

# Transforming Transportation Advisory Committee

Meeting Minutes | December 13, 2024

## Overview

The Transforming Transportation Advisory Committee (TTAC) held its fourth meeting in a hybrid format in Washington, D.C. and via Zoom. In accordance with Federal Advisory Committee Act (FACA) requirements, the full meeting was open to the public via [livestream](#). Ben Levine, Designated Federal Officer (DFO), called the meeting to order at 8:30 AM ET.

The following individuals attended the public meeting:

## TTAC Committee Members

- TTAC Chair: Kate Gallego, Mayor, City of Phoenix, Arizona
- TTAC Vice Chair: Bryant Walker Smith, Associate Professor, University of South Carolina School of Law (Special Government Employee)
- Nat Beuse, Chief Safety Officer, Aurora (virtual)
- John Bozzella, President and CEO, Alliance for Automotive Innovation
- Jim Burg, President and CEO, James Burg Trucking Company
- Laura Chace, President and CEO, ITS America
- Mark Chung, Executive Vice President, Roadway Practice, National Safety Council (virtual)
- Matthew Colvin, Chief of Staff, Transportation Trades Department, AFL-CIO (virtual)
- Carol Flannagan, Research Professor and Director of the Center for the Management of Information (Special Government Employee)
- Shelley Francis, Co-founder & Managing Partner, EV Noire (virtual)
- Kelly Funkhouser, Associate Director of Vehicle Technology, Consumer Reports
- Andrei Greenwalt, Chief Policy Officer, Via
- Kim Lucas, Director of Mobility and Infrastructure, City of Pittsburgh, Pennsylvania
- Gregory Nadeau, Founder and Chairman, Infrastructure Ventures
- Raj Rajkumar, Professor of Electrical and Computer Engineering, Carnegie Mellon University
- Bryan Reimer, Research Scientist, Center for Transportation and Logistics/AgeLab, Massachusetts (Special Government Employee) (virtual)
- Catherine Ross, Harry West Professor of City and Regional Planning, Georgia Institute of Technology (Special Government Employee)
- Cole Scandaglia, Senior Legislative Representative and Policy Advisor, International Brotherhood
- Steven Shladover, Research Engineer, University of California Berkeley (Special Government Employee)
- Bernard Soriano, Deputy Director, California Department of Motor Vehicles
- Amie Stepanovich, Vice President of U.S. Policy, Future of Privacy Forum
- Jeffrey Tumlin, Director of Transportation, San Francisco Municipal Transportation Agency (virtual)
- Carol Tyson, Government Affairs Liaison, Disability Rights Education and Defense Fund
- Eileen Vélez-Vega, Secretary, Puerto Rico Department of Public Works and Transportation
- Maria Trinidad (“Triny”) Willerton, President and Founder, It Could Be Me



- Pam Wood, Director of Human Rights, Hewlett Packard Enterprise (virtual)

#### TTAC Committee Member Representatives

- Jeffrey Fougere, Senior Counsel, Hewlett Packard Enterprise on behalf of Pam Wood, Director of Human Rights, Hewlett Packard Enterprise (virtual)
- Julia Friedlander, Senior Manager for Automated Driving Policy, San Francisco Municipal Transportation Agency on behalf of Jeffrey Tumlin, Director of Transportation, San Francisco Municipal Transportation Agency
- Jeff Oxenberg, Data and Machine Learning Engineering Lead, Hewlett Packard Enterprise on behalf of Pam Wood, Director of Human Rights, Hewlett Packard Enterprise (virtual)
- David Quinalty, Head of Federal Policy & Government Affairs, Waymo on behalf of Tekedra Mawakana, Co-Chief Executive Officer, Waymo

#### United States Department of Transportation

- Christopher Coes, Acting Under Secretary of Transportation for Policy
- Scott Goldstein, Deputy Assistant Secretary for Transportation Policy
- Dr. Robert Hampshire, Principal Deputy Assistant Secretary for Research and Technology
- Mike Horton, Acting Chief Artificial Intelligence Officer
- Hari Kalla, Associate Administrator for Infrastructure, Federal Highway Administration (virtual)
- Ben Levine, Deputy Assistant Secretary for Research and Technology/TTAC Designated Federal Officer (virtual)
- Jason Levine, Director, Office of Governmental Affairs, Policy, and Strategic Planning, National Highway Traffic Safety Administration (virtual)
- Gloria Shepherd, Executive Director, Federal Highway Administration (virtual)
- Ross Templeton, U.S. DOT Labor Policy Advisor
- Polly Trottenberg, Deputy Secretary of Transportation
- Sean Walsh, Program Manager, Project Delivery Center of Excellence (virtual)
- Vinn White, Deputy Administrator, Motor Carrier Safety Administration (virtual)

### **Call to Order, Meeting Logistics, Welcome Remarks**

Ben Levine, TTAC Designated Federal Officer, called the meeting to order and provided an overview of the meeting objectives. He then introduced Christopher Coes, Assistant Secretary for Transportation Policy (acting in the capacity of Under Secretary).

