Transportation Asset Management Webinar Series

Webinar 40

TRB Performance and Data in Decision Making Conference Highlights

Sponsored by FHWA and AASHTO

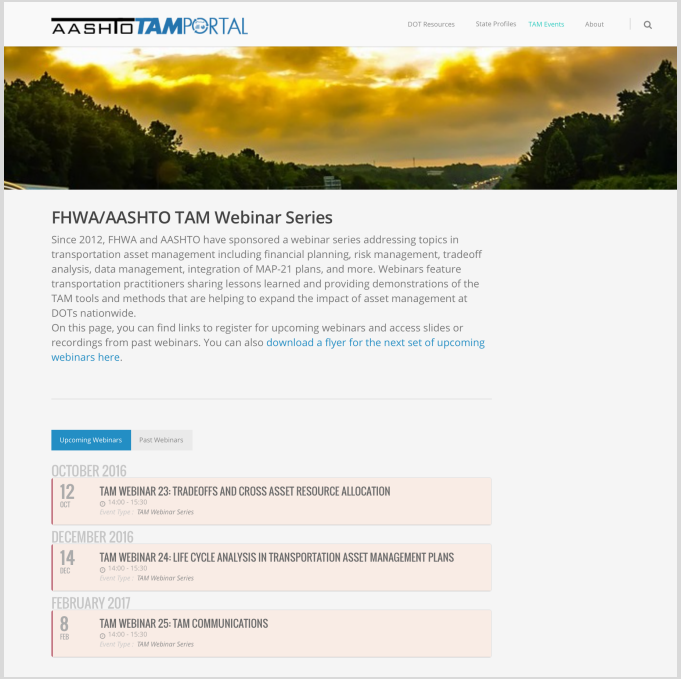
U.S. Department of Transportation
Federal Highway Administration

AASHTO
The Voice of Transportation

Webinar 40 – October 9, 2019

FHWA-AASHTO Asset Management Webinar Series

- This is the 40th in a webinar series that has been running since 2012
- Webinars are held every two months, on topics such as off-system assets, asset management plans, asset management and risk management, and more
- We welcome ideas for future webinar topics and presentations
- Submit your questions using the webinar's Q&A feature



Welcome

- FHWA and the AASHTO Sub-Committee on Asset Management are pleased to sponsor this webinar
- Sharing knowledge is a critical component of advancing asset management practice

Conference Highlights

4	34	120
days	conference sessions	presentations

- FHWA providing support for development of E-circular summary of conference presentations and discussions
  - ETA on TRB website: early 2020
  - Today's webinar provides an informal summary

Summary of 52 Complete TAMPs

- 34 States included “NHS Pavements and Bridges only”.
- 18 States included “All State Pavements and Bridges”.
- 2 States included “Culverts”. (MN, OH).
- 5 States included “ITS/ATM”. (CA, CT, MN, NV, UT).
- 3 States included “Signals”. (CT, MN, UT).
- 2 States included “Signs”. (CA, CT).
- 4 States included “Drainage”. (CA, CT, MN, OH).
- 4 States included “Other” such as tunnels, highway service facilities, sidewalks, ADA. (CA, CT, MN, NJ).

- Two other States included “Other Assets” such as Tunnels and other highway related facilities but not officially reported on final TAMP. (DC, PR).

Timeline

- **Certification:** A State DOT must update its asset management plan and asset management plan development processes **at least every 4 years, beginning on the date of the initial FHWA certification** of the State DOT's processes (23 CFR 515.13(c)). Therefore, the latest date for recertification is in 2022 (in approximately 2 years and 9 months).

- **Consistency Determination:** Not later than **June 30, 2020** and each year thereafter: State DOTs shall submit documentation to demonstrate implementation of the plan. (Less than 9 months away.)
- Therefore, State DOTs with the Divisions should address issues raised, such as those identified as extenuating circumstances related to the consistency determination. (funding and work types, management systems, etc.)

Highlighting FHWA TAM Activities

- FHWA Project: Review of Initial TAMP Processes – State Reports
- Peer Exchanges

Learning Objectives

- Building working knowledge of key concepts and definitions relevant to transportation asset management and TAM decision-making

- Beginning to apply this knowledge to better understand TAM decision-making in the context of:
  - TAM data and systems
  - Transit state of good repair
  - TAM research and capacity building

- **SHARE LESSONS LEARNED, IDEAS, KNOWLEDGE!!!**

Webinar Agenda

2:00 **Webinar Introduction and Overview**
Steve Gaj (FHWA)
Hyun-A Park (Spy Pond Partners, LLC)

2:10 **Conference Summary and Overview**
Matt Hardy (AASHTO)

2:25 **TAM Data**
Matt Haubrich (Iowa DOT)

2:40 **Transit State of Good Repair**
Jordan Holt (WMATA)

2:55 **TAM Research and Capacity Building**
Bob Hazlett (Maricopa Association of Governments)

3:10 **Q&A and Wrap Up**


Welcome to Atlanta
TRB CONFERENCE ON PERFORMANCE AND DATA IN TRANSPORTATION DECISION MAKING
The National Academies of
SCIENCES
ENGINEERING
MEDICINE
TRB
TRANSPORTATION RESEARCH BOARD
1

Program at a glance . . .

Plenary and Lunch Sessions

Concurrent Presentation Tracts

TRB and AASHTO Committee Meetings

Poster Reception Dine Around

Tracts

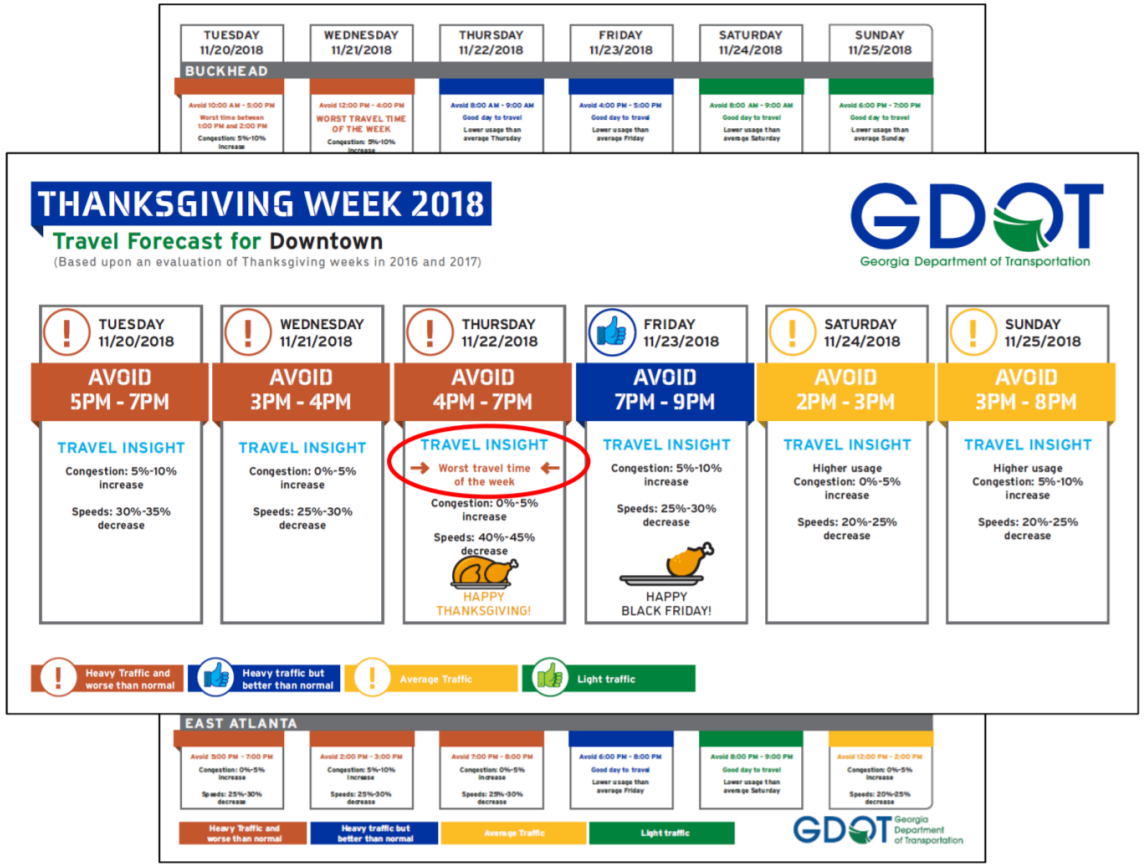
A: Multimodal Planning

B: Performance and Data

C: Programming and Investment Prioritization

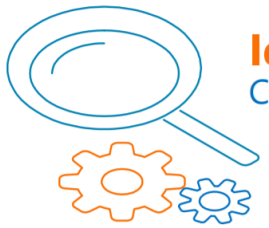
D: Communications and Stakeholder Engagement

