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# TRB 2024: Robotaxis, Micromobility & International Cooperation

#### A Run-Down of the 103rd Transportation Research Board Annual Meeting

The Transportation Research Board's (TRB) 103rd Annual Meeting took place this year in Washington D.C. from January 7-11. Thousands of transportation administrators, practitioners, policymakers, and researchers descended upon D.C. and participated in more than 600 workshops, lectern sessions, committee sessions, and poster sessions.<sup>1</sup>

Established in 1920, the TRB is a division of the National Academies of Sciences, Engineering, and Medicine that provides leadership in transportation innovation and progress. The TRB offers expertise, experience, and knowledge to anticipate and solve complex transportation-related challenges. For example, committees, researchers, and staff are currently focused on advancing resilient infrastructure, exploring transformational technology, and caring for the public's health and safety.<sup>2</sup> The TRB's work includes all modes of transportation, critical issues in transportation, and behavioral traffic safety.

The TRB Annual Meeting attracts more than 13,000 attendees each year from throughout the United States and across the world, and is the single largest gathering of transportation practitioners and researchers.<sup>3</sup> The conference provides a platform for professionals to come together to share their knowledge and expertise on a wide range of transportation issues. This exchange of ideas can help professionals identify solutions to pressing transportation challenges and improve transportation systems across the U.S. and around the world. Because the TRB's work covers all transportation modes—air, water, rail, and road—attendees can learn about the latest advancements in a variety of areas, such as autonomous vehicles, sustainable transportation options, and traffic congestion mitigation strategies.

This year, I attended with my staff to present new ideas and research, and to engage with stakeholders from around the world. We also took the opportunity to attend sessions and workshops to learn about key transportation technology and policy innovations. In my first presentation, I covered potential legal challenges and implications of robotaxis in a session titled *Who Is Responsible and Who Pays When an Automated Vehicle Crashes: A Case Study of the Tempe, Arizona, Tragedy.* I also gave a preview of a forthcoming legal research digest, *Legal Issues in Transit Agencies Providing Subsidizing Innovative Micromobility Projects*, on which I am working for the TRB's Transportation Research Cooperative Program (TCRP). During the week, I also co-hosted the International Coordinating Council's International Networking Reception and

<sup>&</sup>lt;sup>1</sup> https://www.trb.org/AnnualMeeting/AnnualMeeting.aspx

<sup>&</sup>lt;sup>2</sup> https://www.nationalacademies.org/trb/about

<sup>&</sup>lt;sup>3</sup> https://www.nationalacademies.org/trb/transportation-research-board

visited the Residence of the Irish Ambassador to hear from, and exchange ideas with, European transportation leaders.

I also presented to several TRB committees and subcommittees on studies and reports my team and I have recently published on congestion mitigation, intercity buses, and more! These committees include the Paratransit Subcommittee, AP055(1); the International Coordinating Council; Equity of New Mobility Services and Technologies Subcommittee, AP020(3); the Emerging Technology Law Committee, AJL40; the Innovative Public Transportation Services and Technologies Committee, AP020; the Rural, Intercity Bus, and Specialized Transportation Committee, AP055; and the Truck and Bus Safety Committee, ACS60.

## AV Collisions and Legal Liability: Who Pays?

On Wednesday, January 10, I joined Alan Steinberg, *Deputy Chief Counsel for the California Department of Transportation*, and Dr. John Campbell, *Principal Scientist at Exponent*, to present a session examining the 2018 Uber AV crash in Tempe, Arizona, which involved the death of a pedestrian by an AV in testing mode with a safety driver behind the wheel.<sup>4</sup> Scrap this photo below.