On behalf of the Secretary, Christopher Coes thanked the committee members for joining. He acknowledged that the late introduction of the subcommittees on Project Delivery and Emerging, Overlooked, and Underleveraged Innovation for Safety presented challenges for developing their recommendations but emphasized that their inclusion helped reflect the cross-sector expertise of the committee. He also thanked the career staff at the Office of the Secretary for organizing the meeting.

Mayor Kate Gallego and Bryant Walker Smith then welcomed the members and audience to the meeting. Mayor Gallego praised the committee's recommendations and their potential impact on key issues. She outlined the meeting agenda, which would include a discussion and vote on each of the five chapters in the committee's recommendations report.



Ben Levine provided an overview of the meeting logistics and acknowledged Vinn White, who had previously served as the Designated Federal Officer, noting that he was instrumental in setting the vision for the Department’s innovation and technology work.

## Presentation and Discussion of Draft Report Sections

### Introduction

Bryant Walker Smith began by discussing the Introduction section of the report. Bryant asked if there were any questions on the changes made in the final version; no questions were asked. Bryant proposed the group move to a final vote on the Introduction. He asked all those in favor of adopting to raise their hand, and all members in attendance voted yes. There were no noted votes of opposition or abstention. Bryant noted that the window to vote after the meeting would extend until Tuesday, December 17<sup>th</sup>, with members permitted to vote by email. Bryant then invited the subcommittee chairs for the Project Delivery topic to present.

### Role of Emerging Technology in Improving Transportation Project Delivery

Kim Lucas and Maria “Triny” Willerton presented on the Project Delivery recommendations. They thanked everyone for their contributions and reminded the group that their recommendations were categorized into six pillars of improvement. Kim noted that there were not many substantive changes to the section since the latest draft circulated a week prior to this meeting. She then presented an overview of the subcommittee’s process beginning with the formalization of the subcommittee in June, followed by weekly meetings to develop recommendations, then, based on feedback from the October TTAC meeting, the development of their final recommendations.

Kim reviewed the substantive changes to their recommendations since the October meeting. Changes included using explicit language regarding Disadvantaged Business Enterprise (DBE) terminology, clarifying language to explain the term “grant,” clarifying that the adoption of emergency procedures is meant to increase efficiency, and adapting the technologies section to discuss opportunities for AI in project delivery.

Kim then presented the initial recommendation themes. These included:

- A common application platform for grants
- Proactive support for identifying underrepresented communities
- Building staffing capacity to aid the grant administration process
- Optimizing knowledge sharing of existing technical assistance resources and improving communication between U.S. DOT and project deliverers
- Continuing to reevaluate match requirements

Laura Chace asked if the subcommittee considered recommendations related to streamlining the process for technical projects regarding National Environmental Policy Act (NEPA) categorical exclusions. Kim responded that the group could discuss further, and that they would be open to being clearer on that specific recommendation.

Bryant moved the group to a vote. The vote showed unanimous support for adopting the section, with no noted opposition or abstentions.

Bryant then invited the chairs for the Emerging, Overlooked, and Underleveraged Innovation for Safety subcommittee to present their recommendations.



## Emerging, Overlooked, and Underleveraged Innovation for Safety

Kelly Funkhouser thanked the subcommittee members and all those who contributed, acknowledging the challenges posed by the accelerated timeline. The subcommittee identified safety challenges and opportunities in three areas: vehicles, infrastructure, and policy and education. Kelly noted that the subcommittee chose to prioritize a select few recommendations; while they recorded additional discussions and recommendations that could be considered in the future, they did not include them in the report. The selected recommendations reflect the broad support of the subcommittee and could be adopted quickly.

Kelly presented the problem statements and associated solutions for each of the selected recommendations. For the vehicle area, the subcommittee recommended aligning the U.S. approach to adaptive driving beams with the Canadian and European Union approaches. Additionally, the subcommittee recommended updating the U.S. New Car Assessment Program (NCAP) at least every 5 years to account for new safety technologies. Other recommendations included integrating smart and complete streets (infrastructure area) and using high-visibility enforcement (policy and education area).

Kelly noted key changes from the recommendations presented at the previous meeting. The first two sections did not have substantial changes. In the infrastructure section, the subcommittee added text about the protection of personal privacy and robust cybersecurity protocols, specifically noting that data should not generally be provided to law enforcement agencies unless subject to proper legal processes. In the policy section, the group struck the text about pedestrians and bicyclists from the high-visibility enforcement recommendation and added text in support for education on safe use of all mobility devices. Other changes included adding citations throughout the document.

