

AASHTO CPBM Peer Exchange Summary



Sponsored by AASHTO and FHWA

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Denver, Colorado

AASHTO CPBM Annual Meeting session content, including slides and recordings, are available at <https://www.tpm-portal.com/events/aashto-committee-on-performance-based-management-2023-annual-meeting/>

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Peer Exchange Overview

Gary Vansuch of Colorado DOT provided a host state welcome, a moment of silence for 9/11, and reviewed building logistics and safety.

Presentation: [CPBM Introduction](#)

Jean Wallace of Minnesota DOT provided an overview on behalf of the American Association of State and Highway Transportation Officials (AASHTO) Committee on Performance-Based Management (CPBM). She thanked participants, AASHTO, and the Federal Highway Administration (FHWA) for their partnership. Wallace shared the purpose of the peer exchange to:

- Advance the state of the performance management practice, including sharing lessons learned about Federal PMF Reporting, internally coordinating for performance management, and aligning performance management and asset management.
- Discuss the ingredients for implementing and sustaining good TPM practices.
- Gain knowledge of the resources that are available to support TPM monitoring, advancing, and building capacity related to consistency determination.
- Share the experience of recent TPM implementation, including the best examples of how agencies are advancing national goals and agency targets through performance-based planning and programming.
- Discuss what the next generation of performance management will look like at state DOTs and MPOs and prioritize future initiatives for FHWA, AASHTO, and TRB.

Wallace indicated that during the peer exchange, attendees would:

- Share the key elements of performance management, including best practices.
- Learn about resources and tools for federal TPM reporting.
- Discuss the ingredients for good performance management.
- Develop vision for the future of performance management.
- Prioritize initiatives for future activities FHWA, AASHTO, and TRB may undertake to continue advancing the practice.

Wallace stressed the importance of active participation in ensuring a successful peer exchange.

Presentation: [Peer Exchange Agenda](#)

Lori Richter of Spy Pond Partners, LLC reviewed the day's agenda and introduced the event sponsors.

Mshadoni (Msh) Smith-Jackson of the FHWA Transportation Performance and Asset Management Team provided a welcome on behalf of the agency. She shared that FHWA is proud to sponsor the event in cooperation with AASHTO. State DOTs and other public sector agencies have come together to focus on ways to improve transportation performance management in agencies considering federal Transportation Performance Management (TPM) requirements - and to advance performance management practice in general within their agencies. Smith-Jackson indicated that FHWA looks forward to hearing how agencies are coordinating with internal and external stakeholders for target-setting, improving their biennial federal reporting, and aligning TPM and other disciplines within their agencies.

Susan Howard of AASHTO thanked attendees and echoed FHWA's pleasure at co-sponsoring the event. Sharing knowledge and building capacity are critical aspects of the AASHTO Technical Service Program (TSP) for Performance Management. Howard invited state DOT attendees to encourage their agencies to sign up for the TSP so AASHTO can continue to bring engaging webinars and other capacity-building resources in the future. She asked attendees to email her at showard@ashto.org for more information about joining the TSP. Howard introduced the newest member of her team, Anna McLaughlin, Program Director of Transportation Performance Management.

Howard reminded attendees of several AASHTO online resources:

- [AASHTO Committee on Performance-Based Management Website](#)
- [Transportation Management Hub](#)
- [TPM Portal](#)

Session A – Elements of Good Performance Management

Presentation: [Elements of Good Performance Management](#)

Lori Richter of Spy Pond Partners, LLC introduced the session. Good performance management is a complex set of related activities. It involves people, processes, tools, and financial resources. In the first session, four agencies will talk about what is at the leading edge of advancing performance management in these times where business is UN-Usual.

Presentation: [Emerging Performance Measures](#)

Deanna Belden of Minnesota DOT provided an overview of several emerging performance measure areas, including:

- Accessibility/destination access
- Equity
- Resilience
- Carbon and greenhouse gas reduction
- Public value creation
- Health

Belden stressed that these measures are not always applicable and need to be appropriate and tailored to specific agencies. She described multimodal accessibility as the ease of reaching priority destinations and described the Minnesota DOT's accessibility analysis for accessibility to jobs in the Twin Cities metro area. Belden also covered accessibility in Appalachia to non-work destinations, travel time to locations of choice, and access to health care, freight, education, and entertainment. Minnesota DOT has an ongoing effort to understand what equity measurement might look like for the agency, including improving existing measures and developing new measures of equity. In exploring equity, Minnesota and other states are increasingly considering Asset Limited Income Constrained Employees (ALICE). Belden provided equity examples in other agencies, including the East-West Gateway Council of Governments' equity assessment in the St. Louis region, the Atlanta Regional Commission's integration of equity into its project evaluation framework, and the District Department of Transportation (DDOT) equity assessment tool.