From Left: Matt Daus, Founder and Chair of the Transportation Practice Group at Windels Marx Lane & Mittendorf, LLP; Dr. John Campbell, Principal Scientist at Exponent; and Alan Steinberg, Deputy Chief Counsel of the California Department of Transportation

<sup>&</sup>lt;sup>4</sup> https://www.wired.com/story/ubers-fatal-self-driving-car-crash-saga-over-operator-avoids-prison/

The session, titled *Who Is Responsible and Who Pays When an Automated Vehicle Crashes: A Case Study of the Tempe, Arizona, Tragedy*, treated this incident as a case study to assess the human factors involved that may have contributed to the crash, and whether the existing legal system achieved justice for the parties and a fair result from a societal point of view. We also discussed and debated with the audience whether any lessons can be learned to prevent similar crashes in the future, and whether any laws or procedures need to be changed to ensure that responsible parties are held accountable.

Alan Steinberg began the session by talking about the mismatch between road design standards as they were conceived in the 1970's, and the needs of modern cars and roads. Many roads designed decades ago were crafted with outdated design standards that don't fully accommodate the complexities of modern vehicles, particularly autonomous ones. These roads often lack features crucial for safe and efficient navigation, such as clear lane markings, standardized signage, and consistent road geometries. Additionally, advancements in vehicle technology, including autonomous driving systems, demand infrastructure that can support their unique requirements, such as precise lane widths, reliable communication infrastructure, and designated areas for charging or maintenance. The mismatch between outdated road designs and modern vehicle capabilities underscores the pressing need for infrastructure updates to ensure integration of autonomous vehicles and enhance overall road safety and efficiency.

Dr. Campbell began the conversation with an in-depth overview of human factors involved in driving. He examined how humans look at the road and their environment as they drive, and how different levels of autonomous driving technology can affect driver behavior. Dr. Campbell presented the physical conditions of the site of the accident, and how those may have contributed to the incident. He also gave a breakdown of how the accident played out and the varying levels of possible perception and reaction time at each key stage.

Following Dr. Campbell's presentation, I discussed the legal aspects of the crash, including the investigations and litigation that ensued, liability with autonomous vehicles, and new legal frameworks for AVs from abroad. Uber settled with the victim's family soon after the accident and was found not to be criminally liable. However, the vehicle's safety driver was indicted by Maricopa County on one count of negligent homicide with a dangerous instrument and later pled guilty to endangerment in July 2023 and was sentenced to three years of supervised probation. While the victim's family filed a negligence lawsuit against Tempe and Arizona, claiming both entities created unsafe conditions that led to the victim's death, the case was dismissed for failure to prosecute. My conclusion was that if the case had gone forward, it seems unlikely that it would have been successful anyway.

The National Transportation Safety Board's (NTSB)—an independent U.S. government investigative agency responsible for civil transportation accident investigation—found, among other things, that the crash was "avoidable" if the safety driver had been alert and monitoring the driving environment and operation of the automated driving system, instead of looking at her

cellphone.<sup>5</sup> Contributing factors included inadequate safety risk assessment procedures, ineffective oversight of vehicle operators, and lack of adequate mechanisms for addressing operators' automation complacency. Further factors included the victim crossing the street outside a crosswalk and Arizona DOT's insufficient oversight of AV testing.<sup>6</sup>

As AVs develop and become further incorporated into regular transportation operations, complicated issues arise regarding liability. For example, over the objections of the city of San Francisco, on August 10, 2023, the California Public Utilities Commission (CPUC) voted 3–1 to approve Cruise and Waymo to operate in San Francisco citywide, including around the clock, without safety drivers. Just over a week later, a Cruise vehicle collided with a fire truck. Then, in October 2023, a Cruise vehicle allegedly ran over and dragged a pedestrian who had been struck by another vehicle. Following the incident, and improper follow-up by Cruise, Cruise's operating permit and passenger carrier authority were revoked. Shortly thereafter, Cruise shut down operations nationwide. U.S. regulators are currently conducting investigations.<sup>7</sup>



Matt Daus delivers speech to crowded room on legal implications of automated vehicles