Kelly asked the full committee to discuss the inclusion of high-visibility enforcement, as there had been differences of opinion among the subcommittee members. She noted that the subcommittee was comfortable with the recommendation following the inclusion of a call-out acknowledging that civil rights, equity, and fairness are foundational to the design and deployment of enforcement efforts.

Jim Burg objected to the language that specifically called out motorists in the policy and education recommendation. Jim expressed that the language suggested holding motorists to a higher standard than pedestrians and bicyclists. Laura Chace responded that the responsibility belongs to all road users but noted that the subcommittee discussed how the consequences for motorists are sometimes lower than for pedestrians and bicyclists. The subcommittee agreed that other road users should not be excluded, but that the bulk of the focus should be on motorists. Triny Willerton agreed and noted that bicyclists are not comparable to motorists due to the weight differences.

Nat Beuse commented on two areas he viewed as surprising omissions in the report. First, he noted that automated enforcement works in addressing equity concerns from conventional enforcement practices, but it has been adopted inconsistently across the country. He expressed surprise that the subcommittee had not included it as a recommended technology in its report. Secondly, he observed that there are a lot of new technologies being introduced into new vehicles, but behavior challenges remain amongst all road users not abiding by the rules of the road.

Laura Chace responded to the first comment on automated enforcement. She acknowledged that while it can be deployed in ways that can be more or less positive, the subcommittee wanted to broadly support its use and other technological solutions; the recommendation specifically didn't identify it as to not limit the possibilities. To the second comment, Laura responded that the education component was added to highlight increased responsibility of drivers to use technology safely.

Kelly Funkhouser added that the group had discussed many different vehicle technologies, as well as the associated educational needs. In the interest of time, these were not all included in the final recommendations.

John Bozzella agreed with Nat Beuse that enforcement is critical. John appreciated the focus on quick wins such as adaptive driving beams, which focus on safety outside of the vehicle. John agreed aligning with the Canadian and European Union approaches on this technology would ultimately make roads safer. He also reiterated the importance of updating the NCAP more frequently and its alignment with safety innovations.

In relation to the discussion of enforcement activities, Carol Tyson shared an anecdote of disability users being reprimanded for having to use the streets because the pedestrian infrastructure was not accessible. Carol agreed that the new language strikes a balance. Kelly Funkhouser thanked Carol for their contributions and insight on this issue.

Kim Lucas shared that in Pittsburgh, they are not permitted to use automated enforcement. Kim asked the subcommittee if they are recommending that U.S. DOT research successful deployments and if that effort includes understanding successful cases of acceptance by legislators. Laura Chace responded that the research could encompass that and reiterated that most people learn by example- it is easier for agencies to try something that has been successful for another agency. Laura emphasized that sharing best practices will be helpful for multiple audiences.

Julia Friedlander shared that in San Francisco, her colleagues have been working to get permission for automated speed enforcement. Julia shared her appreciation for the path forward in developing trust and confidence in the technology.

Triny Willerton shared that she was deeply involved in implementing automated enforcement in Colorado. She shared that equitable implementation was a challenge and suggested that the report could speak specifically about this topic. Laura asked Triny if she was suggesting an edit or amendment to the section. Triny offered that it could be an amendment that reiterated automated enforcement as a helpful tool. Laura suggested the addition of the language “including automated enforcement” into the first recommendation. Bryant Walker Smith edited the document on the shared screen to reflect those changes in real-time.

The discussion then moved to recommendation five and whether the language was limiting in regard to highly automated vehicles. The group suggested changing the language to “motor vehicle operators” instead of just motor vehicles.

Bryant Walker Smith asked the committee if there were any concerns with the language as it stood and if the committee agreed that automated enforcement was a piece to consider and therefore should be explicitly expressed in the recommendations. He moved to an internal sub-vote on the related recommendation and noted that it was a formal but not final vote. A unanimous show of hands indicated support.

Bryant asked the subcommittee to work on the language during the break and return to present their changes.

David Quinalty suggested adding the language “to be used responsibly.” Bryant asked for any objections to that language. There was no comment from the committee.

Raj Rajkumar then asked for a more detailed definition of the word “research.” Kelly Funkhouser suggested changing the language to “research and review.” Bryant suggested they revisit the issue following the break. The final vote would take place after this discussion.

Before breaking, Bryant asked for any additional comments from the committee on this section. There were none.

