



14th National Conference on  
**Transportation Asset Management**

Boston, MA • July 8–11, 2023

# TRB Transportation Asset Management (TAM) Conference Findings

TAMC Conference, Grand Rapids  
September 26, 2023





# Introductions – MDOT Team



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# TRB TAM Conference Structure

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- Organizing for Asset Management
- Actionable Asset Management Plans
- Managing Risk through Asset Management
- Advancing Sustainability in Asset Management
- Emerging Topics

# Organizing for Asset Management

- Organizational change management specialists
- Evaluate organizational structure and roles/responsibilities
- Visionary leadership and TAM Champions





# Beyond Road and Bridge Condition

Mature TAM agencies include all assets in decision-making and planning

Expand to multimodal assets, such as transit, rail, and active transportation

Consider non-physical asset targets and objectives

# TAM Champions at Leadership Level

## NMDOT TAM Leadership



TAM and TAMP development is guided by the Asset Management Executive Steering Committee (AMESC)

- Secretary of Transportation
- Deputy Secretary of Transportation
- Capital Program and Investments Acting Division Director
- Senior Executive Engineer
- Director of Highway Operations
- Executive Director of Executive Projects
- All Six District Engineers
- FHWA Liaison
- Asset Management Bureau Chief



TAM Working Group is responsible for supporting the development and implementation of the TAMP

# TAM Champions & Internal Stakeholder Buy-In: Creating Support for TAM through Change Management – Maryland Transit Administration



## Challenges

- Pre-existing silos and not a focus on TAM being an agency-wide effort
- Resistance to change
- TAM is complex and some people “don’t get it”
- Staff not using existing TAM resources such as lifecycle management plans, asset registry and analysis



## Solutions

- Development of Directive/Policy; tangible deliverables for stakeholders
- Agency-Wide Asset Management Workshops to improve knowledge, define roles/responsibilities
- Creation of the TAMbassador program
- Creating new and updating existing documents to make them reader friendly so anyone in the agency can understand them

## MDOT's TAM Vision:

*To integrate asset management practices and systems into everyday business operations and decision making to provide the desired level of service in a sustainable way, while managing risk, at the lowest lifecycle cost.*

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### Michigan Transportation Asset Management (MiTAM)

- A strategic effort to bring AM to all business areas, including planning, design, construction, operations, and maintenance
- Develop an enterprise AM system that links all assets together in one tool to measure/compare different assets within a geographic area to determine the best investment decisions to meet the department's vision
- Transportation Asset Steering Committee (TASC)



# Actionable TAMPs

Connect to capital planning,  
projects, and performance

Link data to solutions and track  
the outcomes

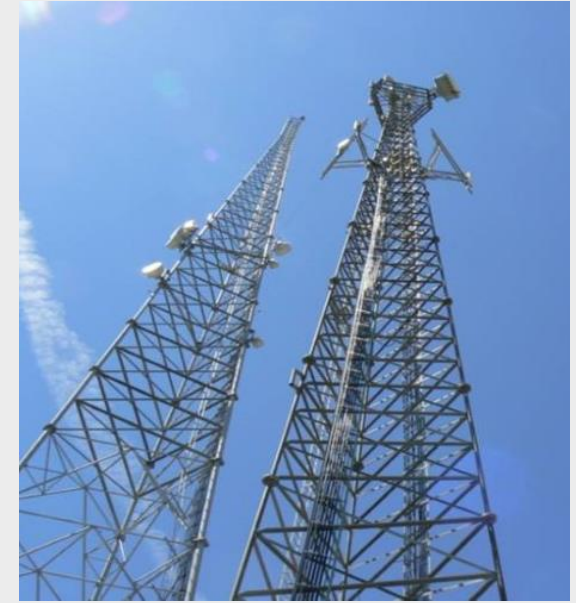
Demonstrate TAM needs in a user-  
friendly way for decision-makers