In addition to public-facing operations, automated technology in vehicles for personal use has faced many issues. In October 2023, a California jury voted 9–3 in favor of Tesla in the first verdict involving a fatal crash blaming Tesla's advanced driver assistance systems (ADAS) features. In that case, a driver was killed in 2019 when a Tesla using the Autopilot feature veered off a highway and collided with a tree. The victim's family argued that the Autopilot system malfunctioned, while Tesla argued that human error was to blame.<sup>8</sup> A similar case is soon going to

<sup>&</sup>lt;sup>5</sup> https://www.ntsb.gov/investigations/accidentreports/reports/har1903.pdf

<sup>&</sup>lt;sup>6</sup> https://www.ntsb.gov/investigations/accidentreports/reports/har1903.pdf

<sup>&</sup>lt;sup>7</sup> https://apnews.com/article/cruise-robotaxi-suspends-operations-gm-73f27ef959afe1e201e61f0fd31802d5

<sup>&</sup>lt;sup>8</sup> https://www.nytimes.com/2023/10/31/business/tesla-autopilot-jury-decision.html

trial that will argue that Tesla allows drivers to abuse the autopilot system.<sup>9</sup> As more of these cases go to trial, finer details will be teased out regarding liability and autonomous systems.

Tesla has faced several recalls regarding its ADAS features. A November 2021 recall was due to a software glitch causing Tesla vehicles to brake or warn drivers of a forward collision unexpectedly. A February 2023 recall was issued due to the Full Self-Driving beta system causing vehicles to act unsafe around intersections by failing to stop and not respecting speed limits. A December 2023 recall was due to the Autopilot system's checking for driver attentiveness being deemed insufficient, requiring additional controls and alerts in a software update.<sup>10</sup>

The Tempe, Arizona crash highlighted the complexities of assigning blame in autonomous vehicle accidents. Even though the vehicle's safety driver was ultimately found liable, the case underscores the need for a legal framework to determine responsibility in these situations. While the U.S. is developing its AV legal framework partly based on case law, the United Kingdom has developed a comprehensive legal framework for AV liability. The goals of the UK's framework are to ensure clear liability, set a safety threshold for legal self-driving, and establish a regulatory scheme to monitor ongoing vehicle safety. Every authorized self-driving vehicle will have a corresponding Authorized Self-Driving Entity – often the manufacturer – that will be responsible for the behavior of the vehicle when self-driving. Companies will also have ongoing obligations to keep their vehicles safe and ensure that they continue to drive under British laws. This framework comes amid wider government funding and support for AV technology testing.<sup>11</sup>

The current legal system is designed for human drivers and may be inadequate to address the unique challenges posed by autonomous vehicles. As autonomous vehicles become more common, it is essential to establish clear rules and regulations regarding liability to promote public trust and ensure the safe integration of this technology into our transportation system.

## Legal Risk in Shared-Use Micromobility

On Tuesday, January 9, I previewed my forthcoming TCRP Legal Research Digest, *Legal Issues in Transit Agencies Providing Subsidizing Innovative Micromobility Projects* (TCRP J-05 Topic 21-02), for the Powered Micromobility Subcommittee, chaired by **Calvin Thigpen**, *Director of Policy Research at Lime*.<sup>12</sup> The digest covers legal issues and guides transit agencies to implement shared e-bike and scooter programs effectively, equitably, safely, and in compliance with applicable laws.

<sup>&</sup>lt;sup>9</sup> https://electrek.co/2024/03/11/tesla-crash-autopilot-trial-but-new-evidence/

<sup>&</sup>lt;sup>10</sup> https://qz.com/tesla-car-recalls-china-model-y-accidents-autopilot-1851144035

<sup>&</sup>lt;sup>11</sup> https://www.intelligenttransport.com/transport-news/150883/av-bill-legal-framework-self-driving-vehicles-uk/

<sup>&</sup>lt;sup>12</sup> https://sites.google.com/view/anf20/subcommittees/powered-micromobility



From Left: Matt Daus, President of IATR; and Calvin Thigpen, Director of Policy Research at Lime

