two workshops to create a detailed implementation plan of the 40+ strategies laid out in the Safey Plan. Initial steps included

identifying the near-term and immediate action steps that could be achieved in the next few years and identifying potential funding sources for the medium- to long-term projects. The UNC team then facilitated the first workshop using an adapted version of the five R's systems-thinking tool, called Results-Focused Action planning. Safety Subcommittee members, represented by local planners and engineers, law enforcement, officials from FHWA and NCDOT, as well as community advocates then collaboratively identified the most salient results they wanted to achieve toward each action and then fleshed out the strategies for achieving those results. The second workshop involved creating an action plan for each strategy, including responsible parties, timelines, and metrics. This resulted in a proceduralized implementation action plan.

Takeaways from the process for BGMPO leaders included the importance of leading from behind and letting the team and partners determine and take ownership of the steps, that minimal investment in things like coalition charters, monitoring tools, and no-cost or low-cost learning opportunities can maintain momentum and lead to significant returns, and that following a procedure of Plan, Do, Act, and Check will build quality improvement and lead to more effective strategies moving forward.

Building Sustainable Networks to Support SRTS in North Carolina

Nancy Pullen-Seufert

National Center for Safe Routes to School

Safe Routes to School (SRTS) began as a federal program in 2005 to encourage and make biking and walking to school safer. Each state DOT received funding, including North Carolina. Initially, NCDOT's program was a combination of programming and infrastructure projects, then the program developed a joint partnership with the state Division of Public Health and then shifted once more to a community-based grant application. The National Center for Safe Routes to School at UNC Highway Safety Research Center was tasked with providing technical support to the 2020 cohort and faced the challenge of providing assistance to eleven unique programs with individual work plans, timelines, etc., but all needed effective partners to advance program goals.

National Center for Safe Routes to School and researchers from the Collaborative Sciences Center for Road Safety University Transportation Center organized a two-part workshop with the goals of (i) illuminating a network of community partners and (ii) uncovering motivations for partnering, particularly to identify "win-wins." The

workshops utilized the goal and action alignment mapping tool and proposed three primary goals for the SRTS initiatives/communities to work from and tweak, as needed:

1. Increase transportation and mobility safety
2. Increase physical and mental health
3. Increase community connection.

Community participants included SRTS coordinators, public school representatives, active transportation advocacy groups, and community members. Working from the proposed goals, participants were asked to create their own individual maps, with their own organization, or perspective in mind. Next, participants identified mission critical objectives of their own organizations as well as any challenges or "pain points." Finally, participants identified any relationship between the three categories, for example, the bus driver shortage "pain point" for schools could be eased by increases in the number of students biking and walking to school. The maps brought out discussions around additional partners to engage, new considerations for ways organizations are connected to SRTS, identifying actions/resources that could be provided to support SRTS, and any synergies between partners that could result in "win-wins."

Between the first and second workshop, the research team created a summary of themes across the individual maps to note specific connections and highlight relationships to create a more concrete understanding of the overall system. Takeaways from participants included the need to broaden the lens to include more long-range planning across organizations, provided discussion points for messaging and engaging with other organizations about common goals, effectively brought partners together to prioritize current projects, and deepened new relationships. One workshop participant recalled after the workshop that they were better able to identify the most salient priorities for partners, stating:

> "One of the challenges with SRTS in general is that it was hard to bring more partners on and convince them it was a valuable program; there are lots of competing interests…
>
> In the past the framing was lack of physical activity…we'd approach from that angle. [Instead]…if we ask them what their problems are and align with issues they see with their school, that's the way that's going to get them to cooperate."

APPENDIX – A

2024 Safe Mobility Conference Organizing Team

- Lindsay Arnold, *AAA Foundation for Traffic Safety*
- Tab Combs, *University of North Carolina–Chapel Hill*
- Dr. Katherine Harmon, *University of North Carolina Highway Safety Research Center*
- Shaina Harris, *AAA Foundation for Traffic Safety*
- Stephen Heiny, *University of North Carolina Highway Safety Research Center*
- Dr. William Horrey, *AAA Foundation for Traffic Safety*
- Elyse Keefe, *University of North Carolina Injury Prevention Research Center*
- Caroline Mozingo, *University of North Carolina Highway Safety Research Center*
- Amanda Neely, *AAA, Inc.*
- Jennifer Palcher-Silliman, *University of North Carolina Highway Safety Research Center*
- Dr. Alicia Romo, *AAA Foundation for Traffic Safety*
- Dr. Laura Sandt, *University of North Carolina Highway Safety Research Center*
- Dr. Rebecca Steinbach, *AAA Foundation for Traffic Safety*
- Brian Tefft, *AAA Foundation for Traffic Safety*
- Dr. C. Y. David Yang, *AAA Foundation for Traffic Safety*