Agencies are also increasingly to focus on resilience measures, particularly in the areas of asset management planning, risk, and resilience. The Task Force on Emerging Measure Areas is proposing upcoming research that seeks to uncover what it means to have an effective, outcome-based, high-level performance management approach to resilience. The Task Force is also interested in carbon and greenhouse gas (GHG) reductions, including short- and long-term strategies. Belden talked about public value creation and measuring outcomes like climate and environmental impacts and research. She invited attendees to attend upcoming Task Force on Emerging Measure Areas meetings if they are interested in getting involved.

Presentation: [Advancing Asset Management at INDOT](#)

Louis Feagans of Indiana DOT talked about ways the agency is advancing its asset management practices. He described various asset lifecycle strategies the agency uses to improve its value to the public with limited resources and staffing and as they are grappling with increasing contractor prices and inflation. Feagans indicated that the agency has been doing bridge and pavement modeling for over 20 years. Previously, the Commissioner emphasized the importance of developing a long-term

plan that includes deterioration and committed projects, and optimizes output based on incremental benefit cost compared to doing nothing. Using the Deighton Total Infrastructure Management System (dTIMS), the agency analyzes every pavement and bridge in the state and generates a list of strategies that feeds into a long-range plan with modeled assets and lifecycle strategy financial optimization. The agency includes both construction and maintenance activities over long-term cycles for both pavements and bridges and uses machine learning to assist in optimization.

The agency also uses various bundling criteria and business rules in conjunction with asset rules and lifecycle planning. He described factors to consider in bundling by corridors, geographic locations, and work types. Feagans described the additional benefits of using artificial intelligence (AI) for bundling, including saving more than staff-built bundles, getting fast answers to complex problems, having smart access to stored data, performing easier analysis, saving scenarios, and allowing humans to use their time and expertise for decision-making.

In the future, INDOT plans to incorporate ALICE data and other equity considerations. They plan to investigate Resilience and other PROTECT opportunities, analyze safety reports, and incorporate other assets beyond pavements and bridges.

Presentation: [Discretionary Grant Opportunities and Performance Management](#)

Alejandra Garcia Acevedo of Colorado DOT described how the agency is pursuing discretionary grant opportunities to support performance management. She talked about how the agency's performance management system contributes to building solid grant applications, and walked through several important facets, including:

- Grant evaluation process and rating tiers for prioritizing projects.
- Benefit-Cost Analysis (BCA) requirements and guidelines, including the parameters and specific benefits.
- Data and indicators for measuring outcomes.
- Methodology and tool incorporation to support decision-making.

Garcia Acevedo presented an example project on CO-7 to demonstrate the benefits of the methodology. She described the process Colorado DOT used to develop the BCA and use performance management as a tool to help frame the agency's assumptions and provide a solid argument to support performance-based planning and programming (PBPP).

Presentation: [Resilience in the Face of Climate Change: July 2023 Flooding Event](#)

Rick Scott of Vermont DOT presented via [pre-recorded video](#) on how the agency responded to the July 2023 flooding event. He described the initial Damage Assessment (IDA) and walked through the agency's detailed damage inspection report (DDIR) and FHWA Emergency Response (ER) process. Scott presented information about the collaborative Resiliency Strike Team that leads in developing recovery projects, and how they look for continuous response improvement.

He described the resiliency assessment process and initial data that is used to do additional assessments. Scott provided an example of IDA data usage related to unstable slope notifications. Vermont DOT determined all the damaged sites, then had the National Weather Service (NWS) tie that to locations. They then sent out information via emails to the region as a notification of current and anticipated issues. This helped them track the information and be on alert for specific troubling areas.

Large Group Discussion:

- **Edgardo Block, Connecticut DOT** – He is encouraged by seeing a lot of applications, having fluid conversations, and years later how things are playing out operationally.
- **Hyun-A Park, Spy Pond Partners, LLC** – Listening to the presentations, there are a lot of interesting things that people are doing and we are at the forefront of new ways of doing things. We are all involved in delivering - how well are you using goals and objectives to deliver value at a basic level, doing it because we are making a difference rather than just meeting federal requirements? Can it be a distraction, or does it help you focus better on basic responsibility?
- **Mike Johnson, California DOT** – At the state highway we are doing a good job connecting performance objects to the projects. Starting with the goal in mind to tailor projects rather than having projects and tying them back to performance objectives. The challenge is how to get our local partners to look at performance management at the regional transportation plan level. There is not a lot of impact to them, mostly on state DOT. Generally speaking - presentations had to do with physical assets, sometimes we don't do as well with the performance metric. Transportation is good at adaptation (e.g.: wildfire can have a greater impact on emissions than transportation in one year). So, what are we doing from the transportation side to help with mitigating wildfire?
- **William Johnson, Colorado DOT** – Resilience is not a distraction, it is a necessity. Looking at presentations, resiliency is hard to quantify the benefits. If you were to view it just from the resilience scope it would be hard to put a number on it. You should look at other items to get a better understanding. We are often asked for very defined, quantitative measures and mix them with qualitative. We should derive qualitative data sets from the information that we have as we don't have time to talk to everyone. Executives want an "Easy Button". Need tools to provide better insights for creating the qualitative data. AI is another example of showing data - necessary to look at different data sets.

