

2025 TPM Peer Exchange - Using Performance Management to Respond to Uncertainty

Sponsored by AASHTO & FHWA



Tuesday, September 23, 2025

**Baltimore, Maryland Department of Transportation
State Highway Administration**

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1 Overview

This report summarizes the proceedings of the 2025 Transportation Performance Management (TPM) – Using Performance Management to Address Uncertainty Peer Exchange hosted by the Federal Highway Administration (FHWA) and the American Association of State Highway and Transportation Officials (AASHTO) Transportation Performance Management Technical Service Program (TPM TSP). The peer exchange was held in Baltimore, Maryland, on September 23, 2025. A [2025 TPM Peer Exchange – Using Performance Management to Address Uncertainty Peer Exchange Event Page](#) is published on the TPM Portal. This site includes:

- Peer Exchange Objectives
- Scenarios References
- Peer Exchange Agenda
- Peer Exchange Slides
- Uncertainty Scenarios
- Breakout Instructions
- Kristin White (Google Public Sector) Keynote Slides

1.1 Peer Exchange Purpose

The 2025 TPM Peer Exchange – Using Performance Management to Respond to Uncertainty Peer Exchange was a collaborative forum designed to facilitate the sharing of noteworthy practices and lessons learned in applying transportation performance management (TPM) approaches to manage unexpected disruptions and changes. The peer exchange brought together State DOTs, FHWA, and other transportation agencies to discuss the latest strategies, tools, and resources for improving transportation agency adaptation. The peer exchange aimed to apply and advance TPM practices to help agencies respond to uncertainty, foster a collaborative environment to improve outcomes through performance management, and engage in peer-to-peer problem-solving by sharing noteworthy TPM practices and exploring innovative solutions to enhance transportation agency adaptability in the face of uncertainty.

The agenda included sessions covering topics such as key trends impacting agencies, adapting performance management to address uncertainty, strategies and tools for navigating uncertainty, future direction, and resources. The participants exchanged valuable insights and prioritized TPM needs, working together to improve outcomes and

optimize future investments using performance management. Key objectives for the event included:

- Applying and advancing TPM practice to help agencies respond to uncertainty
- Fostering a collaborative environment to improve outcomes using performance management
- Engaging in peer-to-peer problem-solving, sharing noteworthy TPM practices, and exploring innovative solutions to enhance transportation agency adaptability in the face of uncertainty.

1.2 Peer Exchange Format and Summary

The one-day peer exchange consisted of five sessions featuring guest speakers, a keynote address by Kristin White of Google Public Sector, a CPBM leadership panel discussion, educational sessions, and various tabletop exercises and peer-to-peer sharing. The meeting concluded with a wrap-up summary from AASHTO program manager Anna McLaughlin and Spy Pond Partners President and CEO Hyun-A Park.

The introduction featured Lori Richter, a Senior Business Analyst at Spy Pond Partners, LLC, who welcomed attendees. Meredith Hill from Maryland DOT SHA, serving as the Asset Management Program Deputy Director, was introduced as a speaker and host for the peer exchange. Hill acknowledged AASHTO's role and introduced guest speakers: Sutapa Samanta, Chief Engineer at Maryland DOT SHA; Christos Xenophontos, Assistant Director for Administrative Services at Rhode Island DOT and CPBM Chair; Susan Howard, Director of Policy and Government Relations at AASHTO; and LaToya Johnson, FHWA Team Leader for the Transportation Asset Performance Team.

The purpose of the peer exchange, as explained by Christos Xenophontos, was to facilitate the sharing of noteworthy practices and lessons learned in transportation performance management (TPM), foster collaboration among agencies, apply TPM strategies to respond to uncertainty, and improve adaptability and inform future investments. Lori emphasized that participants would engage in peer-to-peer problem-solving, share TPM practices, and explore innovative solutions to enhance the adaptability of transportation agencies during the exchange. The session concluded with a review of the agenda and an icebreaker.

In "Session A., Understanding and Responding to Uncertainty," Lori provided an overview of managing uncertainty in transportation agencies, covering types of uncertainty such as fiscal, technological, socio-political, organizational, and environmental challenges. Participants learned decision-making strategies like contingency planning, failure

analysis, and change management, supported by examples from various agencies. The session also included a CPBM leadership discussion on current performance management practices, emphasizing collaboration, sharing best practices, and enhancing adaptability in the face of ongoing uncertainties.