### Automated Driving Systems (ADS)

Bernard Soriano presented the recommendations for the ADS subcommittee, noting that the task had been divided into three areas:

- Data (led by Steven Shladover, and supported by David Quinalty, Julia Friedlander, Carol Flannagan, Kelly Funkhouser, and others)
  - This group created nine problem statements, which were discussed during previous committee meetings.
  - Based on the problem statements, the group created 13 recommendations covering topics such as data collection and dissemination, analysis tools, and learning from other modes.
  - One key focus area was updating the Standing General Order and including additional data to allow for “apples-to-apples” comparisons.
- First Responders (led by Chief Thomas Dwiggins)
  - This group created four problem statements focused on the experience of local governments that have deployed automated vehicles.
  - The primary recommendation for this topic was for U.S. DOT to develop a work plan.
- Workforce (led by Cole Scandaglia)
  - This group discussed how the workforce could be impacted by automated vehicles, what tools U.S. DOT has to address these impacts, and recommendations for further research.

Bernard clarified that the presentation showed changes that had been made to the prior version. He specifically highlighted wording changes in Sections 5.3.1.1 (ADS Safety Expectations), 5.3.2.4 (ADS Data Collection), 5.4.2.1 (ADS Interference with First Responder Operations), and 5.4.2 (Recommended Workplan on AV Interaction). There were no objections to the proposed editorial changes.

Raj Rajkumar noted that the recommendations were comprehensive but suggested splitting the fifth bullet point into separate topics. He also noted a need to further define ADS to clarify what is and isn’t in scope. David Quinalty stated that the proposed edit to Section 5.3.2.4 narrowed the recommendation, and suggested reverting to the original language: “analyses of such data.” There were no objections.

David Quinalty also discussed the removal of the word “expectations” in Section 5.4.2.1, noting that it removed consideration of informal expectations. The committee agreed to revert to the original language.

The committee also discussed the language in Section 5.4.3. They agreed to modify the language to “should consider assessing” to clarify which elements U.S. DOT should focus on.

Bryant opened the floor to other comments on substance or specific requests for changes. Julia Friedlander inquired as to whether the committee would also be discussing the workforce section. Bernard clarified that there had not been any substantive changes to this section since the version circulated the week prior to this meeting, but that the committee was welcome to raise any questions or concerns. Bryant then asked if there were any additional proposed changes to any of the ADS sections;



there were not. The committee was asked to adopt the ADS section by a show of hands, and there were no recorded objections or abstentions.

Following a short break, Laura Chace proposed the following resolution to the question regarding the definition of “research” raised during the discussion on Emerging, Overlooked, and Underleveraged Innovation for Safety: On page 87, add a footnote to clarify that “research includes, but is not limited to, past, present, and future findings, studies, and programs.” Bryant Walker Smith confirmed that there were no objections and proposed the committee vote by a show of hands to adopt the recommendations for the Emerging, Overlooked, and Underleveraged Innovation for Safety Subcommittee. All members in attendance were in favor, with no objections or abstentions. Bryant reminded that committee that members who were not in attendance could provide their vote in writing by Tuesday, December 17<sup>th</sup>. He then transitioned to the discussion to the AI Subcommittee.

### Artificial Intelligence

Bryant Walker Smith noted that the subcommittee chairs, Steve Dellenback and Bryan Reimer, passed on their regrets that they were unable to attend the meeting (Bryan Reimer attended a later portion of the meeting virtually). Laura Chace was designated to present on behalf of the subcommittee and to facilitate the discussion.

Laura began by noting that the subcommittee’s work was very broad and comprehensive. She provided a reminder that the subcommittee shared a preliminary report in September and had subsequently received many comments, questions, and suggestions. Based on that feedback, the subcommittee split the document into three parts: 1) Recommendations for U.S. DOT on AI, 2) AI Issues (i.e., top-line considerations), and 3) AI Applications. The section on applications was limited to surface transportation, as the subcommittee did not have sufficient expertise in aviation or rail. This section considered both benefits and risks when considering applications that U.S. DOT should be monitoring or considering.

Laura emphasized that significant updates had been made since the previous meeting. Notably, the concept of global competitiveness was added throughout the document, including in the re-written preface, which had been shared prior to the meeting. The entire text of the updated preface was not included in the presentation due to its length, but members were directed to page 8 of the report to remind themselves of the language. Laura also mentioned that there were strong opinions across the committee regarding tone and overall approach. The subcommittee came to an agreement that the preface could be revised to include additional concepts and be acceptable to all, even if it did not perfectly align with any given member’s perspective. Laura shared that it was very difficult to come to a consensus and that the subcommittee wished to honor their differences and make the varying opinions known to U.S. DOT. Overall, the recommendations were balanced to show that while AI can be used to transform the transportation system, there are serious considerations (e.g., safety, privacy, equity) that must be addressed in order to manage risks while enabling innovation.

Laura then noted a few specific changes that had been made, including a clarification in Section 4.2.1 that safety is implicit throughout the recommendations, an additional note in 4.2.1 highlighting the link between multimodal policy and AI’s role in economic competitiveness, and the inclusion of the need for a policy framework that supports innovation and manages risk in Section 4.3.2. Additionally, economic competitiveness was included in the AI Issues section (4.4.15). Finally, the language in the Benefits section was streamlined for clarity. Laura noted that additional minor wording and grammatical changes were made throughout the document, but they were not substantive. She then opened the floor for comments from the committee.