- **Brian Kelly, New York State DOT (Question for FHWA)** – Colorado DOT is coming up with its own BCA data and New York State has some different approaches as well as some other DOTs. Should states expect consistent guidelines?
- **Msh Smith-Jackson - FHWA** - They have initially left the methodology open to bring innovation. In her opinion, there will likely be no additional guidance on setting those up. Others may choose to adopt practices that they see from other states. A lot of it is seen after each year's applications on what the states are doing. Unsure if they want to maintain the flexibility or adopt more structure. Time will tell.

Session B – Coordinating Across Stakeholders

Presentation: [Coordinating Across Stakeholders](#)

Hyun-A Park of Spy Pond Partners, LLC introduced the session. Coordination is a critical element of performance management. But to be successful, agencies must organize their coordination across planning, programming, budgeting, and monitoring areas within their agencies – as well as with their external planning partners and others. This session explores through a small group exercise how agencies can improve their coordination across various internal and external stakeholders.

Small Group Exercise Results (by Table) and Summary: [Coordinating Across Stakeholders](#)

Each table self-selected a performance management area. Each person then selected a role. Participants reviewed the performance objective for their assigned performance area. Each table worked together to capture each role's top three concerns. Participants documented areas of alignment and difference among stakeholders. Within each group, they discussed how they will meet the performance objective. Tables documented their approach and strategies to collaborate on their respective exercise worksheets.

At the end of the exercise, each table presented areas of alignment, areas of difference, and their group's approach and strategies to collaborate effectively.

Following is a summary of the results by measurement area and table (also captured by table in the Google Sheet location linked above):

Safety

- Ranked concerns and objectives
 - (N/A) Concerns and objectives were not captured for this group.
- Areas of alignment
 - Concern for safety across all modes of transportation.
 - Data availability, accuracy, timeliness, and sharing across entities.
 - Funding concerns.
 - Cannot engineer away the problem, we recognize certain aspects are out of our control, such as driver or vulnerable user behavior.
- Areas of difference
 - Data says higher speed results in higher fatalities, but public support for lower speed limits and other counter measures, like roundabout, is typically unfavorable.
 - Different stakeholders have different priorities on what to address first.
 - State/local don't believe they have enough funding; Federal says we have it and are not spending it.
 - Short-term vs. long-term planning objectives at the State and Federal levels.
 - Misalignment between Federal and State in terms of what project qualifies as safety project.
- Collaboration approaches and strategies
 - Create opportunities to enable more honest conversations between State and Federal government on what type of support is needed and where flexibility from Federal would benefit State/Locals.
 - Shared strategic focus on data analysis and data sharing across agencies and let the data inform our decisions on the projects that will have the greatest impact on fatalities and serious injuries.
 - More collaboration between State and Locals related to grants or more focus on collaboration between entities in general on safety projects.

Infrastructure (1)

- Ranked concerns and objectives
 - Availability and effective allocation of funding.
 - Coordination and communication.
 - Data availability and accuracy.
- Areas of alignment
 - Level of funding and how it is distributed.
 - Available, accurate, and current data.
- Areas of difference
 - Alignment of short-term goals and long-term goals.
 - Disagreement on how we approach safety in pavement projects.
 - Spending all the funding vs. doing the right thing.

- Collaboration approaches and strategies
 - Better coordination between districts and planning office (highway prioritization program)

Infrastructure (2)

- Ranked concerns and objectives
 - (N/A) Concerns and objectives were not captured for this group.
- Areas of alignment
 - Avoiding penalty thresholds for NHS bridges and Interstate pavements.
 - Measuring success – demonstrating progress.
 - Competing priorities can get in the way of SOGR objectives.
 - Local partnerships.
 - Transparency and building trust.
 - Team 3 is the best team.
- Areas of difference
 - Innovation – risk of misspending.
 - Mismatch of NHS to DOT system, MPO authority.
 - Timing differences – some functions are looking backward and others are looking at present or future.
- Collaboration approaches and strategies
 - Understanding roles and responsibilities of different parties.
 - Show impacts of scenarios – trade-offs.

Congestion Reduction (1)

- Ranked concerns and objectives
 - (N/A) Concerns and objectives were not captured for this group.
- Areas of alignment
 - Funding needs.
 - Alignment with our strategic goals.
 - Communicating the data.
 - Long-range planning.
 - Goals and strategies.
- Areas of difference
 - Urban vs. rural communities.
 - Difference in strategies between State, cities, MPOs.
 - Competing funding strategies.
- Collaboration approaches and strategies
 - Communication needs and collaboration.
 - Communicating needs and funding.