For “Session B. Navigating the Future: Key Trends Impacting Transportation Agencies,” Laurie Goudy provided a Maryland DOT SHA case example of how efficient data management can be paired with performance management. After that, Christos introduced keynote speaker Kristin White, a Transportation Industry Executive at Google. In her remarks, she reaffirmed Google’s commitment to supporting public sector initiatives aimed at transforming transportation systems. Kristin emphasized the importance of adopting an outcomes-focused approach that aims for measurable improvements and sustainable development. She highlighted the value of using innovative transportation data methods, encouraging stakeholders to embrace new technologies and analytics for better decision-making. Additionally, she called for greater collaboration across sectors and urged stakeholders to work together to develop innovative transportation solutions.

Then, in “Session C., Breakout Exercise #1: Applying Performance Management to Address Uncertainty,” participants convened in table groups to analyze a quasi-real scenario using uncertainty scenario cards. Each group was assigned a scenario and spent 45 minutes identifying key uncertainties, transportation and performance implications, and any variances between federal and state uncertainties. They brainstormed 1-2 strategies to address these uncertainties and developed 3-4 actionable steps focused on performance management, data, and processes. A designated spokesperson from each group presented their findings, which were automatically collected in a Google Sheet.

In “Session D., How to Effectively Communicate Uncertainty,” participants learned about effective communication of uncertainty. This session covered key principles, including transparency, regular updates, honest evidence-based assessments, clear messaging, understanding contributing factors, and the use of clear visuals. Participants learned techniques like starting with known data, explaining factors, using compelling graphics, and communicating actions the agency is taking, with discussions on challenges and strategies. In “Breakout Exercise #2: Communicating Uncertainty,” participants practiced communicating key uncertainties and performance measures from a given scenario. They selected communication channels, created visual elements, developed a timeline, brainstormed concise talking points, and documented their plan.

Anna and Hyun-A summarized a peer exchange session focused on the challenges faced by state DOTs, strategies such as risk and change management, insights from Kristin White's keynote, and effective communication techniques. The session ended with thanks to sponsors and encouragement for attendees to apply what they learned and stay connected.

1.3 Peer Exchange Agenda

Date: Tuesday, September 23, 2025 (9:00 AM – 4:30 PM ET)

Location: Maryland DOT SHA, 707 N. Calvert St., Baltimore, MD 21202

Welcome & Introductions

9:00 - 10:00 am Welcome, Opening Remarks

- *Sutapa Samanta, Maryland DOT SHA (Host Agency)*
- *Christos Xenophontos, Rhode Island DOT (CPBM Chair)*
- *Susan Howard, AASHTO (welcome & challenges)*
- *LaToya Johnson, FHWA (welcome & federal perspective)*
- *Peer Exchange Overview & Objectives, SPP*

Icebreaker

A. Understanding and Responding to Uncertainty

During this session, participants will receive education on approaches to managing uncertainty. This session will provide a rubric for understanding uncertainty and introduce strategies that will be used in an afternoon table exercise.

10:00 - 11:00 Session Overview (10:00 - 10:10)

Types of Uncertainty (10:10 – 10:15)

- Economic uncertainty
- Technological uncertainty
- Political uncertainty
- Organizational/internal uncertainty
- Environmental uncertainty

Decision-Making Approaches and Agency Strategies (10:15 - 10:30)

- See Candidate Strategies

10:30 - 11:00 CPBM Subcommittee Panel Discussion

2:50 - 3:20 Mini Training Session

E. Breakout Exercise #2: Communicating Uncertainty

The objective of this breakout exercise is for participants to develop communication materials, such as talking points and graphics, that effectively convey uncertainty within practical performance reporting scenarios. This hands-on activity will apply the principles discussed in the preceding mini-training session on communicating uncertainty. Tables will develop communication material (Talking points, graphics) to convey uncertainty in performance reporting.