Catherine Ross emphasized that at the end of the day, it's about what you're trying to get done, so the inclusion of economic competitiveness was key.

Raj Rajkumar acknowledged the subcommittee's good work on a sensitive subject but noted that the preface seemed to have a negative tone. He suggested emphasizing the consensus first and then noting differences in opinion. He also suggested using the word "agile" instead of "nimble." Finally, he emphasized that AI would continue to evolve, and therefore it was important to recommend that any regulations or guidance that are put in place should be flexible or regularly updated. Laura Chace clarified that that was the point the subcommittee was trying to make by using the word "nimble." Raj concurred but noted that a separate statement about regulatory flexibility would be useful. Cole Scandaglia shared that the subcommittee had debated the language extensively and was concerned about reopening the discussion. Laura agreed, noting that the current language addressed the needs of multiple stakeholder groups.

Raj Rajkumar also noted that the language in Section 4.5.5.2 was too prescriptive and should extend beyond "fusing datasets."

Mayor Kate Gallego mentioned that the document should be consistent across sections, specifically with regard to whether automated enforcement is considered surveillance and when the use of surveillance is recommended. Bryant Walker Smith responded by noting the distinction between technologies that have a de minimis privacy risk and those that may be especially invasive. This distinction is important to avoid causing undue fear. Mayor Gallego noted that the use of the term "surveillance" will indicate to the public that they should be concerned. Carol Flannagan asked if the open question was clarifying whether the term "surveillance" should be applied to automated speed detection, and Mayor Gallego responded that TTAC's view on automated enforcement was unclear. Carol clarified that the committee's position was that U.S. DOT should make the determination about when the term "surveillance" should and shouldn't be used. Laura Chace further clarified that TTAC's general position is that automated enforcement is a tool, and that it should be implemented with civil rights, equity, safety, and other key considerations in mind. U.S. DOT can choose how it uses certain terms and should avoid causing public fear or confusion if there will be minimal privacy impact. Carol Tyson expressed their agreement and emphasized the importance of deployment guided by community engagement. Triny Willerton also agreed and thanked Bernard Soriano for recommending the use of the word "responsibly."

Laura Chace noted that the section being disused wasn't limited to automated speed enforcement, but also other uses of AI in the transportation system, such as monitoring weapons in transit stations or monitoring incursions into bus-only lanes, so the overall context was broader.

Jim Burg expressed a desire for the impact of automated enforcement to be assessed. He recommended that the use of the technology be sunset after 10 years unless positive impact could be proven. Building in checks and safeguards in a "trust but verify" system would help avoid abuse. Triny Willerton clarified that there is already overwhelming data that shows that automated enforcement is effective; it just needs to be implemented responsibly and ethically. Carol Flannagan asked if there were areas in the report where "trust but verify" language would be useful or if was already covered. There was general agreement that additional language was not necessary. Eileen Velez-Vega noted the importance of coordinating with updates to Strategic Highway Safety Plans.

Triny Willerton emphasized that we should implement the tools that we know work, and we know that automated enforcement works. She suggested that some of the new language being proposed might be more relevant to newer, unproven technologies. Amie Stepanovich added that some of the concerns were already addressed through previously approved sections and that the section being discussed had a





broader context. Laura Chace agreed that the issues were addressed in other parts of the document, specifically in areas that discussed updating policy frameworks, publishing research and findings, and responsible implementation. She recommended against reopening areas where consensus had been reached when those concerns had already been addressed elsewhere.

Bryan Reimer noted that the language around monitoring had been the result of a very hard-fought compromise, and that the subcommittee had put a lot of thought into the issue. Additionally, Andrei Greenawalt flagged language on page 19 of the report about risk assessment.

Laura Chase then noted that there was language on page 12 of the recommendations with concepts that permeated the document. This language wasn't included in the presentation because it wasn't changed from the previous version.

The subcommittee then discussed several specific wording changes. All of the proposed changes were accepted into the document:

- Page 30, Footnote 41
  - Kelly Funkhouser recommended the following changes
    - Strike the word “safety” and make “benefit plural”
    - Strike the reference to “hands-on/hands-off”
    - Add “Lane Centering Assistance” and “Active Driving Assistance”
  - John Bozzella noted that striking the word safety implied that there wasn't a safety benefit.
  - Kelly Funkhouser noted that was not the intention, and it was agreed to change the language to “safety and convenience benefits.”
- Section 4.5.2
  - Kelly Funkhouser suggested changing “can be entrusted with decisions” to “may make decisions,” because trust has not yet been established.
- Line 1109 (redline document)
  - Kelly Funkhouser suggested striking “root cause of most crashes” since many other factors (e.g., infrastructure, signage, etc.) have been identified as root causes.
- Section 4.5.3.2
  - Bernard Soriano noted that the words “in which it is deployed” were missing after the phrase “in the areas.”
- Line 1352
  - Andrei Greenawalt asked that “on-demand transit partners” be changed to “transit providers.”
- Line 563
  - Carol Flannagan recommended striking “geolocation and other” since that information would already be included in metadata.
  - Carol also recommended the GES update and adding the Crash Report Sampling System.