Integrate into Business Processes

# MDOT Asset Management

## Moving Beyond Road and Bridge

### Ancillary Structures Update



DECEMBER  
2020

2021

2022

2023

FUTURE

# Emerging Topics – Linking TAM

Risk & Resiliency

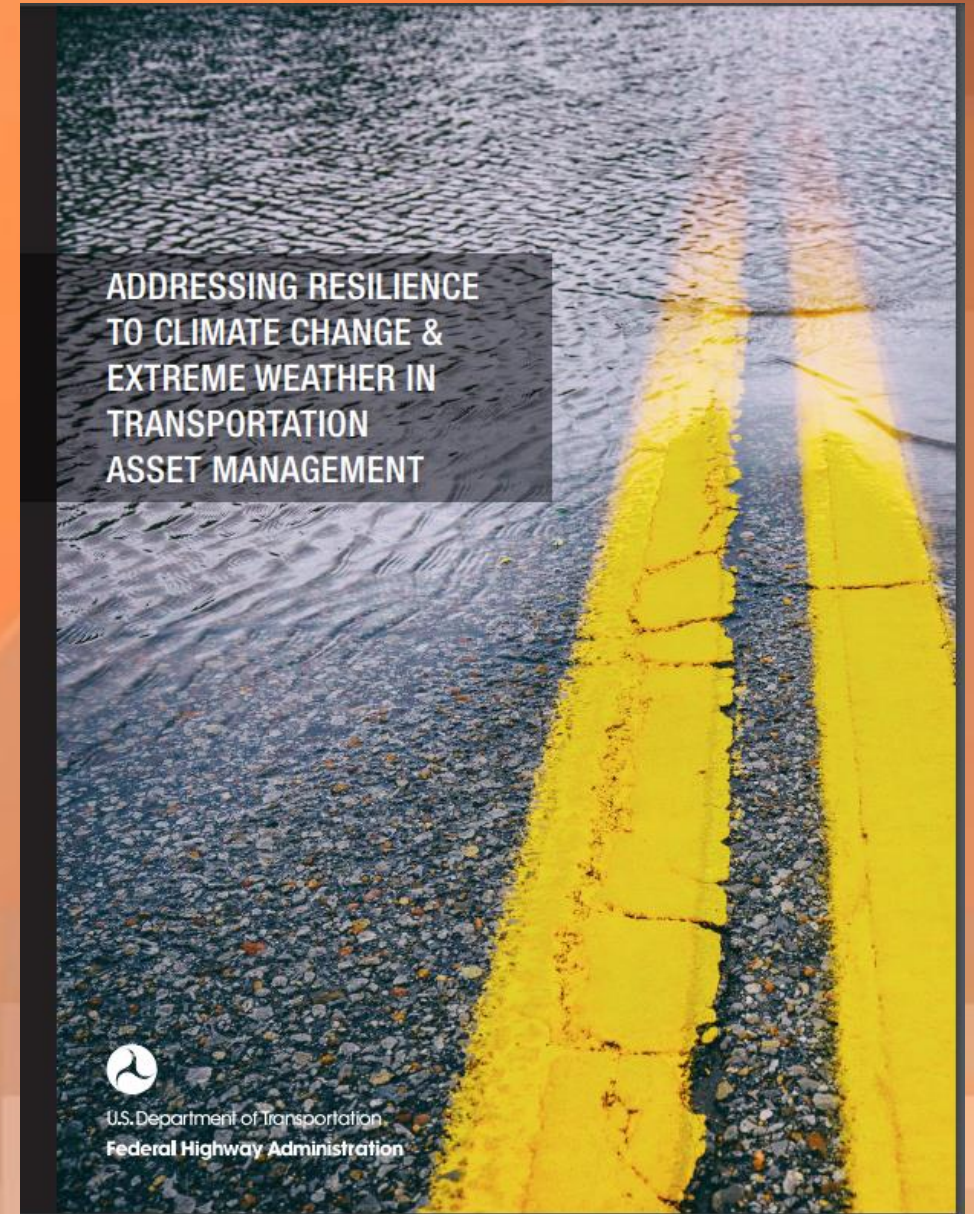
Advanced  
Technology

Sustainability &  
Social Equity



# Risk & Resiliency

- **Resilience:** *The ability to anticipate, prepare for, and adapt to changing conditions and withstand, respond to, and recover rapidly from disruptions, [FHWA Order 5520](#).*
- MAP-21 Requirements
- The New Guidebook
- Risk Management
  - Identify risks
  - Assess likelihood of impact
  - Evaluate and prioritize
  - Develop mitigation
  - Monitor top risks
- How do we communicate risk to stakeholders?