3:20 - 3:25 Instructions

3:25 - 4:00 Table Exercise - See Draft Candidate Communication Scenarios

4:00 - 4:15 Report out

Peer Exchange Wrap-Up

4:15 - 4:30 AASHTO will provide a summary of the peer exchange.

Anna McLaughlin, AASHTO

1.4 Peer Exchange Attendees

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2 Peer Exchange Introduction



Sutapa Samanta, Maryland DOT SHA Chief Engineer

2.1 Welcome, Opening Remarks, & Purpose of the Peer Exchange

The introduction featured Lori Richter, a Senior Business Analyst at Spy Pond Partners, LLC, welcoming attendees to a peer exchange. Meredith Hill from the Maryland Department of Transportation’s State Highway Administration (Maryland DOT SHA) was introduced as the Asset Management Program Deputy Director, with notable roles in transportation asset management communities and committees.

Next, Hill introduced the guest speakers for the 2025 TPM Peer Exchange hosted by MDOT SHA. Meredith Hill welcomed participants and acknowledged AASHTO’s role. The introductory speakers welcoming participants and providing their respective insights and agency perspectives included:

- Sutapa Samanta, Maryland DOT SHA Chief Engineer

- Christos Xenophontos, Rhode Island DOT Assistant Director for Administrative Services and CPBM Chair
- Susan Howard, AASHTO Director of Policy and Government Relations
- LaToya Johnson, FHWA Team Leader for the Transportation Asset Performance (TAP) Team

Christos shared the following purpose for the peer exchange:

- Facilitate sharing of noteworthy practices and lessons learned in transportation performance management (TPM) amid uncertainty.
- Bring together State DOTs, FHWA, and other agencies for collaborative discussion and knowledge exchange.
- Apply and advance TPM approaches to help agencies respond to unexpected changes.
- Foster a collaborative environment to collectively improve outcomes through performance management.
- Support peer-to-peer problem-solving, sharing of successful TPM strategies, and discussion of innovative solutions.
- Identify and TPM needs to improve adaptability and optimize future investments.

Lori indicated that during the peer exchange, participants would:

- Apply and advance TPM practice to help agencies respond to uncertainty
- Fostering a collaborative environment to improve outcomes using performance management
- Engage in peer-to-peer problem-solving, share noteworthy TPM practices, and explore innovative solutions to enhance transportation agency adaptability in the face of uncertainty.

Next, Lori reviewed the peer exchange agenda.

2.2 Icebreaker Exercise



2025 TPM Peer Exchange Participants

To help participants familiarize themselves with one another and energize their minds for the rest of the event, an icebreaker exercise was conducted. Here, participants were broken out into small groups and asked to consider the following questions:

- What was the specific challenge or disruption?
- What made this situation unpredictable/uncertain?
- How did your agency respond to this uncertainty?
- What was the most important takeaway or lesson learned from this experience regarding managing uncertainty?

Responses – Shared with the Full Group

- Colorado DOT
 - Working around a recent ransomware incident
 - Making the decision to allow the use of artificial intelligence (AI)

- 2013 Floods
- Politics
 - Turnover with term limits
 - Funding
- Maryland DOT SHA
 - Funding instability
 - Pandemic impacts
 - Resource optimization with logistics
- Nebraska DOT
 - Politics
- Kentucky DOT
 - Brent Spence fire
- Agency not identified
 - Workforce turnover acceleration
 - What made it unpredictable
 - Post-COVID environment
 - Response
 - Knowledge capture (historian)
 - Training
- Maryland DOT SHA
 - Challenges and disruptions
 - Weather: Hurricane Helene
 - FSK bridge collapse
 - Funding uncertainty: construction inflation
 - Organizational change: new director/secretary/governor and associated policy changes.

3 A. Understanding and Responding to Uncertainty

3.1 Session Overview

To open the first session of the peer exchange, Lori Richter provided an overview of the content. This educational portion of the agenda focused on understanding and managing uncertainty in performance management. It covered types of uncertainty, decision-making strategies, and the role of measurement in reducing uncertainty. Participants learned a rubric for understanding uncertainty, explored practical approaches, and engaged in interactive exercises and discussions with leadership to enhance their agency's ability to respond to complex issues.