Following this discussion, Raj Rajkumar raised some broader points, including the need to carefully consider the use of the words “shall,” “should,” and “must,” and the need to highlight particular issues of interest to current and future administrations. Bryant Walker Smith responded that after the committee adopted the report, it could have additional conversations on how best to communicate the recommendations.

Laura Chace then recommended one additional wording change: on Line 1212, the phrase “augmenting, processing, and...” should be added.

John Bozzella noted that the recommendations reflected the diversity of the committee and emphasized that the competitive challenge is real in the mobility sector. He stressed the importance of finding the right balance and warned that our competitive edge could be lost if we are overly cautious and risk-focused. He also emphasized the importance of NHTSA’s role.

Laura Chace thanked everyone for their comments and noted that the inclusion of global competitiveness significantly strengthened the recommendations. She reiterated that there are risks to acting and risks to not acting, and that the committee tried to find the right balance. Bryan Reimer also thanked the subcommittee members and expressed that the recommendations provided tangible steps forward for U.S. DOT.

Steven Shladover noted the length of the document and asked what the elevator pitch would be for senior decisionmakers. Laura agreed that it was a good question, but that there wasn’t an easy way to succinctly distill all 35 pages of the document. However, the committee could capture the spirit and framing of the recommendations. Catherine Ross agreed.

Julia Friedlander noted that the document had improved dramatically since the previous version. She appreciated the emphasis on the role of AI in economic competitiveness and identified innovation, competition, and good policy and regulation as three key components. She also agreed with John Bozzella regarding the role of a fully functioning U.S. DOT.

Raj Rajkumar emphasized the importance of economic security in addition to national security. He recommended adding a paragraph with a summary about the need to innovate and make investments, framed in a way that would be meaningful to future administrations. Laura Chace noted that the key messages are included in the preface and that she would caution against developing a separate shortened introduction.

Bryant Walker Smith then asked the committee to vote via a show of hands. Nat Beuse voted to abstain; all other present members voted in favor, Bryant noted that additional votes may still come in before next week’s deadline for voting.

Bryant then asked if the committee was prepared to accept the full report by acclamation. Raj Rajkumar asked about including new summary language, and Bryant clarified that the individual sections had already been adopted but that the committee could have additional discussion about communication strategies. The present committee members agreed to accept and adopt the full report by acclamation.

## **Discussion on Disseminating TTAC’s Recommendations**

The committee continued to discuss their proposed next steps for finalizing and disseminating their recommendations.

Steven Shladover shared that it would be helpful to have a standard slide deck or a media tool kit available for members to share the recommendations on their own. Triny Willerton agreed. Bryant Walker Smith noted that the presentations developed by the subcommittees could serve as a foundation for these materials.

John Bozzella voiced disagreement with some of the committee’s proposed communications strategies, voicing that decisions on how to publicize TTAC’s work should be left to U.S. DOT. Bryant agreed that

the committee's primary audience is the U.S. DOT but that there are others who have contributed and advised the committee who might be interested in seeing the final product.

Nat Beuse agreed with John Bozzella about the committee's charge. Nat asked if the group could discuss next steps with the career employees at U.S. DOT. He also asserted that a vote of approval on the recommendations from the committee does not necessarily indicate that they are ready to be shared broadly. Gregory Nadeau offered that, when it is appropriate, he would like to brief the colleagues that he consulted with throughout this process. Laura Chace added to Nat's comment regarding next steps and asked if there are opportunities to further brief the U.S. DOT career staff and the appropriate modes that these recommendations fall under. Catherine Ross added that she hoped the recommendations would be published so that committee members will have ongoing access and the ability to share them.

Raj Rajkumar asked if there would be a press release to announce the publication of the report. This determination will be made by U.S. DOT leadership.

The group took a brief break before presenting their findings to U.S. DOT leadership.

## **Presentation of Final Recommendation to DOT Leadership**

Polly Trottenberg, Deputy Secretary of Transportation, opened by thanking the committee on behalf of the Secretary. She expressed her excitement to hear more about the recommendations and the issues that the committee tackled. Other U.S. DOT staff in attendance included Jason Levine (NHSTA), Hari Kalla (FHWA), Gloria Shepherd (FHWA), and Vinn White (FMCSA). There was a brief round of introductions between the U.S. DOT staff and the committee members.