APPENDIX – B

2024 Safe Mobility Conference Program

CONFERENCE AGENDA

TUESDAY, MARCH 26

9:00 AM – 12:00 PM

Workshop ..... *Azalea*

AcciMapping: A Systems Tool for an Enhanced Understanding of Pedestrian Safety

Dr. Laura Sandt, University of North Carolina
Dr. Chris Cherry, University of Tennessee
Stephen Heiny, University of North Carolina

Workshop ..... *Redbud*

Amplifying Victims' Voices

Nicholas Worrell, National Transportation Safety Board
Hillary Packer, Center for Justice Innovation
Marianne Karth, STOP UNDERRIDES! In Loving Memory of Roya
Lois Durso, AnnaLeah & Mary for Truck Safety
Jennifer Pearce, Advocate Against Drowsy Driving, Love4Nicki.com

Workshop ..... *Sunflower*

Promise and Perils of Vehicle Automation on the Road to Safe Mobility

Dr. Donald Fisher, Volpe National Transportation Systems Center
Dr. Kristofer Kusano, Waymo
Dr. Jessica Cicchino, Insurance Institute for Highway Safety
Dr. Anuj Pradhan, University of Massachusetts-Amherst

11:30 AM – 1:00 PM ..... *Atrium*

Registration

1:00 PM – 2:00 PM ..... *Dogwood*

Opening Plenary Session

Dr. David Yang, AAA Foundation for Traffic Safety
Heather K. Drake, The Auto Club Group
Dr. Penny Gordon-Larsen, University of North Carolina at Chapel Hill
Mark M. Ezzell, North Carolina Governor's Highway Safety Program

2:00 PM – 3:15 PM ..... *Dogwood*

Plenary Session – Safe Mobility: What, Why, & How?

Dr. Jeffrey Michael, Johns Hopkins University

Dr. David Noyce, University of Wisconsin

Dr. David Harkey, Insurance Institute for Highway Safety

Moderated by

Jill Ingrassia, AAA, Inc.

3:15 PM – 3:30 PM ..... *Blueberry Hill*

Refreshment Break

3:30 PM – 4:30 PM

Technical Session –
Safe System: Current State & Future Outlook ..... *Redbud*

Mark Doctor, Federal Highway Administration

Leah Shahum, Vision Zero Network

Dr. Eric Dumbaugh, Florida Atlantic University

Moderated by

Stephen Heiny, University of North Carolina

Technical Session –
Safe Mobility for People of All Ages and Abilities .... *Azalea*

Dr. Justin Owens, University of North Carolina

Dr. Renée St. Louis, University of Michigan Transportation Research Institute

Alycia Bayne, NORC at the University of Chicago

Moderated by

Lindsay Arnold, AAA Foundation for Traffic Safety

Technical Session – Centering Equity in the
Safe Mobility Conversation ..... *Sunflower*

Dr. Jamila Porter, de Beaumont Foundation

Dr. Ann Phillips, Just Cities Collective

Oboi Reed, Equiticity

Moderated by

Nandi Taylor, University of North Carolina

6:00 PM – 9:00 PM ..... *Tandem*

Evening Networking Event and Dinner

200 N Greensboro St #1a, Carrboro, NC 27510

WEDNESDAY, MARCH 27

7:45 AM – 9:00 AM ..... *Trillium Dining Room*
Breakfast

9:00 AM – 10:15 AM ..... *Dogwood*
Plenary Session –
Safe Mobility: Challenges, Solutions, & Best Practices

Nat Beuse, Aurora
Carlos Braceras, Utah Department of Transportation
Lorraine Martin, National Safety Council
Jeff Paniati, Institute of Transportation Engineers (Retired)

Moderated by
Dr. Laura Sandt, University of North Carolina &
Dr. William Horrey, AAA Foundation for Traffic Safety

10:15 AM – 10:30 AM ..... *Blueberry Hill*
Refreshment Break

10:30 AM – 11:45 AM
Technical Session – Delivering Safe Transportation Systems for All Road Users ..... *Sunflower*

Dr. Matt Palm, University of North Carolina
Bergen Watterson, Town of Chapel Hill
Bonita Green, Merrick-Moore Community Development Corporation
Hart Evans, North Carolina, Department of Transportation

Moderated by
Tab Combs, University of North Carolina

Technical Session –
Safe Speeds for A Safe Transportation System ..... *Redbud*

Lee Austin, City of Austin, Texas
Eric Richardson, City of New York
Wen Hu, Insurance Institute for Highway Safety
Ivan Cheung, National Transportation Safety Board