3.2 Types of Uncertainty

The training outlined various types of uncertainty faced by transportation sectors, including fiscal challenges like declining fuel tax revenue and unstable federal funding; technological uncertainties stemming from emerging vehicle and infrastructure innovations; socio-political shifts due to policy changes and evolving travel behaviors; organizational internal risks related to workforce demographics and leadership changes; and environmental unpredictability caused by climate change and extreme weather events. For each type of uncertainty, Lori provided an agency example.

3.3 Decision-Making Approaches and Agency Strategies

Next, Lori outlined various decision-making tools and agency strategies to address uncertainty, including building a margin of safety through contingency funds, performing failure pre-mortems to consider worst-case scenarios, developing a scientific and adaptable mindset with pathways to success, leveraging change management techniques, embracing discomfort to build trust, and focusing on short- to mid-term goals during crises. Each approach was illustrated with examples from agencies such as Michigan DOT, CTDOT, Colorado DOT, and Iowa DOT, emphasizing resilience, adaptability, transparency, and targeted focus in uncertain situations. A comprehensive list of [Decision-Making Approaches and Agency Strategies](#) is published on the [2025 TPM Peer Exchange – Using Performance Management to Address Uncertainty Peer Exchange Event Page](#).

3.4 CPBM Subcommittee and Task Force Leadership Discussion

The CPBM Subcommittee and Task Force Leadership Panel discussed current strategies and innovations in performance management amid recent uncertainties, emphasizing effective efforts, new tools, and collaborative models. They highlighted the importance of sharing best practices, prioritizing key initiatives, and identifying critical needs and resources to improve adaptability and decision-making in transportation agencies.

4 B. Navigating the Future: Key Trends Impacting Transportation Agencies

4.1 How Efficient Data Management Can Be Paired with Performance Management

Laurie Goudy, Maryland DOT SHA Chief Administrative Officer, brought her 29 years of strategic leadership and operational expertise to discuss how data management supports performance management and advances strategic initiatives within the agency.

4.2 Keynote: Kristin White, Google Public Sector Transportation Industry Executive

Kristin White is a seasoned transportation leader with 20 years of experience, currently serving as Google's Transportation Industry Executive. She has been a pioneer as the youngest Federal Highway Administrator, managing a \$300B agency. With a background in law and government, she has also been recognized for her contributions to women in innovation and government transformation.



Kristin White, Google

Kristin’s keynote described Google’s Public Sector mission to provide “Access to the World’s Information in One Click.” They aim to:

- Save lives
- Promote resilience
- Connect communities
- Keep America moving

She described Google’s outcomes-led approach, which uses plain language and collaboration with government and other stakeholders to co-create solutions. She summarized the Google Public Sector framework:

1. Advance transportation’s mission
2. Listen to customers using human-centered design
3. Identify the problem, then solve it brilliantly
4. Measure success
5. Led with outcomes, not tech
6. Be transparent

7. Have a healthy disregard for the possible
8. Stay scrappy
9. Have fun!

Kristin reflected on the past, present, and future of transportation, as well as Google's role in shaping the future. She discussed the evolution of data from reactive to predictive to preventive, and the positive impact of this shift on safety, resilience, operations, planning, asset management, and public engagement. Her presentation concluded with a call to action, in which she challenged participants to take risks, define their outcomes, collaborate, and co-create through innovation workshops. Participants had the opportunity to ask Kristin questions following her presentation.

A copy of Kristin's keynote presentation can be directly accessed on the event page at <https://www.tpm-portal.com/wp-content/uploads/sites/13/2025/09/Google-AASHTO-CPBM.pdf>

5 C. Applying Performance Management to Address Uncertainty

5.1 Breakout Exercises

Split into two rounds, this breakout exercise aimed to foster ideas and share thoughts on how to respond to uncertainty across various scenarios through a TPM framework. Participants were split across 7 scenarios. Copies of each of the scenarios are located on the [2025 TPM Peer Exchange – Using Performance Management to Address Uncertainty Peer Exchange Event Page](#), and are directly downloadable at <https://www.tpm-portal.com/wp-content/uploads/sites/13/2025/09/Final-Candidate-Scenarios-References.pdf>