[fhwa.dot.gov/asset/pubs/hif23010.pdf](https://fhwa.dot.gov/asset/pubs/hif23010.pdf)

# Advanced Technology

- Many solutions available for off the shelf AM software
- Use of AI
- Mapping tools
  - GIS Integration
  - Mobile Workforce Tools

# Sustainability & Social Equity

- Equity Measures, Priority Areas, Sustainable Communities
- Interstate Bridge Replacement – Focus on Equity and Climate Change

					
<b>MOBILITY &amp; ACCESSIBILITY</b>	<b>PHYSICAL DESIGN</b>	<b>COMMUNITY BENEFITS</b>	<b>WORKFORCE EQUITY &amp; ECONOMIC OPPORTUNITY</b>	<b>DECISION-MAKING PROCESSES</b>	<b>AVOIDING FURTHER HARM</b>
Improve mobility, accessibility, and connectivity, especially for lower income travelers, people with disabilities, and historically underserved communities who experience transportation barriers.	Integrate equity, area history, and culture into the physical design elements of the program, including bridge aesthetics, artwork, amenities, and impacts on adjacent land uses.	Work with local agency partners to find opportunities for and implement local community improvements, in addition to required mitigations.	Ensure that economic opportunities generated by the program benefit minority and women owned firms, BIPOC workers, workers with disabilities, and young people.	Prioritize access, influence, and decision-making power for underserved communities throughout the program in establishing objectives, design, implementation, and evaluation of success.	Actively seek out options with a harm-reduction priority, rather than simply mitigate disproportionate impacts on historically impacted and underserved communities and populations.



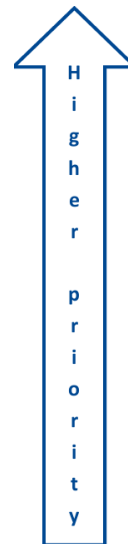
# Transforming TAM to Social Equity

## Research at Colorado State University, 70 Responses (45% DOTs, 40% MPOs, 15% Cities/Other)

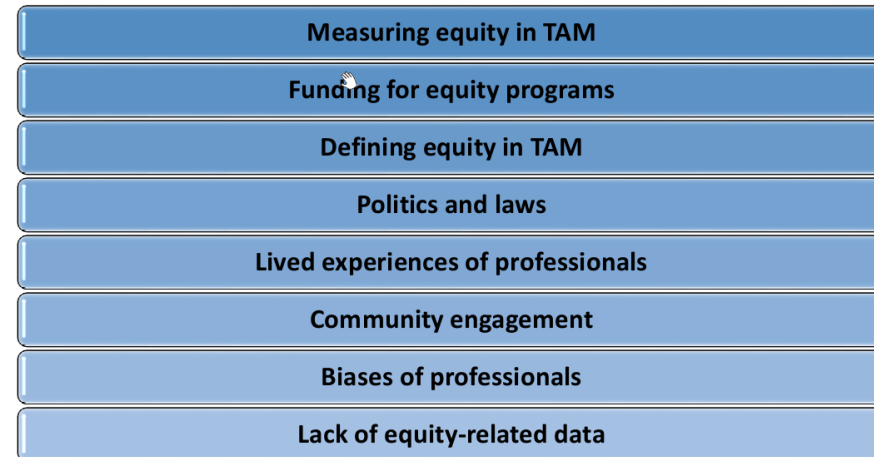
**Purpose:** Examine equity in the context of TAM

**Research Questions** (sample out of 30 questions):

- Is equity incorporated into TAM? If so, how?
- What challenges do TAM professionals face when incorporating equity?
- What approaches and practices are used by TAM professionals to operationalize equity?



### Priorities: Equity in TAM



# Linking TAM to Equity – Measures (Maryland DOT)

## **Locations Burdens-Based**

considers the location of a project within equity communities that are detrimental for them (i.e., aggregating pollution).

## **Locations Benefits-Based**

considers the proximity of a project to equity communities that are beneficial for them.

## **User-based**

considers who will use a project and if more people from equity communities will use the services/facilities.