- Collaborations.
- Engage stakeholders.
- Data sharing.

System Reliability

- Ranked concerns and objectives
 - (N/A) Concerns and objectives were not captured for this group.
- Areas of alignment
 - Resources broadly, funds, staff, equipment (Exec).
 - Incident response: non-recurring, construction (FHWA, operations/engineering).
 - Natural weather, physical and road surface (FHWA, finance, engineering, operations).
 - Integrated emergency/incident response needs (MPO).
 - Supporting relationships with all partners (planning, MPO, finance).
 - Funding prioritization, cost escalation, alignment with goals/objectives (finance).
- Areas of difference
 - We want more resources (MPO).
- Collaboration approaches and strategies
 - Change HR approach to provide staff to satisfy the areas needed under alignment areas.
 - Private/public collaboration on data, data, data.
 - Integrated responses to ETO: equipment and resources to respond to incidents and natural weather impacts.
 - Integrated understanding of natural weather, construction, incidents' impact on reliability.
 - Better inform resource needs/allocation by finance and market forces, macroeconomic factors.

Freight and Economic Vitality

- Ranked concerns and objectives
 - Safety.
 - Dependable Supply Chain Logistics.
 - Workforce.
- Areas of alignment
 - Improved outcomes for policy and planning emphasis areas like truck parking, workforce development, and motor carrier safety issues.
 - Support economic vitality by creating a system of dependable supply chain logistics using things like engineering, planning, and data.
 - Leveraging programs and partnerships to maximize funding options for projects that support freight and economic vitality.
- Areas of difference

- Different areas of focus – the details can reveal different value systems and priorities.
- Collaboration approaches and strategies
 - Taking advantage of data and performance frameworks to address differences.
 - Regular and effective reporting to demonstrate progress both internally and externally.
 - Collaboration with stakeholders in the community along with industry partners.

Environmental Sustainability

- Ranked concerns and objectives
 - Climate change.
 - Human resources.
 - Financial resources.
- Areas of alignment
 - Climate change.
 - Project delivery.
 - Human resources.
 - Air/Water quality.
 - Financial resources (inflation, overprogramming, August redistribution).
 - Endangered species.
- Areas of difference
 - Climate change.
 - Project delivery.
 - Human resources.
 - Air/water quality.
 - Financial resources (inflation, overprogramming, August redistribution).
- Collaboration approaches and strategies
 - Communities of Learning (Body of Knowledge meetings).
 - Stakeholder engagement – Coordination meetings (FHWA, MPO, DOT, and other stakeholders).
 - Form a department-wide working group.

Congestion Reduction (2)

- Ranked concerns and objectives
 - (N/A) Concerns and objectives were not captured for this group.
- Areas of alignment
 - Unintended consequences: impact to system, obstacles with planning partners, budget issues, impact to work zone safety measures (congestion vs. work zone).
 - Data: trends (historical vs. temporary? COVID issues), target calibration.
 - Planning: how does this specific focus fit, compete, etc., with existing plans, documents, etc., at State local, etc., levels and how does that impact partners?

- Areas of difference
 - Level of partners' impacts perspective – granular (MPO, city, citizen, advocate) vs. State and impact on measures, targets, etc.
 - Identification of additional stakeholders and advocates to engage for full picture... and their ability to care about those things (politics).
 - Measurable target vs. performance objective – and the impact on/to stakeholder perspectives (lack of inclusion of point-to-point on/off the NHS).
 - What can be measured... this is amorphous... what are the parameters, how to establish, etc., relates to all the above.
 - Investment options... how to incorporate them.
- Collaboration approaches and strategies
 - Get the right people/perspectives around the table.
 - Share/collaborate on perspectives relative to the objective so folks can work together.
 - Set budget to help shape the goals/objectives/dreams.
 - Consider alternative delivery and revenue methods.
 - Use planning at local, State, etc., to help inform investments.
 - What is prescribed vs. what is aspirational – overlap between goals/objectives, need full perspectives (freight, congestion) to understand how to maximize opportunities and results.
 - Stop thinking about these things as individual things and talk about the big pictures (PM).

Session C – Biennial Federal PMF Reporting

Presentation: [Biennial PMF Reporting](#)

Lori Richter of Spy Pond Partners, LLC introduced the session. This session starts with a presentation of the basics of TPM reporting by FHWA, followed by a discussion of how to improve processes.

During this session, participants considered:

- What can be done better on the PMF Form?
- What resources can help states with meeting the requirements?