- **Scenario #1:** [Emission Reduction with Rescission of Clean Energy](#)
- **Scenario #2:** [Road Safety for Vulnerable Road Users](#)
- **Scenario #3:** [System Performance & Driverless Cars](#)
- **Scenario #4:** [Safety & Emerging Technologies](#)
- **Scenario #5:** [System Performance & Evolving Travel Patterns](#)
- **Scenario #6:** [Emission Reduction & Evolving Travel Patterns](#)

- **Scenario #7: [Growing Emergency Damage with Competing Priorities](#)**

In Round 1: Apply Performance Management to Address Uncertainty, participants were tasked with facilitating group discussions for each scenario. These discussions focused on the uncertainties and transportation implications, strategies for addressing identified uncertainties, and actionable steps.

In Round 2: Communicating Uncertainty, participants discussed the performance measures and key uncertainties that need to be communicated, as well as strategies and channels for communicating them for each scenario.

Results from Rounds 1 and 2 have been collated and summarized for each scenario in the following format:

- Group discussion participants
- Round 1:
 - Key uncertainties?
 - Strategies to address uncertainties?
 - Actionable steps, focusing on performance management data and processes?
- Round 2:
 - What performance measures and key uncertainties need to be communicated?
 - Communication channels, graphical elements, and comms timelines?
 - Talking points for communication?

Scenario #1: Emission Reduction with Rescission of Clean Energy

(Reference: <https://www.whitehouse.gov/presidential-actions/2025/01/unleashing-american-energy/>)

- Participants:
 - Darius Pakbaz
 - Ryan Huff
 - Gary Vansuch
 - Tracy Nowaczyk
 - William Johnson
 - Meredith Hill
 - Sutapa Samanta

- Round 1 — Key uncertainties, Strategies, & Actionable Steps:
 - One important source of uncertainty is state or federal admin opposition to clean energy. In such cases an inversion/failure pre-mortem strategy is one of the few options available. Document obstacles; identify other potential eligible uses of funding besides direct EV investment.
 - More brainstormed uncertainties for Scenario 1 include technological uncertainty with EV adoption and EV infrastructure availability, behavioral uncertainty with EV and clean fuel adoption, and uncertainty around waiting for registered vehicle turnover to EVs
 - State DOTs can manage uncertainty around emission reduction and clean energy rescission by incorporating scenario planning, flexible targets, and adaptive data-driven processes into their performance management systems; stay agile, measure broadly, and avoid reliance on a single pathway.
 - Participants recognized the ongoing uncertainty of potential funding losses. In such situations, the chosen strategy was to ‘embrace discomfort’ and take actionable steps to be transparent about the loss of funding and funding constraints, adjust targets, and explore other mitigation strategies such as litigation options.
- Round 2 — Key Performance Measures, Communication Strategies, & Talking Points:
 - Participants developed a communication strategy around communicating uncertainty related to potential funding loss. They chose a press release for public communication and hosting a webinar for planning partners. A focused group meeting with contractors was also included as part of the communication strategy. Talking points include: “NEVI is changing, but our commitment to GHG reduction is not;” storytelling of successful delivery of investments in GHG reduction that were possible up to this point; transparency about the specific contracts that are “tied up,” and publicly acknowledging their known and unknown secondary economic impacts.

Scenario #2: Road Safety for Vulnerable Road Users

(Reference: <https://www.cbsnews.com/colorado/news/aurora-woman-hit-crosswalk-road-repairs-jewell-avenue-walker/>)