Travel Forecasting




Blue Line
Peachtree Center
Garnett
West End
Oakland City
Lakewood/
Ft. McPherson
East Point
College Park
Airport

Getting MARTA Back on Track



Identifying & Addressing
Challenges

Recruiting & Retaining
Top Talent

Prioritizing Innovation
At Every Level

WHAT ARE WE PURSUING AT MDOT SHA?

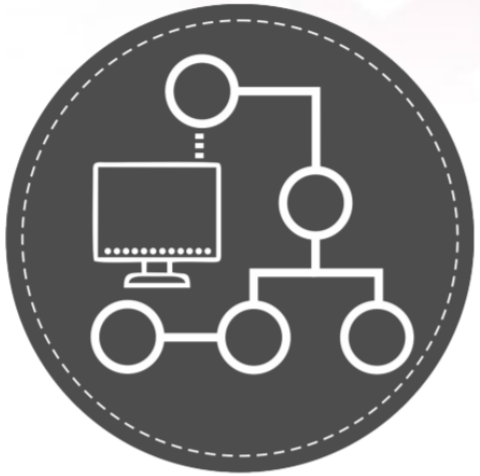
Centralizing Data Management

+

Dedicated Data Analysis Groups

=

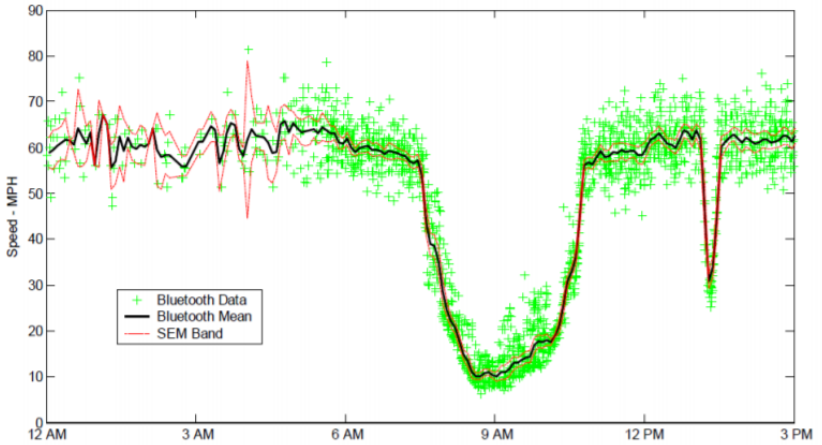
Shifting Structure & Culture



MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION

Delivering the Message

Our job is *not* to present data;



our job is to *tell a story*.

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Active poll

What do you know now that you didn't before? 0 4 5

TAM Highlights

TRB Performance and Data in Transportation Decision Making Conference
September, 2019 - Atlanta, Georgia

Asset Condition

- MPOs using asset condition to support planning and programming decisions
  - MTC uses pavement condition data as accountability measure for local agencies
  - MPOs are starting to incorporate the PM2 measures into their analysis
    - Orlando's performance-based process
    - El Paso's corridor analysis

Asset Condition

MTC incorporates the performance of their pavement preservation program into their funding allocation

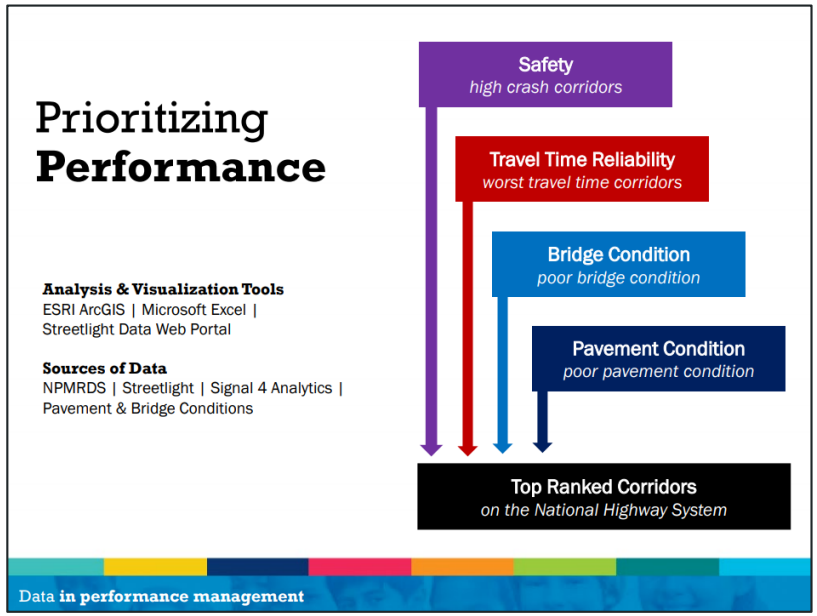
Performance-Based Funding Formula

Allocation Formula

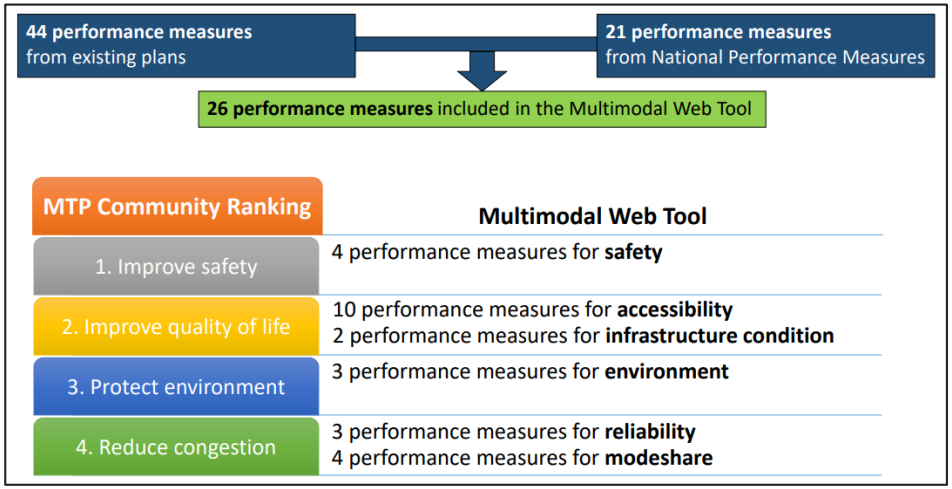
- 25% Population
- 25% Lane Miles
- 25% Shortfall
- 25% PM Performance