Msh Smith-Jackson of FHWA provided a tour of the FHWA Transportation Performance Management (TPM) site, including:

- [FHWA Transportation Performance Management Website](#)

- [FHWA TPM Guidance on PMF Reporting](#)
- [FHWA Website – How TPM and Asset Management Work Together](#)

State DOT's provided feedback on ways to improve the process:

- Consider creating a fillable PMF input fields doc, MI and other states create their own biennially so the various departments can collaborate on the narratives.
- In the emissions section of PMF there is a confusing check that must be selected if the form does NOT apply, perhaps it would work better to opt in versus opt out or make the checkbox more obvious and upfront.
- Notifications for coordinated targets is confusing.
- UPACS is a pain and have to learn the system over and over again since it is used so infrequently.
- Additionally, the access has to be maintained but its passive (ie you have to remember) Maybe provide reminders for when access is about to expire.
- Will we be able to access the Fuels/FASH disaggregate data.
- Area of bridges is calculated not measured in NBI which causes all FHWA systems including PMF to calculate % good/fair/poor based on (incorrect) bridge area.
- Significant Progress letters are received at different times (safety vs PM2 &3 measures in different letters).
- DOTs have to provide explanation of data reported (internal vs FHWA published).
- PMF questions are repetitive.
- FHWA doesn't get SPD letters out on any set schedule even though states must report by a due date.
- The UPACS approver doesn't get a copy of the SPD letter and it can be confusing internal to DOT when leadership receives information the "data steward" isn't aware of.

Day 1 Wrap Up

Presentation: [Day 1 Wrap Up](#)

Jean Wallace of Minnesota DOT thanked attendees for their active participation in the afternoon's session. She thanked AASHTO and FHWA partners for sponsoring the peer exchange. Wallace wrapped up with noteworthy practices, thoughts on coordinating for performance management, lessons learned about biennial reporting, and critical needs.

Noteworthy Practices:

- Agencies are exploring several emerging performance areas, including accessibility, equity, carbon reduction/GHG and creating public value.
- MnDOT has an effort to understand what equity might look like and is improving and developing new equity measures.
- East-West Gateway Council of Governments (St. Louis region) conducted a Transportation Equity Assessment as part of the region's long-range transportation plan update.
- Atlanta Regional Commission has integrated equity into the region's Transportation Improvement Program project evaluation framework.
- District Department of Transportation (DDOT) has an Equity Assessment Tool, which is being used to evaluate projects, programs, and services.
- MnDOT, Colorado DOT, and INDOT are considering access-limited, income constrained employees in their measurement systems.
- INDOT is exploring the use of machine learning for optimization as part of their asset management.
- Colorado DOT and other agencies are looking at ways to use performance management to pursue grant opportunities.
- Vermont Agency of Transportation has employed a resiliency strike team and assessment to become more resilient in the face of flooding.

Coordinating for Performance Management:

- We participated in a table exercise aimed at improving the way agencies coordinate for performance management.
- Participants worked together on a role-based exercise to explore areas of alignment and difference among stakeholders for each of the federal TPM measurement areas.
- Participants explored various approaches and strategies to collaborate more effectively.

Lessons Learned about Biennial Reporting and FHWA Resources:

- Mshadoni Smith-Jackson shared FHWA Resources. These will be posted to the CPBM Peer Exchange Web Page on the TPM Portal.

Critical Needs:

- [See Biennial PMF Reporting Section].

Considerations Going into Day 2:

- Think about how your agency and all our agencies collectively can build upon our successes and replicate or advance leading practices in performance management.
- Consider how we can mitigate or avoid making the same mistakes again and learn from them.

- Envision your ideal future for performance management.
- And consider how FHWA, AASHTO and the performance management technical service program within AASHTO can support your performance management efforts.
- Thanks again, and we'll see you all tomorrow morning at 8:15 AM for coffee and conversation before we begin our session at 8:30 AM.

Day 2 Overview

Presentation: [Day 2 Overview](#)

Christos Xenophontos of Rhode Island DOT recapped Monday's peer exchange sessions and provided an overview of Tuesday's Agenda. He reiterated Jean Wallace's challenge to participants. Xenophontos asked participants whether they had any additional thoughts going into day 2. He indicated that day 2 participants would begin with a fishbowl exercise around aligning performance management with other agency activities and wrap up with a visioning exercise covering how agencies can improve the practice looking toward the future of performance management and what we collectively need to make that happen.

Session D – Aligning Performance Management & Asset Management

Presentation: [Aligning Performance Management & Asset Management](#)

Lori Richter of Spy Pond Partners, LLC introduced the session. Asset management a more mature area of practice in most transportation agencies. Better alignment between TAM and TPM programs will bring better performance outcomes for transportation customers and ensure these two disciplines are not working at cross-purposes within agencies. In this session, participants share their understanding, challenges, progress made, and ideas for improvements related to TPM and transportation asset management (TAM) alignment using what is referred to as a fishbowl format.