- Participants:
 - John Dean
 - Tashia Clemons
 - Anna McLaughlin

- Justin Bruner
- Justin Clarke
- LaToya Johnson
- Round 1 — Key uncertainties, Strategies, & Actionable Steps:
 - Participants identified the uncertainty of road condition data as a major source of uncertainty in Scenario 2. Even if the ‘good’ rating was out of date, participants determined that a strategy for mitigating safety concerns for vulnerable road users is to build a robust “Margin of Safety” and start by focusing on short-term goals to achieve this margin.
 - Other sources of data uncertainty include the lack of contextual data surrounding the accident—such as whether the driver was at fault, ran a red light, or details about the roadway geometry and its characteristics. “Pathways to Success” was identified as a key strategy for addressing these contextual uncertainties. The most immediate and straightforward step is to fix the pothole.
 - Another source of uncertainty is the management strategies of the jurisdictions as they pertain to considering and planning for vulnerable road users. An actionable step a DOT could take to address this is to create a “ghost walker” memorial.
 - Other uncertainties in Scenario 2 identified by participants include the need for historical data (first incident in this location? How long has the pothole been there?) and the uncertainty upon assuming that NHS road conditions are necessarily up to par. Participants encouraged setting up a community group to conduct an audit and an additional projection prioritization review with public collaboration.
- Round 2 — Key Performance Measures, Communication Strategies, & Talking Points:
 - Participants agreed that pedestrian injuries and fatalities (both at and away from crosswalks) are the key performance measures for Scenario 2 that need to be communicated. The group identified DOT social media accounts as their ideal communication channel for addressing publicly identified uncertainties. They propose showcasing new design elements of crosswalks (before and after photos) and graphs with the number of intersections eligible for improvement, the number funded, and scheduled for improvement, etc.
 - Participants settled on the following talking points for this communication strategy: “Check our website for images of the new design and locations for pothole fixes;” “Use our website to provide feedback for intersections eligible for update.”

Scenario #3: System Performance & Driverless Cars

(Reference: <https://www.nbcnews.com/tech/innovation/waymo-cars-set-fire-sitting-ducks-la-protests-rcna212426>)

- Participants:
 - Laura Heckel
 - Bill Morgan
 - David Putz
 - Gehan Elsayed
 - Alma Mujkanovic
- Round 1 — Key uncertainties, Strategies, & Actionable Steps:
 - Participants identified behavior uncertainty as a major factor in Scenario 3. What causes people to vandalize driverless vehicles? The strategy identified to mitigate behavioral uncertainty was to increase the margin of safety by lowering the flammability of vehicles (the batteries and gas tanks) and by adding more fire suppression systems.
 - Uncertainty of fire damage to pavements, bridges, and other assets requires an inversion/failure premortem strategy. Participants note that the most important actionable steps for safety are to ensure occupants of the vehicle can exit at any time. The group also discussed adding an alarm to driverless vehicles that's activated when danger is sensed.
 - Safety of the occupants of driverless vehicles is another source of uncertainty. Through a strategy that focuses on the short-term to mid-term goals, DOTs can take actionable steps by raising public awareness and public engagement, distributing PSAs, and holding safety workshops
 - Safety of the public at large in the event of driverless vehicle fires is another source of uncertainty. The most effective approach is to quantify the problem's magnitude by partnering with organizations that collect public data.
 - Participants identify additional follow-on sources of uncertainty related to delaying integration of driverless vehicles into the surface transportation system, and concerns for the agency's reputation, public confidence, and trust in the DOT to deliver safety.
- Round 2 — Key Performance Measures, Communication Strategies, & Talking Points:
 - The group identified the number of negative safety incidents related to driverless vehicles as a key performance metric for Scenario 2. Notably, participants also believed that measuring the public's reactions—such as trust

(in data and the agency), level of concern, and engagement with communications materials—should be a mission-critical performance metric for addressing the scenario. The group recognized TikTok, in partnership with influencers, as an effective communication channel and strategy for building public trust in driverless vehicles and their benefits (energy savings, environmental advantages, convenience, etc.). They also chose to use a website to communicate safety and environmental benefits with a consistent message, providing a place for people to return to and see the benefits accumulate over time.

- Talking points included: Acknowledging safety events that have occurred in context of how many driverless trips have been taken; communicating state energy savings to date and anticipated savings as adoption continues; emphasizing benefits of driverless technology and how public data has improved lives tangibly to date; and finally, state the course of action to improve safety and mitigate risks.

Scenario #4: Safety & Emerging Technologies

(Reference: <https://www.youtube.com/shorts/drjRe5QiEP0>)

- Participants:
 - Jim Padilla
 - Valerie Jimenez
 - Ryan Greenway
 - Bradley Sharlow
 - Michael Johnson
 - Edgardo Block
- Round 1 — Key uncertainties, Strategies, & Actionable Steps:
 - Participants of Scenario 4 responded to the novel dash-cam technology being piloted. They were generally skeptical of the technology and identified a few key uncertainties to work through when moving forward with the pilot and communicating with the public about the technology. Uncertainties around cost, technology, legal liability, and socio-political responses were identified.
 - Participants identified a wide range of potential strategies to respond to Scenario 4 due to the nature of its wide-ranging uncertainties. Strategies included more testing with a focus on measuring benefits (particularly safety), gathering a total cost estimate for installation, review of prototypes, and putting together a focus group to find out public sentiment prior to deployment.