Asset Condition

Orlando MPO is using asset condition in their project selection process



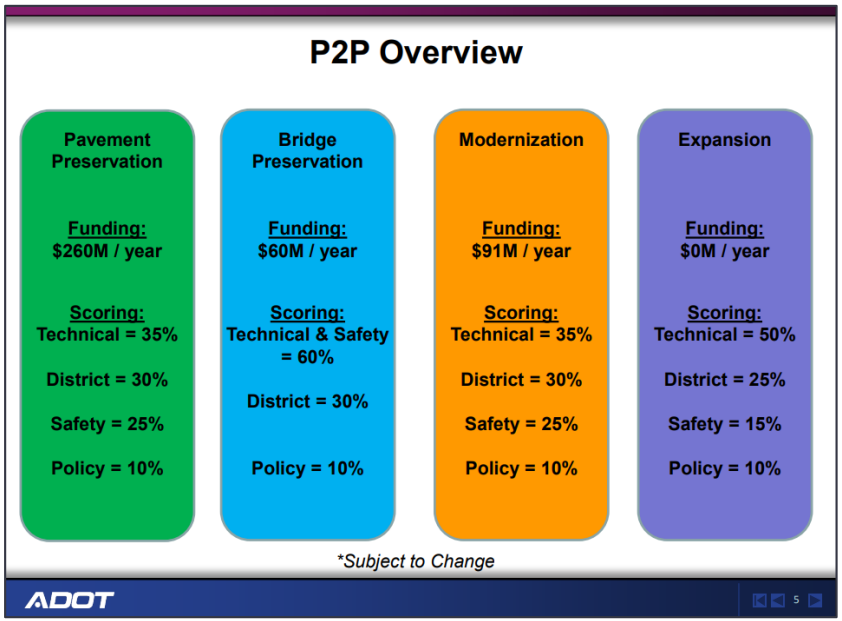
El Paso MPO used TPM framework for asset condition measures



Asset Condition – PBPP at the DOTs

- AZDOT's P2P law and process includes pavement and bridge stewardship projects
- Kentucky using pavement condition in their new investment formula
- MassDOT prioritizes "state of good repair" in project selection
- Texas incorporates pavement and bridge condition in prioritization technique
- MnDOT's project selection policy
- Vermont's project selection process

Asset Condition – PBPP at the DOTs



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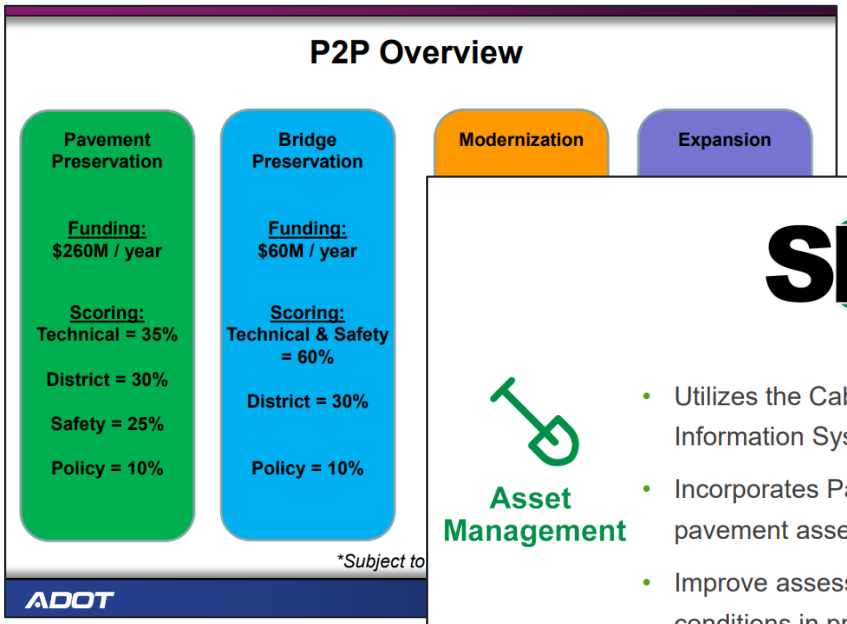
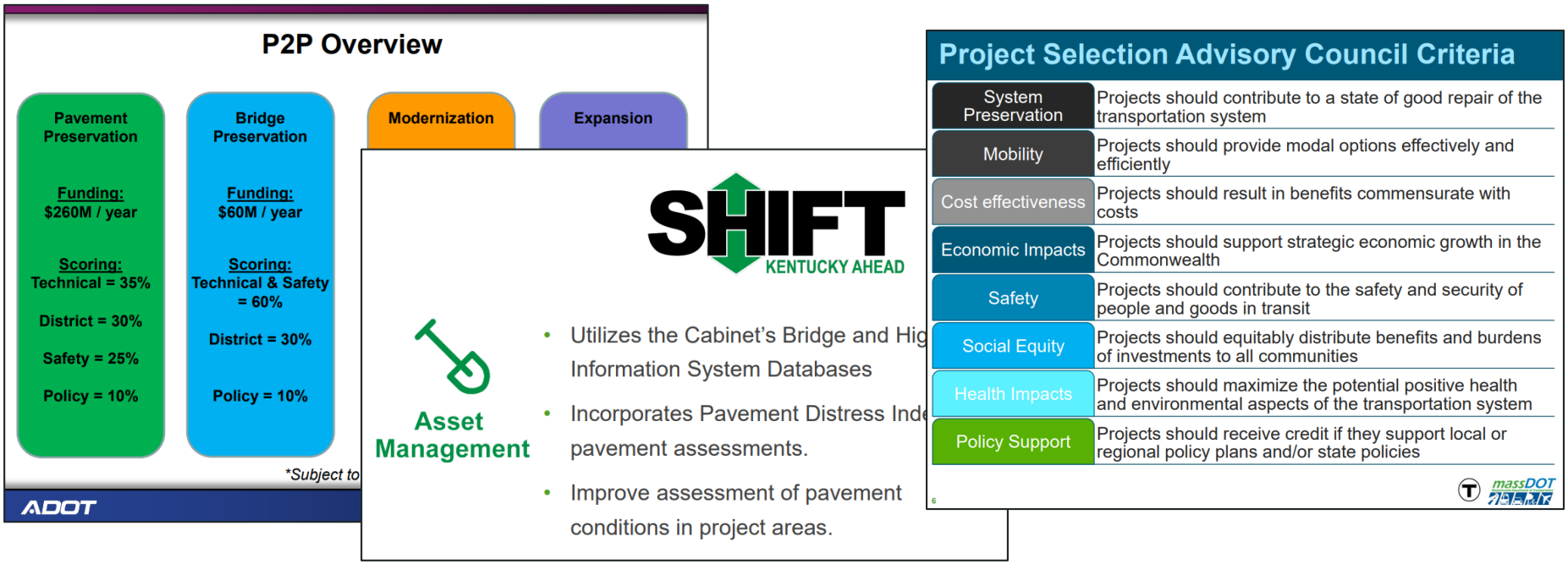