The Transit Cooperative Research Program (TCRP) serves as one of the principal means by which the public transportation industry can develop innovative near-term solutions to meet demands placed on it. The TCRP has an established reputation for providing useful reports and other tools to help public transportation practitioners solve problems and inform decision makers. My previous TCRP Legal Research Digest is titled *Legal Issues and Emerging Technologies* (TCRP LRD59), published in October 2022. The digest covered specific studies of legal issues and problems having national significance and application to the public transportation industry. It provides transportation attorneys with guidance and resources to assist with these legal changes resulting from the implementation of technology, including regulatory challenges, risk management, cybersecurity, privacy, handling confidential and proprietary information, intellectual property rights, civil rights and environmental justice compliance, labor and employment law, and procurement issues.



The forthcoming digest will outline the roles of federal, state, and local authorities in regulating micromobility. It will also cover issues that arise when cities and transit agencies support or operate bike- and scooter-share systems, including accessibility, safety, liability, insurance, risk management, regulating operators, environmental justice, and data security and privacy issues.

For public agencies, this digest is intended to be a roadmap for navigating the legal landscape. It can help identify challenges and practical strategies to minimize risk, guide responsible policy development to promote equity and identify data collection and management best practices. For the micromobility community, it will help inform advocacy efforts with relevant legal and policy knowledge, help riders navigate legal risks and regulations, and foster open communication between communities and public agencies. This research is a significant step towards a more robust legal framework for micromobility, paving the way for its continued safe and equitable integration into our transportation systems.

#### International Cooperation at the ICC

The International Coordinating Council (ICC) hosted its 2nd Annual International Networking Reception. The event was co-sponsored by the <u>International Association of Transportation Regulators</u> (IATR), the <u>European Conference of Transport Research Institutes</u> (ECTRI), the <u>International Road Federation</u> (IRF), the <u>Chinese Overseas Transportation</u>

Association (COTA), the Union Internationale des Transports Publics (UITP), and Bentley Systems.

The ICC concentrates on the evolution of international perspectives, practices, and research in all facets and services of all modes of transportation. The Council brings together experts from TRB technical committees and external organizations to collaborate on issues affecting the safe and secure movements of goods and people in the United States and around the globe. The reception included words from Jack Chambers, *Minister of State for the Ireland Department of Transport*, and Victoria Sheehan, *Executive Director of the TRB*. The event would not have been possible without the efforts of ICC Co-Chairs Christos S. Xenophontos and Caroline Alméras.

As President of the IATR, and Master of Ceremonies for the reception, I was proud to see the event attended by hundreds of government transportation professionals, academics, students, and private sector partners. These events are incredible networking opportunities and help raise awareness at the TRB, where thousands of committees are encouraged to learn from international counterparts, and vice versa, through research partnerships, incorporating international speakers as part of TRB programming, and other opportunities for collaborating and learning from one another to advance best practices, sound policymaking, and comparative research. By fostering this international dialogue, the ICC is paving the way for a more unified and innovative future for the transportation sector.



From Left: Jack Chambers, *Minster of State for Transport in Ireland*; and Matt Daus, *President of IATR* 

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Ingrid Skogsmo, President of ECTRI, and Matt Daus, President of IATR



From Left: ICC Co-Chairs Caroline Alméras and Christos S. Xenophontos; Susanna Zammataro, Director General of IRF



From Left: Michael Calendar, *T-Mobile*; Gabe Klein, *Executive Director of the Joint Office of Energy and Transportation*; Benjamin Listman, *IATR Volunteer* 

## Celebrating International Transportation Innovation at the Embassy of Ireland

On Wednesday, January 10, I was honored to attend a TRB reception for transportation leaders hosted by the Embassy of Ireland at the residence of the Irish Ambassador to the United States. The reception was hosted by **Orla Keane**, *Deputy Ambassador of Ireland*, who spoke and introduced **Jack Chambers**, *Minister of State for the Ireland Department of Transport*. Minister Chambers spoke on transportation innovation in Ireland, Europe, and the U.S. He also spoke about the importance of international transportation leaders to learn from each other. Minister Chambers spoke about the Transport Research Arena (TRA), the foremost European transport event that covers all transport modes and all aspects of mobility. It is the largest European research and technology conference on transport and mobility. TRA 2024 will be taking place from April 15 to 18, 2024.