Small Group Exercise Results (by Table) and Summary:

This session was aimed at generating intimate dialogue by having one person speak at a time. Four chairs were set up in the front of the room. Attendees participated by occupying a vacant chair. Each

person seated provided their agency's insights and challenges on one or more of four time-boxed topics. Once they finished making their point, they moved out of the fishbowl and another person moved into their seat.

Following is a summary of the results by each of the four topics:

Making Good Investment Decisions

- General Comments (notes not attributed to a specific agency)
 - Make sure you are making performance-based decisions on the local level as national metrics may not apply.
 - When you are sitting on the threshold of mediocrity, it causes you to look more at federal metrics.
 - Are you actually using the local metrics and federal performance metrics in an effective manner?
 - Embrace performance management.
 - Be transparent about performance and safety (these may not be in line with the federal measures). Communicate that in a simple manner.
 - "It's the public's money, they ought to know where it's going and what it's doing."
 - Important to understand consequences of decisions you make.
 - Anytime you are taking more money toward one avenue, then you are taking money from another.
 - Don't lose sight of who is making the decisions (it's not the DOT).
 - The more data you have, the harder it is to manage and make decisions from it. Less data are better for making decisions, but it has to be well-compiled.
 - Sophistication is enticing, but can introduce more complications and take away meaningful conclusions.
- State-specific comments
 - Missouri DOT
 - In a different place than we were in 2012.
 - Formally do asset management.
 - Performance management is evolving.
 - Get general revenue from Legislature now, since we are using performance management.
 - Colorado DOT
 - "We are the worst of the best."
 - Sitting on the threshold of mediocracy.
 - Forces us to rethink performance measures, are we making the correct decisions?
 - Helps us improve investment decisions.
 - California DOT
 - We embrace performance management beyond the official TPM requirements.
 - Performance that matters, using 33 performance measures.

- We are transparent on performance gaps.
 - Communicate in simple ways.
 - “The pie is only as big as the pie is.”
- Mississippi DOT
 - It’s not our job to make the decisions; we help others understand the consequences of decisions.
 - We’re starting to gather structural information.
 - We want more data. Occam’s razor also applies.
 - Balance of finding the right niche of data and simplicity.
 - Federal measures are important; how do we get to meaningful at the state level?
- Michigan DOT
 - Drilled down on numbers is better for making decisions than statewide data.
 - Weather is key.
 - Organizational buy-in is critical.
 - We’re educating decision-makers about how to use data.
- Iowa DOT
 - What, why, and how?
 - Help people adjust.

Technology

- General Comments (notes not attributed to a specific agency)
 - Use technology to help solve new problems.
 - Ensure you are using reliable data and performance measures in the decision making.
 - There are many factors that skew the performance plan (such as COVID).
 - Silos make it hard to create performance metrics that are cohesive.
 - DOTs tend to have too much data and are not using it effectively.
 - There is a lot of action related to various visual metrics.
 - Ask how you can collect and analyze data in a cost-effective way.
 - Data doesn’t help us unless we’re actively using it to make decisions.
 - Investigate machine learning to extract and collect data more efficiently.
 - Many DOTs are using legacy software. This is a huge challenge. We need to integrate these systems effectively to help analyze more data.
 - Many state DOTs come up with their metrics based on the federal data (you can work backwards to analyze how others got to these metrics).
 - All data sets should align together with the performance metrics.
 - IRI doesn’t tell the real condition of the pavement, but it does do a good job giving a high-level view of the system.
 - Lidar is often used to collect data - very good until your five-year contract ends and the data doesn’t correlate to the new system.
 - Pay attention and make sure that historical data provides the organization with value.
 - Ensure that the data is contributing to a future vision.
 - Be transparent about what you can do with the data. It is a waste of time to collect data

that you can't use.

- West Virginia DOT
 - Bridge condition is a big issue.
 - Integration between TPM and measures.
 - Short-term vs. long-term goals.
 - Siloes are difficult.
- Connecticut DOT
 - Simulate effect of data.
 - The COVID pandemic changed things.
 - Reliability-based forecasting – we need this.
 - We have lots of parallel efforts, now we need to consider the overlaps.
- New York State DOT
 - “Coarse” 12-year approach of target spending/forced spending across the system, regions picked projects. This has slowed deterioration.
- Iowa DOT
 - Structural issues that need to be resolved, “data rich, information poor.”
 - How do we affordably manage the data?
 - How do we collect more data when we struggle managing or current data?
 - What does it take to turn the data into usable information?
- Unknown DOT (source not captured)
 - Promise of digital delivery.
 - Investigate machine learning, with PDFs, for instance.
 - SMBI-rich data – bridge inventory data.
 - Legacy software systems, some are unsupported.
 - Integration of software systems.
 - Project/program management, inventory management.
- Washington State DOT
 - Reproducibility of results from analyzing data.
 - 2-3 sets of performance measures.
 - How to align different data sets.
 - IRI does not get messed up.
 - How do you tell progress with different data sets?
 - Identify how to maintain historical data.
 - How do we pull in “fuller” picture of the data, as we get better data?
- Minnesota DOT
 - There are things we can do, things we cannot.
 - We decided what not to collect data on.
 - What systems will house the data and what is the health of the system, who will access data, who will model it.
 - Minnesota DOT TAMP Portal.
 - Data governance.