## **Impacts-Based**

Compares the potential benefits and burdens a project will have on equity communities.

## **Access to destinations-based**

considers accessibility improvements that a project may provide an equity community (i.e., access to key destinations).

## **Community-Engagement Based**

considers how project sponsors involved equity communities before and during a project's development.

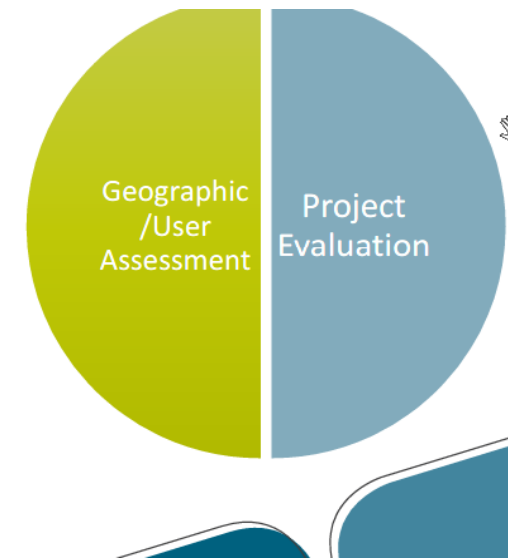
*Adapted from Equity-oriented Criteria for Project Prioritization in Regional Transportation Planning, Krapp, et al.*

# It's about the **people** we serve...

- MDOT's Mission and Vision incorporate the value of People First
- Best Practice AM successes focus on the users, not just the infrastructure
- Perform Equity Impact Assessments

Equity Impact scores for prioritization combine:

- Geographic/user assessment – the location and users of the assets
- Project evaluation – the characteristics of the project and how it impacts vulnerable communities





# Peer Exchange: The Art of Selecting Projects

- **Elements of Good Prioritization** – Presentations by MDOT, MnDOT, PennDOT, and WashDOT – discussed informed priority choices to maximize performance improvements within resource constraints.
- **Balancing and Aligning Needs** – Examined the process of balancing competing objectives and aligning across performance programs and ended with a simulation exercise with goals and funding.
- **Fishbowl of Agency Practices and Challenges** – Open sharing on progress opportunities for change.
- **How Can We Improve Practice?** - At a national level, what support is needed, how research can advance TAM.

# Thought Provoking Questions on TAM

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Do you know the value of your assets?

Do you know how much you need to invest to follow an AM approach?

What is the gap between AM needs and revenue?

How do you prioritize when there limited resources?

What are your priorities?

How do you prioritize physical assets and non-physical objectives, such safety, mobility, and air quality?

How will you measure your progress?

How and when will you adjust your program to meet objectives?

# Best Practices – Keys to Success

- 
- Executive support critical to embedding TAM into all processes
  - Organizational structures with TAM and TPM at the top of the organization
  - AM plans for each asset class by region/district based on performance
  - Scoring criteria in alignment with performance goals and department priorities, plus annual reviews and adjustments
  - High degree of data confidence by fixing data errors
  - Syncing data across asset classes including real-time changes in geometrics
  - Provide transparency with the public and encourage input



# How Can We Improve Practice? Top 5

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1. Work Type Tracking and Forecasting: Better Data = Better Models

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2. More Cross-Discipline Learning Opportunities

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3. AASHTO Advocacy for TAMP Best Practices

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4. Track Colors of Money to Understand How Money is Spent on TAM

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5. Framework for Addressing Fed Grants in Long-Term Planning



# Essential Tools



TAM Portal

<https://www.tam-portal.com/>

TAM Assessment Guide

<https://www.tamguide.com>

System Valuation of Assets

<https://www.assetvalueguide.com>



# TAM Assessment Guide





# Transportation Asset Management...

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- is more than pavement and bridge preservation
- involves new partnerships and asset types
- should be actionable and measurable
- data can clearly communicate needs to decision-makers
- provides good service to our constituents
- resources are readily available to support you







## Mission:

*Serving and connecting people, communities, and the economy through transportation.*

[michigan.gov/mdot/programs/planning/asset-mgt](https://michigan.gov/mdot/programs/planning/asset-mgt)