From Left: The Windels Marx Team – Benjamin Listman, *Transportation Regulatory* Analyst; Salma El Mallah, Sr. Regulatory Compliance and Research Analyst; Matt Daus, Partner & Chair of Transportation Practice; and Kim Ramkishun, Administrative Director

Ireland is embracing transportation innovation on multiple fronts. The for-hire vehicle industry in Ireland is seeing a push for eco-friendly options. This includes incentivizing the use of electric or hybrid – and accessible limousines and taxis, reducing emissions, and catering to environmentally conscious travelers. In 2023, the Department of Transport announced its Electric Taxi Grant, making 15 million Euros available to subsidize EV purchases, with extra money available for wheelchair-accessible vehicles.<sup>13</sup> Wendy Thompson, *Director of Transport Regulation at the National Transport Authority of Ireland (NTA)*, was the recipient of IATR's Norma Reyes Scholarship in 2022, which provides regulators who are new to IATR a chance to come participate at the conference. At the NTA, Wendy has been responsible for expanding the Irish taxi and private hire fleet penetration from less than 4% of the fleet being comprised of wheelchair-accessible vehicles with trained drivers – to more than 18% in 2022. The Ireland Department of Transport has also begun the process of implementing shared mobility hubs. These are hubs where a range of shared travel options – shared bikes, electric bikes, or e-cars – come together and can be accessed in one place by people who need them. They are often located close to other public travel hubs such as train or bus stations.<sup>14</sup>

<sup>&</sup>lt;sup>13</sup> https://insuremytaxi.ie/blog/post/electric-taxi

<sup>&</sup>lt;sup>14</sup> https://www.gov.ie/en/press-release/fbfa6-first-step-towards-shared-mobility-hubs-gets-underway-with-public-consultation/

## TRB Leadership & the Future of Transportation

The TRB's annual meeting serves as a powerful microcosm of the organization's goal: bringing together the brightest minds in transportation to solve complex challenges and shape a brighter future. This year's conference exemplified this perfectly.



Matt Daus, President of IATR; and Victoria Sheehan, Executive Director of the Transportation Research Board

The TRB's new leadership, with Victoria Sheehan, *Executive Director of the Transportation Research Board*, at the helm, builds on many years of successful planning and administration by *Former Executive Director*, Neil Pedersen, and *Former TRB Chair*, Professor Susan Shaheen. Director Sheehan came to the National Academies from the New Hampshire Department of Transportation (DOT), where she was commissioner for seven years. Responsible for an operating budget of over \$650 million, she oversaw a staff of more than 1,600 employees

representing diverse areas such as aeronautics, rail, transit, construction, operations, finance, and administration. At the TRB Annual Meeting, Director Sheehan presented on U.S. transportation agency innovation as part of a workshop bringing together international professionals and transportation leaders to discuss designing the transportation agency of the future.

Beyond presentations, the TRB fosters a spirit of collaboration through events like the ICC's networking reception, and the Embassy or Ireland's reception. These gatherings connect transportation professionals, academics, and industry leaders from around the world, fostering a valuable exchange of ideas and best practices. This international dialogue allows for a more unified approach to transportation challenges.

The TRB annual meeting serves as a springboard for progress. By fostering connections across disciplines and borders, the TRB empowers a global community of transportation professionals to tackle the most pressing challenges, paving the way for a more innovative, sustainable, and equitable future for transportation. The diverse participation, from legal discussions to international networking, is a testament to the TRB's vital role in shaping the transportation landscape of tomorrow.