Getting More Sophisticated with Data

- General Comments (notes not attributed to a specific agency)
 - We can get lost being too sophisticated.
 - Programs can take too long to analyze the data.
 - There is truth to Occam's razor.
 - Be transparent about what you can do with the data...it is a waste of time to collect data that you can't use.
 - Always think about how you can use data that you have collected to build models and visualizations. (New ideas are always being generated)
 - Every few years there is more data being generated by the gov and this often affects the way that the DOT's metrics function.
 - Statewide numbers don't help make decisions - too broad a dataset to make localized decisions.
 - Organizational data - getting buy in. They need to believe the data is relevant and accurate and believe in the data. Educate people as you get more data.
 - A burden is often the lack of data that is required to meet metric requirements, and this poses a risk to assets.
 - Effective data management - where did the data come from? How good is it?
 - Sometimes good data can introduce problems - such as suddenly not meeting regulations because you have better metrics of the degradation of bridges b/c you've improved your data collection technique.
 - Data classification is often challenging.
 - Use AI to do the hard work so employees can do their job and analyze the data.
- New York State DOT
 - Letting regions pick projects worked.
- Iowa DOT
 - Tend not to think of the lifecycle of that data.
 - Not just collecting data, but how do we use it to help make decisions.
- Unknown DOT (source not captured)
 - Integration of software systems has become difficult.
 - We're using different methodologies, which proves difficult when collecting data.
 - Clear guidelines and transparency about what we will do with data is critical.
 - Changes in data itself are proving challenging; changes the system.
 - How to get buy-in into using new data.
 - How to improve forecasting.
 - Working too hard getting data out onto new platforms, after investing a lot of money.
 - Challenge vendors to be able to spend time serving data.

Aligning Performance Management with Other Disciplines

- General Comments (notes not attributed to a specific agency)
 - We shouldn't forget what we know. Remember the results we desire, and the outcomes we would like to achieve.

- Performance metrics will introduce confusion and need for clarity among employees - you'll need to answer questions that you may not have answers for (angst).
- Remember your history and good measurement practices, including principles in other initiatives and disciplines to have successful results.
- Use the performance management principles - look at risks through that lens and it can help bring a new perspective to things.
- Culture around performance management and get out of siloes - emphasize the need for open dialog within the organization. Don't want to use data against each other.
- Performance management is not an end goal – it is more of a set of incremental steps.
- Higher ups may still need to make decisions that don't match the data - that job is hard and there's a lot of factors that are going into it.
- Once you have collected your data you need to be a diplomat that does not provide the wrong data to the wrong people.
- People are often defensive about sharing data, but we should be making this a partnership.
- Structure and culture present a large barrier and opportunity.
- Scoping reports to show/suggest where improvements can be made.
- Learn where you get the most back from collecting data.
- Right sizing, right pricing.
- Federal highway merged performance and asset management - return on investment is an important consideration with collecting data. Data is not end all be all. Must consider what it really tells us.
- Try putting enterprise and performance management to help continue alignment.
- Align broader agency risks and performance risks to overcome Don't forget what we know.
- Remember the results that are desired, the outcomes we would like.

Session E – Performance Management Vision for the Future

Presentation: [Performance Management Vision for the Future](#)

Hyun-A Park of Spy Pond Partners, LLC introduced the session. Participants worked in pairs to capture their vision for the future of performance management, using the post-its and markers at their tables. Outputs of the exercise were used in the subsequent session.

Session F – How Can We Improve Practice?

Presentation: [How Can We Improve Practice?](#)

Hyun-A Park of Spy Pond Partners, LLC introduced the session. The ultimate goal is for agencies to pull all elements together to have a well-aligned performance management program that agency stakeholders understand and follow. In the first part of this session, participants worked at their tables to develop ideas for how practice can improve in a transportation agency. Each group presented their ideas, followed by a large group prioritization exercise on how to advance practices.

- What will make the biggest difference in advancing performance management within your agencies?
- Which are the most urgent and critical ideas to pursue?
- Which ideas will require a coordinated effort to achieve?

Below is a list of the ideas by table, with the number of times each item was prioritized following the items. The top prioritized items are in **Bold**.