SHIFT
KENTUCKY AHEAD

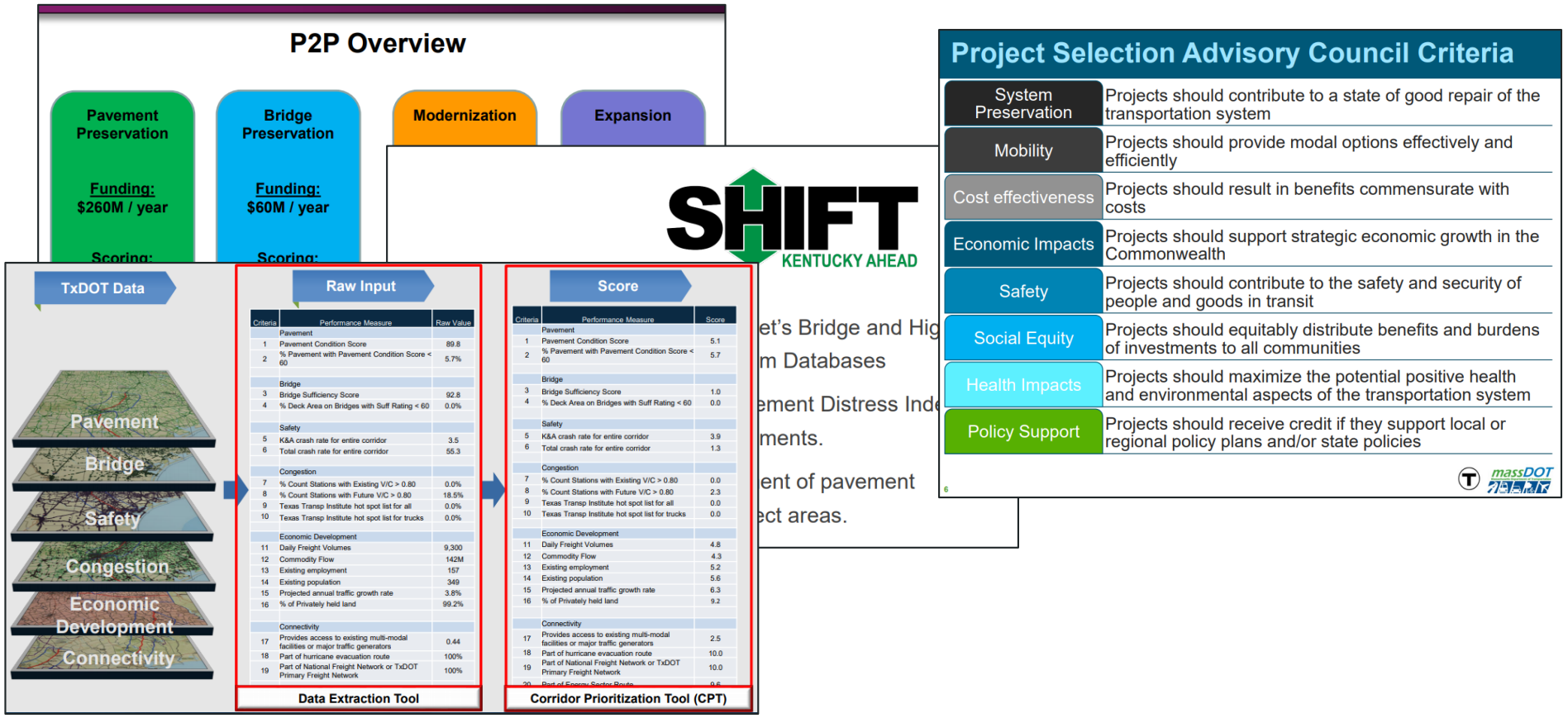
Asset Management

- Utilizes the Cabinet's Bridge and Highway Information System Databases
- Incorporates Pavement Distress Index in pavement assessments.
- Improve assessment of pavement conditions in project areas.