- The group concurred that the most favorable and likely actionable step a DOT would take in response to Scenario 4 is to “mothball” the technology, i.e. put it on ice for future use if circumstances, priorities, and uncertainties evolve.
- Round 2 — Key Performance Measures, Communication Strategies, & Talking Points:
 - Since there was no crash reduction evident from the Scenario 4 pilot, participants developed a communication strategy for the mothballing approach. Talking points included communicating that any presumed safety benefits are “unproven and unreplicated.” Communicating the distracting nature of the technology as a potential safety liability was an important talking point as well.

Scenario #5: System Performance & Evolving Travel Patterns

(Reference: <https://www.youtube.com/watch?v=bLcU7LA5l9c>)

- Participants:
 - Alicia Howard
 - Jamie Kavelak
 - Deirdre Wallace
 - Korey Donahoo
 - Tracy Osimboni
- Round 1 — Key uncertainties, Strategies, & Actionable Steps:
 - Participants identified several uncertainties surrounding Scenario 5, specifically the relocation of a major sports team’s stadium from their home city to a different city in the region. Uncertainty surrounding the lack of public transportation options, uncertainty of public buy-in to make the trek to games 40 miles away, uncertainty of impacts to nearby airports, and public health impacts of a new location with high sun exposure and little protection were all identified in response to Scenario 5.
 - The group chose three potential strategies for addressing these varying uncertainties. Embracing the discomfort was the strategy chosen for responding to the uncertainty of public buy-in— luckily, fans made the move. Pathways to success was the strategy chosen to mitigate the lack of transportation options (experiment with transit options; partner with local businesses/companies). Margin of safety was an additional strategy chosen to construct multimodal options, including bike paths and increasing walkability.
 - Participants identified actionable steps, including measuring delays and travel times on game days versus non-game days, assessing crash frequency and

severity in the area caused by heavy traffic volume during game days versus non-game days, and tracking game attendance and transit ridership.

- Round 2 — Key Performance Measures, Communication Strategies, & Talking Points:
 - Actionable steps from Round 1 led to the key performance metrics identified for communicating uncertainties around Scenario 5. Namely, the performance metrics of delays/travel times and ridership (how many people and what mode of travel) were selected as integral to the communication strategy.
 - Participants selected a public-facing dashboard to communicate event specifics (dates/times), travel times, partnerships with local businesses, and transit options (links to schedules and stops). Key talking points included: “Expect X minutes of delay on Y date due to the event;” “Travel options include X, Y, Z.” The group also felt it important to communicate the event schedules with times and expected attendance as a “key talking point” to better enable the public to assess impacts to their personal travel times.

Scenario #6: Emission Reduction & Evolving Travel Patterns

(Reference: <https://www.theguardian.com/us-news/2023/may/16/amazon-warehouse-traffic-noise-brooklyn-red-hook>)

Participants:

- Mike Rossi
- David Schwartz
- Jaime Barber
- Steve Gramm
- Subrat Mahapatra
- Round 1 — Key uncertainties, Strategies, & Actionable Steps:
 - Participants responded to Scenario 6 by identifying various uncertainties and associated risks. Importantly, this scenario leads to uncertainties in measuring VMT, GHG emissions impacts, long-term economic impacts of warehouse development in the affected neighborhood, short-term economic impacts from construction, and environmental impacts of new coal plants.
 - The group selected a margin of safety strategy to address each of these identified uncertainties. Additionally, they found scenario modeling of a range of outcomes and finding the upper limits for allowable emissions to be important strategies to work in tandem when responding to the identified uncertainties of Scenario 6.