Group 1:

- Results oriented decision making - get buy-in to trust the models and incorporate innovations. (2)
- Transportation performance vision: work with other DOTs to identify common goals. Encourage alignment between difference agencies and entities to achieve national performance standards. Improve the internal and external goal setting, strategic planning. (10)

Group 2:

- Better and more comprehensive data – More mature data sets similar to FARS, historic trend data, federal measures all road and national data, real-time data with less data lag, data with error bars (probability distributions) and associated risk-based scenario analysis. Action: standards, funding, and technology requirements. (0)
- Continue to improve understanding of investments that will lead to desired outcomes, more integrated across performance areas via data analysis. Intuitive and quick visualization and analysis tools to see impacts of actions (investment levels, projects, etc.). How investment levels move the needle in all performance areas, a full spectrum view of investment. Action: Risk-based sketch planning tools. (5)

- **Improved federal requirements - work collaboratively with DOTs and Feds to make new requirements together. Don't require improving targets, create more time between when data is finalized and reporting. Action: revised/updated rulemaking, legislation with states consulted. (26)**
- Integrate transportation performance management with travel demand management. Have performance management inform long-range planning as it happens. Actions: Risk-based sketch planning tools, organizational business rules and requirements to tie performance management of projects and programs. (1)

Group 3:

- Go from the broad idea of performance-based management to the detailed goals that will drive performance and inform decision-making. (5)
- Identify who is accountable (roles and responsibilities) for ensuring these performance management topics. (1)
- Use data analytics to support turning data into information. (2)
- Communicate to all stakeholders, not just in the DOT. (3)
- Hold monthly/periodic coordination meetings to build consensus around decisions. Work with other DOTs to identify best practices. (1)
- Prioritize funding based on performance measures. (0)
- **Create standards for evaluating performance after project completion. (31)**

Group 4:

- Create a data governance policy and guidance. (10)
- Convert the data to actionable information. (4)
- **Develop a peer exchange, workshop, or roundtable, or conference to discuss measures of livability, quality of life, welfare, and well-being. (16)**
- Create best practices for data collection and analytics. Develop guidance on model development and best practices. (0)
- Provide intentional focus on implementing the AASHTO Vision Framework "Moonshots." (10)

Group 5:

- Incorporating performance management into long-range transportation plans (LRTP) and programming. (8)
- Funding policies that specifically support targets. (0)
- **Identify data gaps and make new data collection processes to close these gaps. (24)**

- Connecting the performance management story to the audience. Ensure you are defining what may resonate with the audience, how to describe the data correctly, and tell a story. (1)
- Simplify the message and make it memorable (visualizations too). (0)
- Collectively and strategically work together on data collection issues. (1)
- **Get different perspectives from FHWA to get more guidance via listening sessions with states. Effectively improve regulation updates to improve state flexibility and reduce paperwork that goes along with performance-based management. (22)**

Group 6:

- Receptive performance management culture. Form a cross-functional data team so everyone has the right data presented in the right way. This includes governance, integration, and utilization. (7)
- Have interagency peer exchanges on performance management practices. (14)
- Other ideas include: data integration, well-blended data methods, learning to handle extreme data and events, constantly learning and improving, wise decision-making accurate and consistent data and reporting, corporate culture that is accepting (integration adaptable) and flexible (political/federal), consistent definitions for resilience and equity, continuous improvement lessons learned, trade-off analysis tools, transparency. (0)

Group 7:

- Create a professional classification for performance management. (9)
- Education on making the business case for decisions that are compelling and transparent to decision-makers and the public. (19)
- Tailor communications about measures and reports to the purpose and audience. (4)
- Look at other industries and what they are doing successfully in terms of performance management. (4)

Group 8:

- Use trained AI for forecasting, tools, and software, corridor planning. (5)
- Make performance more people-centric, better links to user experience and understanding. (7)
- Performance metrics that drive funding (how can we use the transparency of metrics and visualization to get and maintain funding?) (5)
- Collaboration and communication – Transparent and mature dashboards, internalized communication, public-selected understanding. (15)

Peer Exchange Wrap-Up

Christos Xenophontos of Rhode Island DOT and Msh Smith-Jackson of FHWA summarized lessons learned about aligning performance management with asset management and other disciplines, including insights on:

- Making good investment decisions
- Technology and performance management
- Getting sophisticated with data
- Aligning performance management with other agency activities

Using the information captured on the flipcharts, they summarized insights on the performance management vision for the future, thoughts on improving performance management, and prioritized ways AASHTO CPBM, FHWA, and the TSP can help build capacity in agencies.

Xenophontos wrapped up the session by thanking co-sponsors FHWA and AASHTO for a great peer exchange. He thanked AASHTO CPBM Vice Chair Jean Wallace for her support in kicking off the peer exchange and wrapping up with valuable insights on day 1. He also extended a thanks to all attendees for their active participation and reflected that their insights will ensure that AASHTO and FHWA can provide capacity building resources through CPBM, the AASHTO Technical Services Program, and through future research and other initiatives. He encouraged State DOT attendees to sign up for the TSP and reminded them to contact him or Susan Howard at AASHTO for more information.