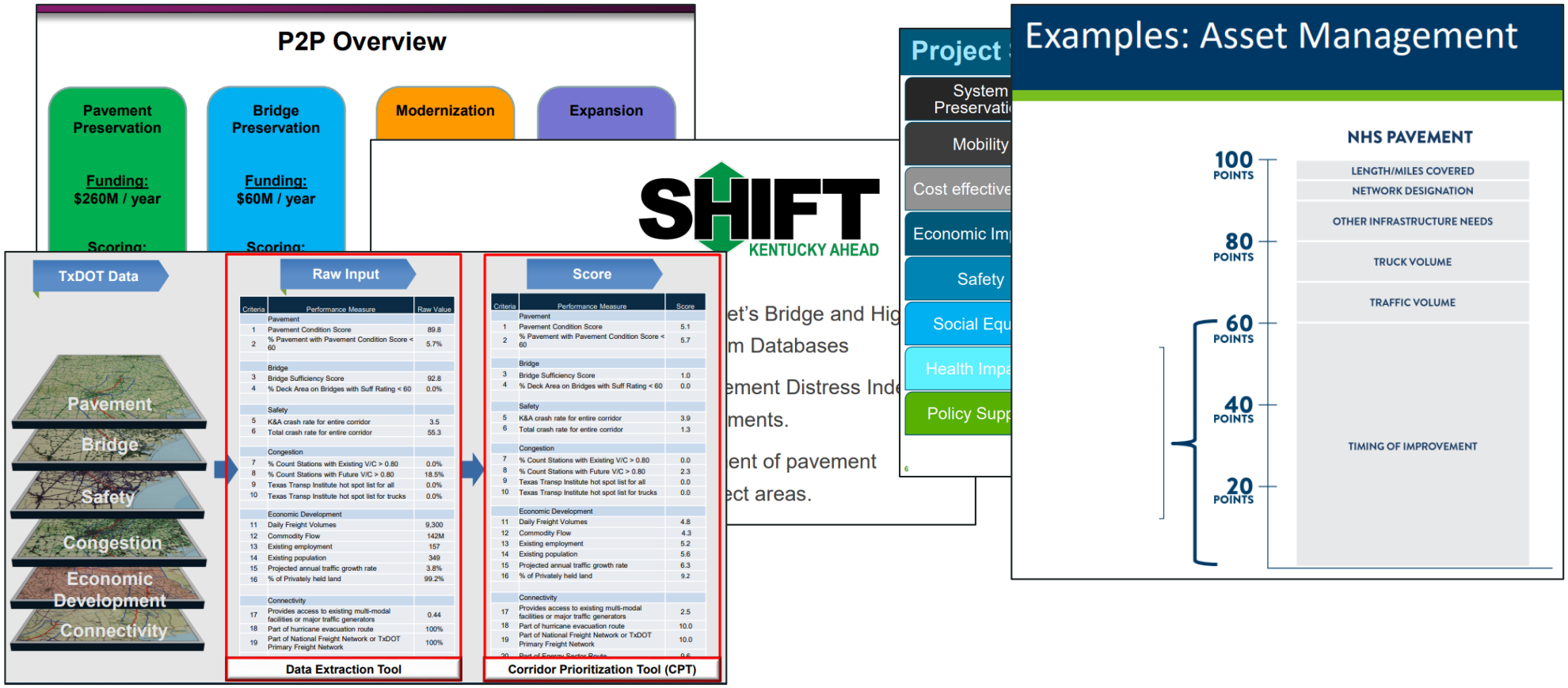
Asset Condition – PBPP at the DOTs



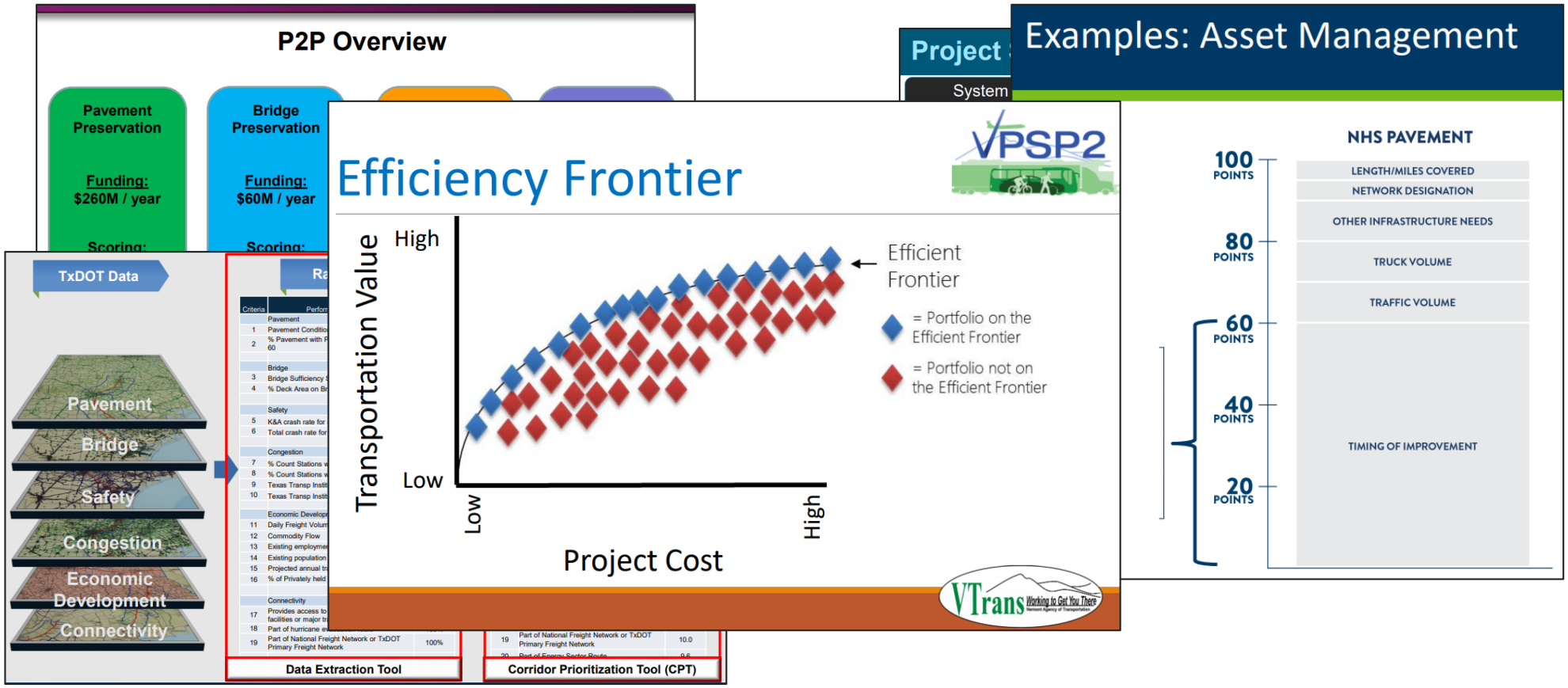
Asset Condition – PBPP at the DOTs



Asset Condition – PBPP at the DOTs



Asset Condition – PBPP at the DOTs



Data for Asset Management

- Wood provided case study of implementation of an enterprise asset management system
- Michigan DOT is using asset and safety data to improve maintenance operations
- MTC in another presentation talked about the pavement asset condition data they use
- Maryland SHA is incorporating governance and analytics to support asset management
- Iowa DOT is has created a tool which brings together many critical data sets to support project scoping and prioritization
- NCHRP 19-14 project report on “right sizing” looks at using data to optimize the value from existing assets as we look at system enhancements

Conclusion

People

- Have a responsive, unified governance
- Involve key stakeholders early in the process

Business Processes

- Avoid defaulting to system familiarity over efficiency
- Prepare to adopt new, and emerging technology

Technology

- Avoid over purchasing capabilities for some systems
- Focus on scalability and manageability by adopting a phase-in implementation approach

Conclusion

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Business Processes

- Avoid defaulting to s… efficiency
- Prepare to adopt nev…

Technology

- Avoid over purchasi… systems
- Focus on scalability … adopting a phase-ir…

Qualitative Assessment: Performance Measure Contributing to Objectives

	Roadway							Safety				Roadside				
	Flexible / Rigid Pavement															
	Cracking	***Potholes***	***Patching***	***Shoulders***	Catch Basins	Curb & Gutter	Debris	Sweeping	***Barrier (Conc., Cable, Guardrail, & Impact Att.)***	***Signs***	Delineators	***Ditches & Culverts***	Vegetation	Mowing	Litter Removal	Animal Carcass Removal
Safety	L	H	H	H	M	M	M	M	H	M	M	H	L	L	-	M
Reliability	H	H	H	-	M	-	L	-	M	L	L	H	-	-	-	M
Economic Benefit & Quality of Life	*H*	*H*	*H*	*L*	*M*	*L*	*M*	*M*	*M*	*M*	-	-	*H*	*H*	*H*	*M*

Conclusion

People

- Have a responsive, unified governance
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OUTCOME-DRIVEN PERFORMANCE MEASURE

- Easy to compute formula
- No advantage or disadvantage due to age of network, current PCI or annual budget size
- Data extracted from PMS databases
- Promotes pavement preservation principles
- Replaces "Maintenance of Effort"

➡ Shifts from "Worst First" to pavement preservation

Qualitative Assessment: Performance Measure Contributing to Objectives

	Safety			Roadside				
	Barrier (Conc., Cable, Guardrail, & Impact Att.)	***Signs***	Delineators	***Ditches & Culverts***	Vegetation	Mowing	Litter Removal	Animal Carcass Removal
	H	M	M	H	L	L	-	M
	M	L	L	H	-	-	-	M
	M	*M*	-	-	*H*	*H*	*H*	*M*

Conclusion

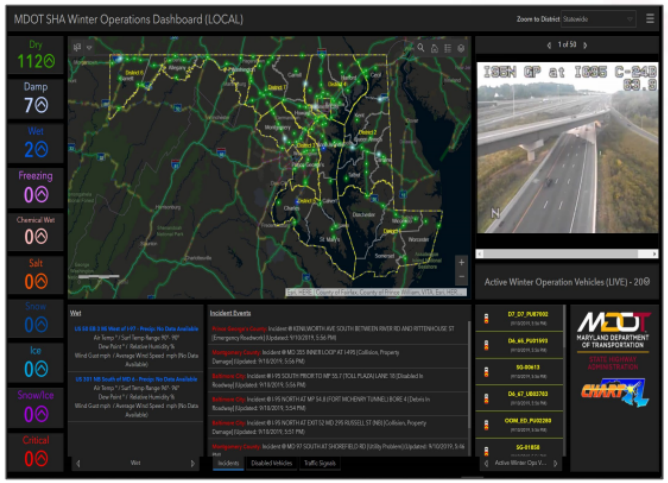
People

- Have
- Involv

ASSET MANAGEMENT

Data Sources

- Pavement Conditions
- Structure Ratings
- Facility & Equipment Status



Results & Benefits

- Improved Budgeting
- Efficient Repairs
- Comprehensive Decision-Making

MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION

OUTCOME-D

- Easy to compu
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  PCI or annual b
- Data extracte
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Shifts from "Worst First" to pavement preservation

							Animal Carcass Removal
							M
M	L	L	H	-	-	-	M
M	*M*	-	-	*H*	*H*	*H*	*M*

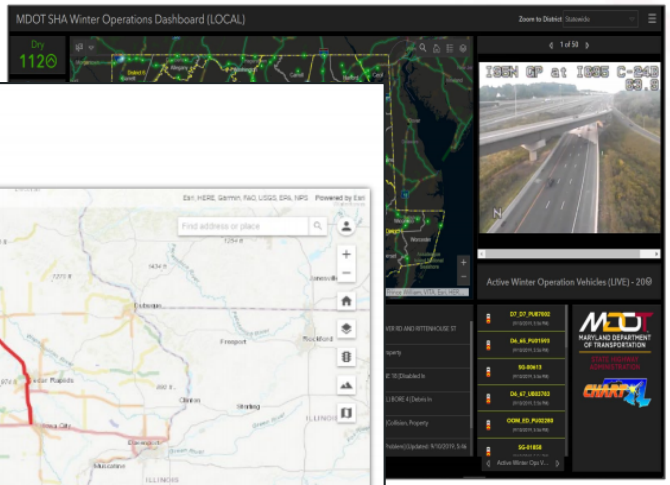
Conclusion

People

- Have
- Involv

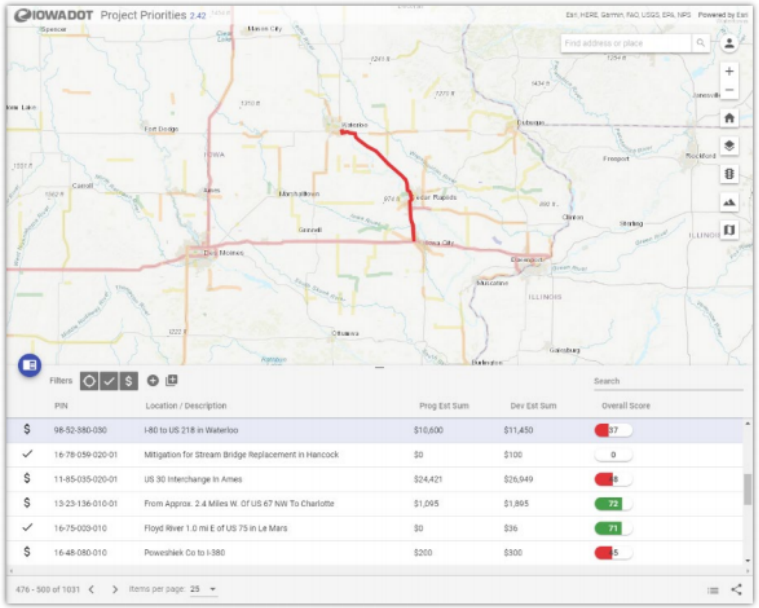
ASSET MANAGEMENT

Data Sources



Scoping Tool

- Automated processing of a priority algorithm on all projects
- Calculates performance scores based on many other DOT-managed business data (bridges, pavement, traffic, etc)
- Allows robust filtering and analysis of both project-level and performance-level metrics



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MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION

								Animal Carcass Removal
								M
	M	L	L	H	-	-	-	M
tion	M	M	-	-	H	H	H	M

Conclusion

People

- Have
- Involv

Dat

How is Right-Sizing Different?