Moderated by
Wes Kumfer, University of North Carolina

Technical Session –
Building a Healthy Traffic Safety Culture ..... Azalea

Dr. Peter Norton, University of Virginia

Seth LaJeunesse, University of North Carolina

Dr. Nic Ward, Leidos

Bryan Delaney, National Transportation Safety Board

Moderated by

Dr. Rebecca Steinbach, AAA Foundation for Traffic Safety

11:45 AM – 1:00 PM ..... *Trillium Dining Room*
Lunch & Networking

1:00 PM – 2:00 PM
Technical Session –
Leveraging Technology for Safe Mobility ..... Sunflower

Dr. Daniel McGehee, University of Iowa

Dr. Jessica Cicchino, Insurance Institute for Highway Safety

Karen Lightman, Carnegie Mellon University

Moderated by

Dr. Shannon Roberts, University of Massachusetts-Amherst

Technical Session – Building Community
Ownership of Road Safety Programs ..... Redbud

Dr. Kristen Hassmiller Lich, University of North Carolina

Nancy Pullen-Seufert, National Center for Safe Routes to School

Wannetta Mallette, Burlington-Graham Metropolitan Planning Organization

Moderated by

Elyse Keefe, University of North Carolina

2:00 PM – 3:00 PM ..... *Atrium and Blueberry Hill*
Student Poster Presentations & Refreshment Break

3:00 PM – 4:00 PM ..... *Dogwood*

Closing Plenary Session –
Safe Mobility: Moving from Vision to Reality

Dr. Paul P. Jovanis, Penn State University (Professor Emeritus)

The Honorable Thomas Chapman, National Transportation Safety Board

Moderated by

Caroline Mozingo, University of North Carolina

Student Poster Winner Results

Presented by Thomas Wiedemann, AAA Club Alliance

4:00 PM

Conference Adjourns

THANK YOU TO OUR SPONSORS

AAA Club Alliance
AAA Northern California, Nevada & Utah
Auto Club Enterprises
The Auto Club Group

APPENDIX – C

List of Organizations that Participated in the 2024 Safe Mobility Conference

- AAA Club Alliance
- AAA Foundation for Traffic Safety
- AAA, Inc.
- AAA Northeast
- AAA Northern California, Nevada, & Utah
- AAA Oregon/Idaho
- AAA Washington
- AAA Western and Central New York
- Accessible Design for the Blind
- AnnaLeah & Mary for Truck Safety
- Aurora
- Auto Club Enterprises
- BikeWalk North Carolina
- Burlington–Graham Metropolitan Planning Organization
- CAA Club Group
- Cambridge Mobile Telematics
- Center for Justice Innovation
- Charlotte Regional Transportation Planning Organization
- City of Austin
- City of Durham
- City of New York
- Durham–Chapel Hill–Carrboro Metropolitan Planning Organization
- de Beaumont Foundation
- East Carolina University
- Federal Highway Administration
- Fehr & Peers
- Florida Atlantic University
- Gallagher
- HAAS Alert
- Insurance Institute for Highway Safety
- Institute of Transportation Engineers

- Institute for Transportation Research and Education at North Carolina State University
- Johns Hopkins University
- Just Cities Collective
- Kittelson & Associates
- Launch Inc
- Leidos
- Love4Nicki.com
- Merrick-Moore Community Development Corporation
- National Safety Council
- National Transportation Safety Board
- North Carolina Agricultural and Technical State University Transportation Institute
- North Carolina Conservation Network
- North Carolina Governor's Highway Safety Program
- North Carolina Department of Transportation
- New Mexico Department of Transportation
- National Highway Traffic Safety Administration
- NORC at the University of Chicago
- Penn State University
- Red Scientific Inc.
- Renaissance Computing Institute at University of North Carolina
- Safety21 University Transportation Center for Safety
- South Carolina State University
- STOP UNDERRIDES! In Loving Memory of Roya
- Students Against Destructive Decisions
- Target Zero
- The Auto Club Group
- The Equiticity Racial Equity Movement
- Town of Carrboro
- Town of Chapel Hill
- Town of Matthews
- Toyota Motor North America
- Transportation Research Board
- Travelers Insurance
- University of Akron
- University of Alabama

- University of California–Berkley
- University of Florida
- University of Iowa
- University of Massachusetts–Amherst
- University of Michigan Transportation Research Institute
- University of North Carolina–Chapel Hill
- University of North Carolina–Charlotte
- University of Tennessee
- University of Virginia
- University of Windsor
- University of Wisconsin–Madison
- Utah Department of Transportation
- Virginia Tech Transportation Institute
- Vision Zero Network
- Volpe National Transportation Systems Center
- Waymo LLC
- Western Michigan University
- Westmoreland Strategic Enterprises LLC
- Wilmington Urban Area Metropolitan Planning Organization