Bryant thanked the U.S. DOT representatives for joining and expressed the committee's faith in the Department to bring about the recommended changes. He then asked Laura Chace to speak about the Artificial Intelligence recommendations.

### **Artificial Intelligence**

Laura Chace presented TTAC's AI-focused recommendations. The AI subcommittee came to a consensus on three key themes: innovation, competition, and good policy and regulation. Laura noted that the presentation covers high-level recommendations and reminded the room that AI is a tool which can be used in many ways, dependent on policy frameworks around it.

The key AI-related tasks the subcommittee was charged with were to identify:

- AI applications;
- Transportation-specific needs;
- Transportation-specific risks; and
- Transportation-specific benefits

Laura discussed how the report is divided into recommendations, issues, and applications. She highlighted six key considerations throughout the recommendations:

1. U.S. DOT should model principles for the trustworthy development and deployment of AI by openly and proactively showing its work.
2. U.S. DOT should identify goals and corresponding expectations for the use of AI tools throughout the lifecycles of these tools, including safety, transparency, privacy, and equity.

3. U.S. DOT should recognize that AI depends on data. It should therefore assess, improve, and accelerate its data expertise, data analysis, data guidance, and data protection.
4. U.S. DOT should regularly engage with a much wider set of public and private sector stakeholders than it has historically. The Department already has unique convening authority and unique reach.
5. U.S. DOT should strategically use the full scope of its authority.
6. U.S. DOT should evaluate any organizational changes needed to meet the recommendations included within this report and deliver on its core responsibilities.

Deputy Secretary Trottenberg invited Mike Horton, acting Chief AI Officer, to share his thoughts. Mike thanked the group and expressed the importance of their work. He highlighted his agreement with the fourth recommendation and invited the group to embrace conflicting opinions in the report, noting the importance of different perspectives. He invited the group to remain in contact with him as they move forward.

Vinn White reiterated Mike's point about the different viewpoints and noted that there are many applications and use cases for AI in transportation. Ben Levine shared a specific example focused on analyzing feedback on Requests for Information.

### Automated Driving Systems (ADS)

Bernard Soriano presented TTAC's automated driving-focused recommendations. He identified the three distinct areas that the ADS subcommittee focused on: data, first responders, and the workforce. Bernard recognized the group's diverse membership, representing industry, government, academia and research, consumers, and safety advocates. The automated driving chapter of the report included 9 problem statements and 13 recommendations.

Steven Shladover presented a high-level summary of TTAC's recommendations on data. He recalled that the work began from the perspective that data is a means to understand the safety and performance of ADS; therefore, many of the recommendations are about analysis methods.

Steven noted that the group identified the limitations presented by the baseline of human-driven systems; there is a quantification of what is happening with non-ADS, but there is not equivalent baseline data for the same conditions using ADS, which makes it difficult to draw comparisons. Because of this, the committee recommended funding the development of data collection and assessment tools and actively engaging all stakeholders.

Steven also noted that some locations around the country are gaining direct experience with ADS, and that U.S. DOT needs to be involved in facilitating the transfer of knowledge from these locations to others that have not yet hosted ADS operations. Finally, he shared the recommendation for NHTSA to update its Standing General Order on incidents involving automated driving systems and certain driver assistance systems.

Deputy Secretary Trottenberg noted that the Department might be entering an era of fiscal constraint, which could limit their ability to implement the recommendations.

Jason Levine made a comment regarding the Standing General Order. He observed that ADS deployment will be a long process and that the focus should be on the long-term intent is for collecting the data and whether the right data is being collected.

Steven Shladover turned the discussion over to Julia Friedlander to discuss the recommendations on first responders on behalf of Chief Thomas Dwiggin.

Julia noted that Chief Dwiggin had convened many stakeholders to inform the development of the recommendations. Additionally, Nat Beuse provided insight into the need for a work plan. Julia noted that communication between human traffic control and first responders is an ongoing challenge. A key component of the proposed work plan is to look at the equipment and procedures necessary to improve that communication.

Next, Cole Scandaglia shared the workforce recommendations. The committee developed five recommendations to ensure that the U.S. DOT connects with the appropriate stakeholders and addresses data and research needs. The committee also recommends improving interagency cooperation through the establishment of a multi-agency task force. Additionally, the committee recommended that U.S. DOT assess the impacts of other disruptive technologies to inform expectations on how automated vehicles may affect the workforce. Finally, the committee recommends using information from the previously discussed recommendations to create a comprehensive workforce development initiative.

Ross Templeton, U.S. DOT Labor Policy Advisor, noted that the most far reaching need that TTAC has identified were the large gaps in academic literature. Ross recognized the need for attention on these areas. Additionally, he recognized the importance of the interagency work that the recommendations highlighted.