Normal Investment Decisions

- **Maintain**
  (to an *existing* standard)
- **Repair/Replace**
  (to an *existing/current* design)
- **Expand**
  (to an assumed *stable/certain* forecast)

Additional Right-Sizing Decisions

- **Defer/Disinvest Through Non-Action**
  (in effect, relaxing or waiving a condition/performance standard)
- **Modify the Design Standard/Target**
  (intentionally reclassify asset & its role)
- **Replace/Modify the Asset**
  (make it smaller/more economical)
- **Decommission an Asset**
  (allow for re-use of land)
- **Change Jurisdictions**
  (better align objectives & ownership)

Scoping Tool

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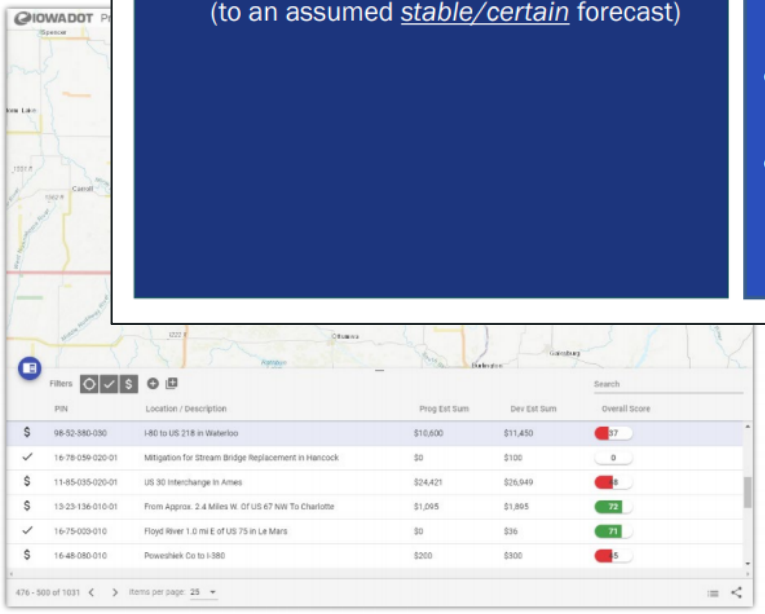
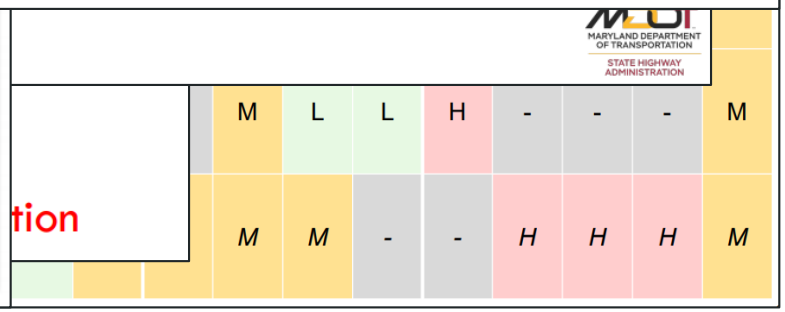
- Allows robust filtering and analysis of both project-level and performance-level metrics





Thanks to all of the other conference attendees who provided input and ideas on this presentation!

Matt Haubrich
Chair, AASHTO Subcommittee on Asset Management
matthew.haubrich@iowadot.us

Transit State of Good Repair

TRB Conference on Performance and Data in Transportation Decision Making

Jordan Holt
Director of Performance
Washington Metropolitan Area Transit Authority

The Transit Challenge

- Declining ridership
- Aging assets
- $90 billion backlog
- 3 years into federally-mandated asset management program
  - Know what we own and its condition
  - Set state of good repair targets for common KPIs
  - Develop plan to manage assets, prioritize investments

metro

King County

MDOT MARYLAND DEPARTMENT OF TRANSPORTATION
MARYLAND TRANSIT ADMINISTRATION

marta

Metro

SOUNDTRANSIT
RIDE THE WAVE

Three takeaways

metro

1. DATA IS AN ASSET

"Data utilization is just an important as asset utilization."

1. DATA IS AN ASSET

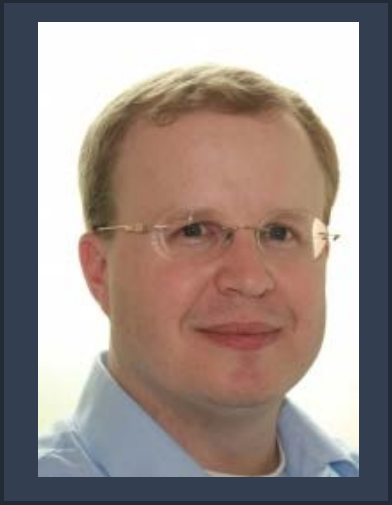
BI and Data governance can remove barriers to utilization.

Data governance is a way to keep data in a “state of good repair.”

Own data errors.

Lease vs. own debate.

2. COMMON KPIs ARE OPPORTUNITIES



"A good performance measure is like a really good movie."

2. COMMON KPIs ARE OPPORTUNITIES

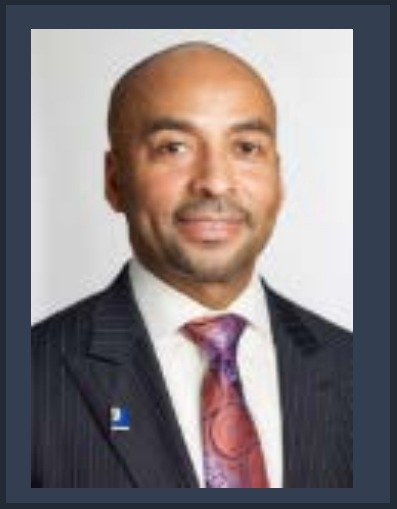
Talk about impact using same language

Evaluate effectiveness of strategies implemented locally but aimed at common goals

Tie to funding to incentivize state of good repair

Benchmarking

3. DON'T FORGET THE CUSTOMER & EMPLOYEE



"Take care of your employees. Take care of your customer/ community. Financial health will follow"

3. DON'T FORGET THE CUSTOMER & EMPLOYEE

What level of service do we need from our assets to meet customer expectations?

What factors should be considered in prioritization efforts?

APTA State of Good Repair/ Transit Asset Management Working Group

MISSION

To develop guidance for transit agencies as they implement asset management programs in compliance with FTA regulations and in alignment with industry best practice. This guidance, which may consist of white papers, training materials, presentations, and webinars, will complement the resources that have been published by the FTA with examples developed by industry peers.

Guidance Published

Available on APTA Standards Website

1. Communicating your Transit Asset Management Plan
2. Improving Asset Management Through Better Asset Information
3. Building Internal Stakeholder Support for Your Asset Management Program
4. Communication and Coordination with External Stakeholders for Transit Asset Management

Documents in Development

Target publish date: Winter 2020

1. Procuring Software to Support Transit Asset Management
2. Using Asset Criticality to Make Investment Decisions
3. How to Build and Asset Management Team

What's Next?