- Actionable steps included modeling upper and lower ranges of delays and their effects on Truck Fuel Economy, providing robust VMT projections to ensure an increased margin of safety, deploying national or state averages and trends, and measuring projected jobs and average pay.
- Round 2 — Key Performance Measures, Communication Strategies, & Talking Points:
 - Participants felt that decision makers need to show a range of possible emissions and the % change of being out of attainment. Similarly, they felt a range of possible VMT, %EV, etc., were important performance metrics to communicate as part of a performance management strategy. Additionally, measuring and communicating a range of economic impacts (new jobs, direct and indirect employment, etc.) resulting from new warehouse construction was identified as an important set of performance metrics to communicate with the public.
 - A communication strategy centered around producing robust charts highlighting margins of error across the various scenarios. These charts are intended for decision makers with an emphasis on reducing uncertainty and providing clarity for each scenario. For the public, the strategy is to show the same information but simpler, highlighting jobs and emissions numbers with a focus on outcomes.

Scenario #7: Growing Emergency Damage with Competing Priorities

(Reference: <https://www.its.ucla.edu/publication/wildfire-recovery-and-resilience-strategies-for-resource-constrained-and-vulnerable-communities/>)

- Participants:
 - Ryan Bailey
 - Brian Watts
 - Christos Xenophontos
 - Becky Marsey
 - Jean Wallace
- Round 1 — Key uncertainties, Strategies, & Actionable Steps:
 - Scenario 7 presented uncertainties related to wildfire recovery and resilience strategies for resource-constrained and vulnerable communities. Participants identified the risk of escalating repair costs as a major concern. They also noted the unpredictable timing, intensity, frequency, and course of natural disasters. Additionally, expected decreases in future funding and uncertainties in leadership priorities stood out as key issues.

- To address funding and inherent natural disaster timing uncertainties, participants liked the idea of building a reserve pool of funding, which helps protect against inflation and catastrophic cost risks of rebuilding.
- Inversion/failure pre-mortem was also identified as a key strategy to use when scenario planning for the worst possible outcomes. Embracing discomfort was also a notable strategy discussed by participants. Ultimately, the group determined that focusing on short-to-mid-term goals, strengthening “change muscles, and building a buffer by enhancing the margin of safety were the most effective strategies for responding to Scenario 7.
- Round 2 — Key Performance Measures, Communication Strategies, & Talking Points:
 - In response to the uncertainties and associated communication strategies, participants identified historical inflation cost, yearly cost to repair damaged assets, and high- and low-level cost of total repairs as critical performance measures to communicate to the target audience. Additional performance measures that require communication include a cost-benefit analysis, congestion, and the principle that “a dollar spent today is worth \$X in Y amount of time”.
 - Participants developed a communication strategy focusing on scenario planning through graphs. These graphs illustrate the potential loss of everything, including a trendline of losses over the last few years and projected annual costs into the future. Graphs showing areas of pain points (examples of savings, costs of projects and savings in the future with new updates) aim to build public trust by demonstrating improvements and making them publicly tangible.

6 D. How to Effectively Communicate Uncertainty

6.1 Mini Training Session

This mini training session, led by Lori Richter, focused on effective communication of uncertainty. Key principles included transparency about current knowledge and gaps, providing regular updates, and honest assessments supported by evidence. It emphasized clear, proactive messaging, understanding contributing factors and uncertainties, using compelling graphics, and communicating agency actions.

The session introduced techniques like starting with known data, explaining contributing factors, and utilizing visual tools, with examples from various transportation agencies. Participants were encouraged to apply these principles in their communication practices and discuss challenges and strategies for conveying uncertainty.

6.2 Breakout Exercise #2 Results Included in Previous Section

7 Peer Exchange Wrap-Up

7.1 Closing Remarks

Anna McLaughlin and Hyun-A Park led the peer exchange wrap-up, where they summarized the exchange. They reviewed the session's journey, highlighting shared challenges and uncertainties faced by state DOTs, as well as strategies to address them, including risk management and change management approaches. The session featured insights from keynote speaker Kristin White on lessons from Google Public Sector, group activities applying these strategies, and communication techniques for managing uncertainty. Participants applied what they learned to develop communication materials.

The session concluded with thanks to the sponsors, organizers, and participants, encouraging attendees to implement the ideas presented, stay connected through AASHTO initiatives, and reach out for further support. Anna wished everyone a good rest of their week in Baltimore.