Cole Scandaglia offered that is important for the beforementioned research to not just be about job quantity, but also job quality, wages, and accessibility.

### Role of Emerging Technology in Improving Transportation Project Delivery

Kim Lucas presented TTAC's project delivery-focused recommendations. Kim began by sharing a case study from Pittsburgh that compared a project that took 6 years to complete with another bridge that took 6 months to repair under emergency conditions.

The committee identified the following opportunities to accelerate project delivery: communication of existing resources, breaking barriers to project delivery, streamlining and removing steps, and improving feedback in the project delivery processes. Kim presented on the six pillars of improvement that the committee identified:

1. Grant Administration
  - a. Common application process for grants that minimizes redundancy and reduces administrative costs.
  - b. Investment in capacity building to empower local communities.
2. Environmental and Right-of-Way Reviews
  - a. Preemptive Categorical Exclusion or NEPA approvals to streamline reviews.
  - b. Outcomes assessment of projects delivered under emergency procedures to identify opportunities to accelerate environmental review.
  - c. Anticipation of environmental challenges.
3. Procurement
  - a. Assessment of barriers for getting diverse businesses into the pipeline.
  - b. Development of a master template agreement to improve consistency and streamline project authorization.
4. Communication
  - a. Improved communication of existing U.S. DOT resources.



- b. Development of a structured feedback system.
5. Workforce Development
  - a. Consideration of “train-the-trainer” program models.
  - b. Establishment of a common location for knowledge sharing.
6. Technology Support
  - a. Development of open standards for digital project delivery.
  - b. Expanded communication of success stories and best practices.

Deputy Secretary Trottenberg thanked the committee for their recommendations and suggested that it would be useful for everyone to see the statistics about the amount of funding being awarded, the number of grants processed, and other related metrics to better understand the progress that has been made. She also noted that the Department has tried to create common applications in some circumstances, but they are often limited by Congressional requirements. Finally, she acknowledged the work of Gregory Nadeau on the Every Day Counts initiative during his time at U.S. DOT.

Gregory Nadeau acknowledged the doctrine of continuous improvement and emphasized that while there is a long way to go, significant progress has been made. He emphasized that U.S. DOT needs to stay ahead of technology by using open standards to foster interconnectivity. He also recognized the constant effort to continuously improve and use the tools that we have available.

Referring to a previous comment, Deputy Secretary Trottenberg noted that procurement is typically governed by State and local law, so U.S. DOT actions may be limited. Kim Lucas commented that technology could be leveraged to compare procurement processes between states. Kim also noted that U.S. DOT could impact procurement challenges via certifications and knowledge sharing.

### Emerging, Overlooked, and Underleveraged Innovation for Safety

Kelly Funkhouser presented TTAC’s recommendations focused on emerging, overlooked, and underleveraged innovation for safety. She reminded the committee that this work began in June and focused on challenges and opportunities in the areas of vehicles, infrastructure, and policy and education.

In this area, the committee made four key recommendations:

- Align with the Canadian and European Union approach to adaptive driving beams (ADB) to promote quicker adoption.
- Update the NCAP at least every 5 years to allow for more innovation and informed decisions. Previous updates did not include emerging technologies such as V2X.
- Integrate smart and digital infrastructure into complete streets guidance.
- Build on existing work to use high-visibility enforcement to deter particularly dangerous driving behavior.

Kelly noted that these recommendations were selected because they have broad support and can be adopted quickly.

Deputy Secretary Trottenberg asked for additional detail about the third recommendation. Laura Chace responded that the committee recommends including a digital layer in addition to physical infrastructure when considering complete streets. This layer would include elements that can collect data and allow for current and emerging technologies to be used. Laura noted that currently this element is missing. Kelly Funkhouser added that digital tools can also be used to inform where non-digital improvements are needed.



## Wrap-Up and Next Steps

Mayor Gallego shared that it was a pleasure to serve as chair and expressed a desire to stay in touch and hear about the changes being made as a result of the recommendations. She also thanked the Secretary and Deputy Secretary for convening the committee. She concluded by thanking Bryant Walker Smith for his time and energy.

Bryant Walker Smith described the committee’s work with reference to the Peace Corps’ theory of change model comprising inputs, activities, outputs, outcomes, and impacts. He noted that, including subcommittees, nearly 100 meetings had taken place over the past year. The committee’s report is the output of all that activity. The next steps – policy outcomes and real-work impacts – are the most consequential. Bryant then thanked the U.S. DOT staff and the members of the committee.

Ben Levine concluded the meeting by thanking the committee and U.S. DOT’s Media Center team for supporting the meeting.

*Kate Gallego*

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Mayor Kate Gallego  
Chair, TTAC

*Benjamin Levine*

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Ben Levine  
Designated Federal Officer, TTAC