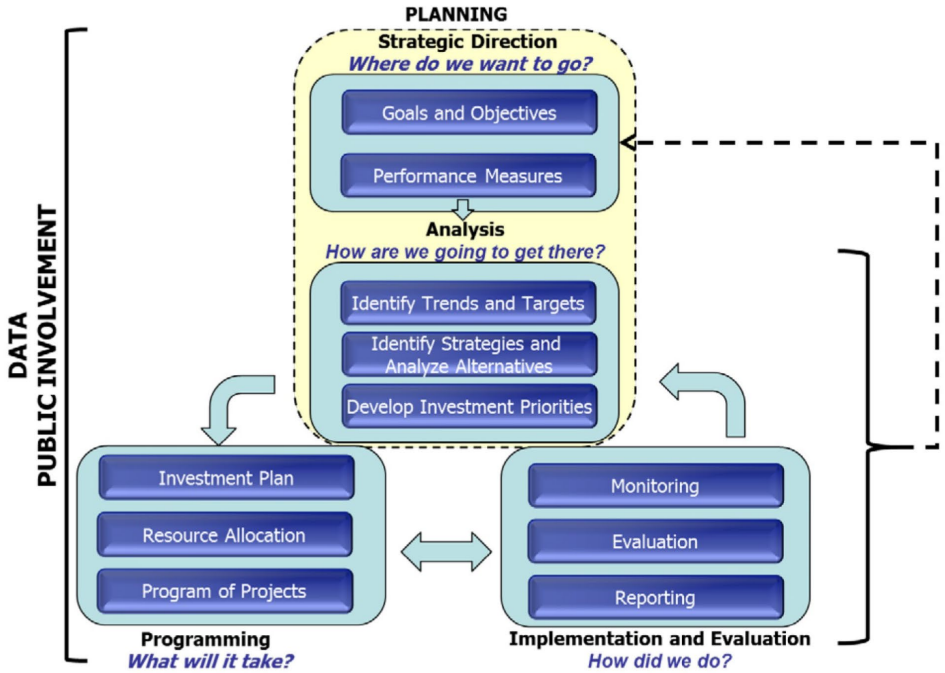
- TAM Policy Creation and Implementation
- Identifying and Incorporation of Risk into TAMPs
- Incorporating Climate Vulnerability into TAMPs
- Best practices in using condition assessments and predicative maintenance into improved performance
- Best practices in linking TAMPs and Safety Plans

TRB CONFERENCE ON PERFORMANCE AND DATA IN TRANSPORTATION DECISION MAKING

September 15-18, 2019 | Atlanta, Georgia

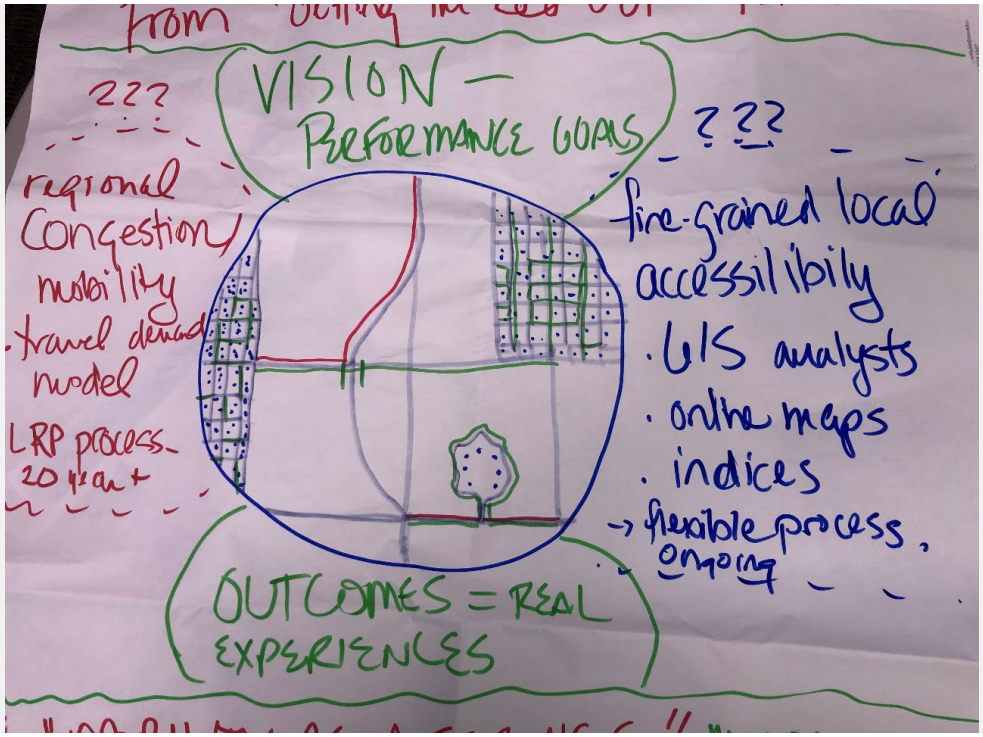
The National Academies of SCIENCES ENGINEERING MEDICINE

TRB TRANSPORTATION RESEARCH BOARD



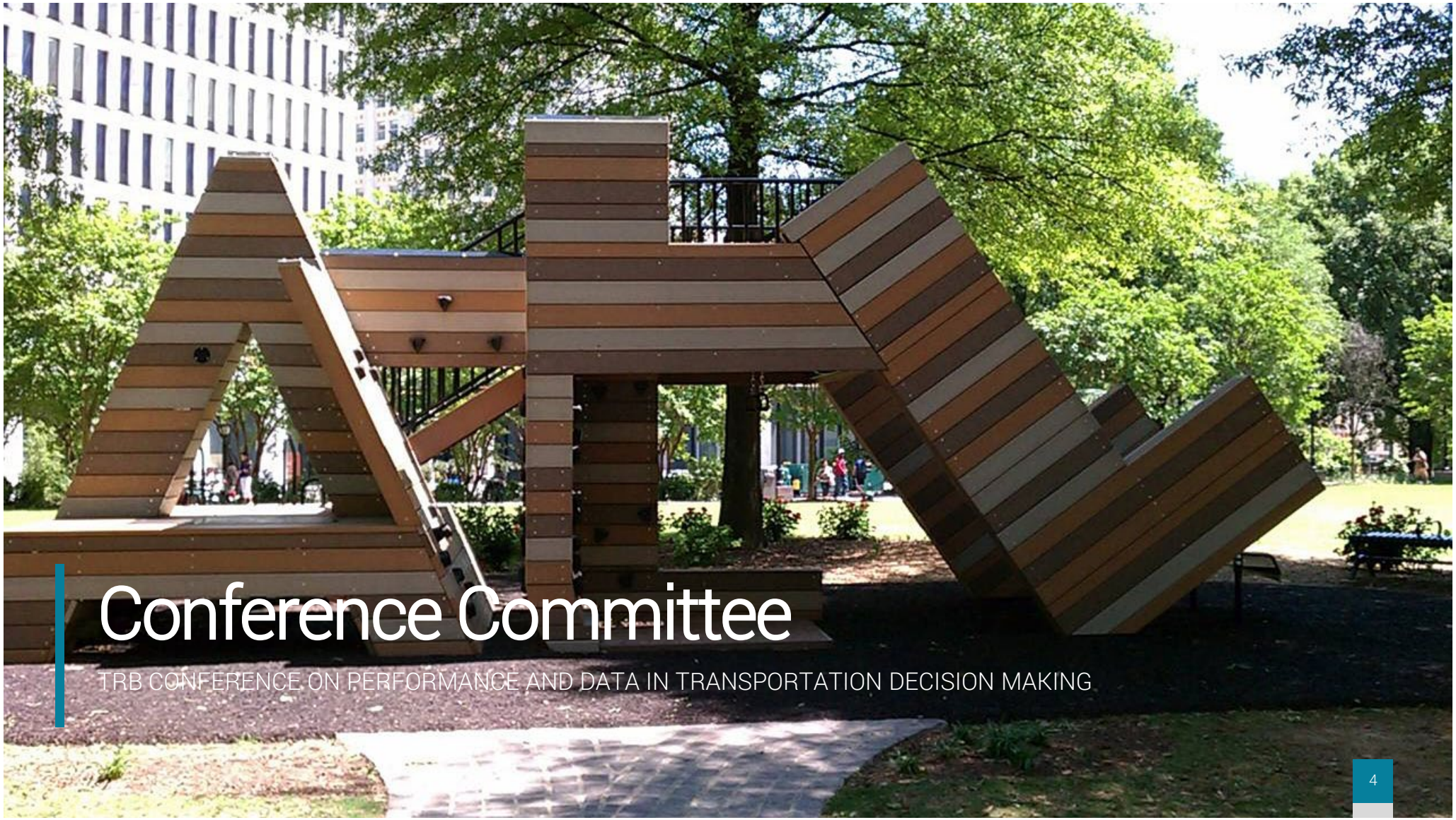
Peer Exchange: Multimodal Decision Making at the State, Metropolitan, and Regional Levels

Spokane, Washington | July 17, 2018



Session 1013 –Multimodal Decision Making at the State and Metropolitan Levels

98th Annual Meeting | Transportation Research Board | Sunday, January 13, 2019



Conference Committee

TRB CONFERENCE ON PERFORMANCE AND DATA IN TRANSPORTATION DECISION MAKING

PLATINUM

GOLD

SILVER

BRONZE

Plenaries and Conference Activities

- Opening Session – Perspectives at the state, regional, and local levels.
- Poster sessions to present recently completed research.
- Second Session – How data is changing the structure and role of public agencies.
- Key Note Speakers – Data changing public agencies and private corporations.
- Summarizing the conference by putting it all together.

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Active poll

In one word, what are your expectations for this week's conference?

099

Active poll

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Briefly, what did you learn from yesterday's sessions? 0 2 2

Q&A EXIT


Active poll
sli.do
What do you know now that you didn't before?
0 4 5
started
performance
processes
consulting
making
productivity
wrap
project
selection
issues
sector
measures
ridership
decision
governance
firms
shiny
scooters
mep
equity
data
alan alda
points
prioritization
public interest
techniques
process
risk
dataisgood
data science
transportation
Join at
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Activate poll: "Briefly, what did you learn fr..."
Q&A
EXIT

Tracks

A: Multimodal Planning

B: Performance and Data

C: Programming and Investment Prioritization

D: Communications and Stakeholder Engagement

A. Multimodal Planning

- How data and performance measures are changing the development of transportation plans:
  - Investment decisions.
  - Tools for monitoring performance measures and decision-making.
  - Processes.
  - Transit and expanding its effectiveness as shared mobility and automated transportation modes evolve.

B. Performance and Data

- Building collaborative processes for using data throughout the planning process:
  - Influence on performance measures.
  - Business-Intelligence (BI) opportunities and partnerships (NCHRP 03-128 guidance).
  - Informing processes and governance.
  - Private data.

C. Programming and Investment Prioritization

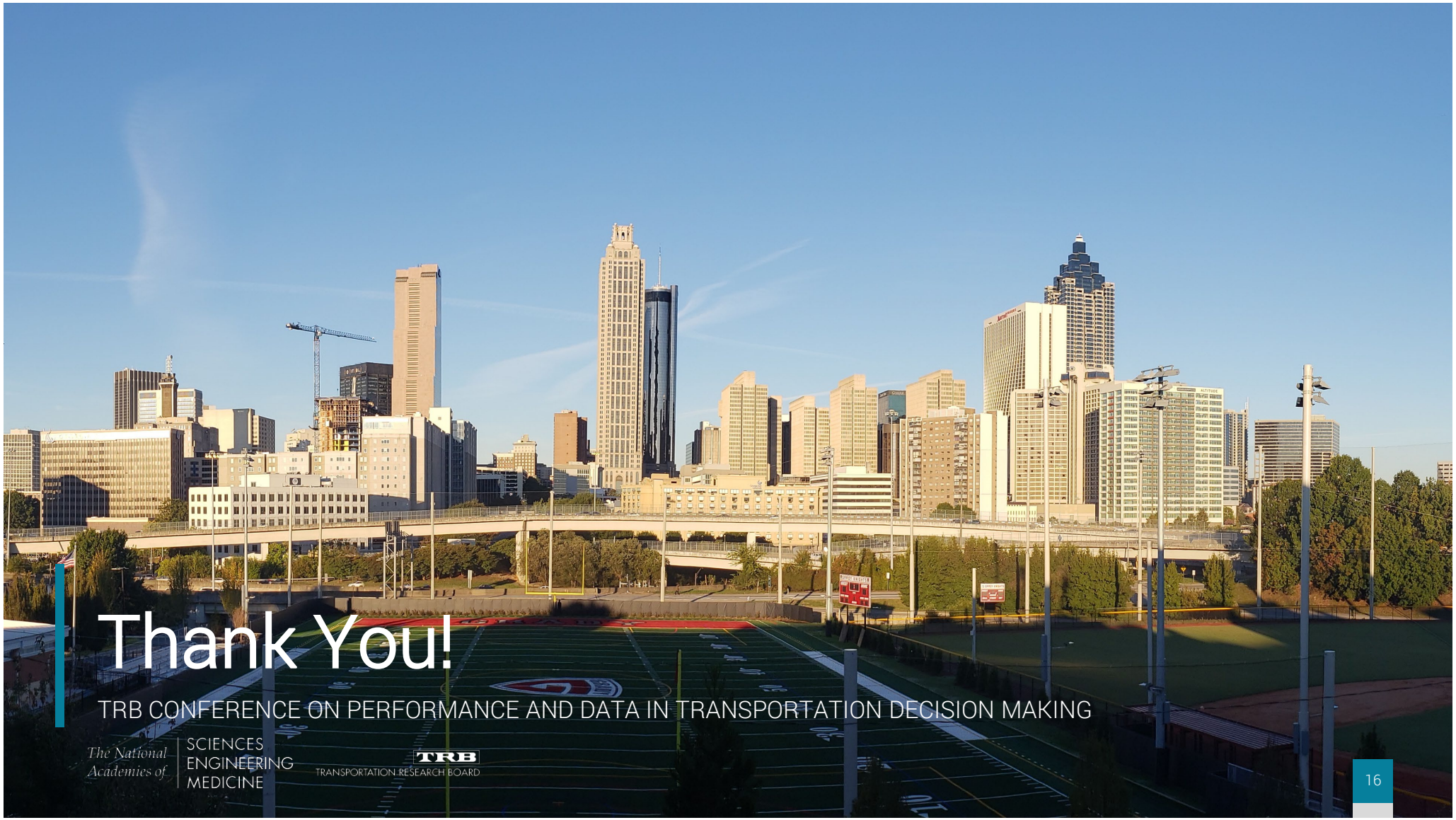
- Trends and directions in project selection, timing, and communication:
  - Mode-neutrality.
  - Current evaluation trends and techniques.
  - Presentation approaches at varying levels – from the public to decision makers.
  - Political realties.

D. Communications and Stakeholder Engagement

- With all of this information, what are some effective tools for communicating transportation decisions?
  - Elected official involvement at state and local levels.
  - Fostering accountability for performance measures and measurements (WMATA Case Study).
  - Dashboards.
  - Continuing research and works-in-progress to advance data driven decision making.

Closing Thoughts

- 350+ attendees from 42 states and three countries.
- 34 sessions with 120+ presentations.
- E-Circular under development:
  - Notes and recordings taken at every session to contribute to the E-Circular.
  - Kate Lawson, University at Albany.
- TRB Standing Committee and AASHTO Committee meetings.
- FHWA Workshop – Tool for Investment Decision Making.



Thank You!

TRB CONFERENCE ON PERFORMANCE AND DATA IN TRANSPORTATION DECISION MAKING

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Questions?

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