Agenda

• TAM Overview
• Project Work Plan and Schedule
• Next Steps
The Importance of Transportation Assets

- Assets underpin our economy and support lifestyles
- They're often taken for granted by the DOT customers until they fail
- They represent a major investment by the state - progressively built up over a long period
- They provide a platform for economic growth and social development
Why Asset Management?

• Maximize Future Funding
  • Congress passed MAP-21 requiring performance-based budgeting and monitoring for access to federal funds
  • Legislative bodies throughout the country are seeking evidence of progress made with funding provided
  • Demonstrating asset need with quantitative information is compelling to decision-makers

• Maximize Your Current Funds
  • Life-Cycle Costing
  • Having the information available to make SMART decisions
  • Better coordinating efforts across business units
  • Accountability throughout the organization, partners, and stakeholders
Asset Management as Defined by FHWA

- Transportation asset management is a strategic and systematic process of operating, maintaining, and improving physical assets, with a focus on engineering and economic analysis based upon quality information, to identify a structured sequence of maintenance, preservation, repair, rehabilitation, and replacement actions that will achieve and sustain a desired state of good repair over the lifecycle of the assets at minimum practicable cost.
TAM Improvement Path

- Strategic self-assessment
  Volume 1

- Gap analysis
  Volume 2

- Starting state
  Desired end state
  Improvement plan
  Plan implementation

- Peer research
Preservation

Original Pavement

Optimal Timing

Pavement Condition

Time

Preventive Trigger

Rehabilitation Trigger
Proactive Role in Policy Formulation

• Asset Management provides an opportunity to connect POLICY to ACTION
• Agencies should engage policy makers during their decision-making process
  • Have an impact on external bodies that shape policies
  • Frame and inform policy options
• Communicate implications of funding decisions
• Reinforce accountability
• Same principles can be applied to long-range planning
Proactive Role in Policy Formulation
Example – MassHighway

- Governor initiated a “Fix It First” program focused on reducing structurally deficient (SD) bridges. Initially, resources would be allocated to fix current SD bridges.

![Number of SD Bridges Graph]

- Graph shows the number of SD bridges from 2004 to 2009, with a decrease in the number of SD bridges over time.
Proactive Role in Policy Formulation

Example – MassHighway (continued)

- Further analysis indicated that the number of SD bridges would increase over time with focus only on fixing current SD bridges
Proactive Role in Policy Formulation

Example – MassHighway (continued)

- New policy balances preservation and replacement needs. New budget includes increased bridge funding to address current SD bridges and manage deterioration.
MAP-21 Pavement Performance Management

- Good/fair/poor measure determined based on 4 metrics
  - If all are good the combined measure is good
  - If ≥2 metrics are poor the combined measure is poor
- Need to report conditions and targets for % good and poor for Interstate and non-Interstate NHS
- Rule sets an additional goal of ≤5% poor for Interstates
- VDOT currently <2% poor on Interstates

<table>
<thead>
<tr>
<th>Metric</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
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<tbody>
<tr>
<td>IRI (inches/mile)</td>
<td>&lt;95</td>
<td>95-170</td>
<td>&gt;170</td>
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<tr>
<td></td>
<td></td>
<td>95-220*</td>
<td>&gt;220*</td>
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<tr>
<td>Cracking (%)</td>
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<td>5-10</td>
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<tr>
<td>Rutting (inches)</td>
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<td>Faulting (inches)</td>
<td>&lt;0.05</td>
<td>0.05-0.15</td>
<td>&gt;0.15</td>
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*Urbanized Population >1M
MAP-21 Bridge Performance Management

- Good/fair/poor measure based on NBI ratings
  - Use minimum of deck, superstructure, and substructure ratings to evaluate (single rating for culverts)
- Need to report conditions and targets for % good and poor for NHS bridges
- Additional goal of <10% of the NHS bridge deck area structurally deficient
- VDOT currently <5 structurally deficient

![NBI Rating Scale Diagram]

<table>
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<tr>
<th>NBI Rating Scale</th>
<th>9</th>
<th>8</th>
<th>7</th>
<th>6</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
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<td><strong>Deck</strong> (Item 58)</td>
<td>≥7</td>
<td>5 or 6</td>
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<tr>
<td><strong>Superstructure</strong> (Item 59)</td>
<td>≥7</td>
<td>5 or 6</td>
<td>≤4</td>
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<tr>
<td><strong>Substructure</strong> (Item 60)</td>
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<td>5 or 6</td>
<td>≤4</td>
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<tr>
<td><strong>Culvert</strong> (Item 62)</td>
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<td>5 or 6</td>
<td>≤4</td>
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MAP-21
Transportation Asset Management Plan

• Plan for pavement and bridge assets for the NHS using performance measures for a ten year period
  • Suggest using bridge and pavement measures for national reporting

• Include:
  - Performance Gap Analysis
  - Life Cycle Cost Analysis
  - Risk Management Plan
  - Financial Plan
  - Investment Strategies

• First TAMP due 1 year after final rules
  • Final ruling anticipated to be finalized in October, 2016
What Makes a TAMP Risk-Based?

1. An approach to managing risk across various levels:
   - Agency
   - Programmatic
   - Project/Asset Levels

2. The development of a risk register to prioritize risks across the department

3. A comprehensive decision-making process that includes risk assessment as a part of budget setting for each asset
What Makes a TAMP Risk-Based?

Figure 7.1 Risk Rating Scale

<table>
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<th>Likelihood</th>
<th>Level</th>
<th>Consequence (Level/Descriptor)</th>
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<tr>
<td></td>
<td>Level</td>
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<td></td>
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<td>1</td>
<td>Low</td>
<td>1</td>
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<tr>
<td>2</td>
<td>Medium Low</td>
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<td>3</td>
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<tr>
<td>4</td>
<td>Medium High</td>
<td>4</td>
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<tr>
<td>5</td>
<td>High*</td>
<td>5</td>
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Source: CDOT
Project Purpose

Meet MAP-21 TAMP Requirements

(23 U.S.C. 119(e)(1), MAP-21 § 1106)

Maximize investments by managing the life-cycle of transportation assets strategically to minimize costs.
Our TAMP Approach

01. Project set-up and administration

02. Document the existing situation in Maryland

03. Conduct interactive stakeholder workshops

04. Build the TAMP
Document Current Condition
Stakeholder Workshops

- Bridge
- Pavement
- Objectives and measures
- Risk
- Financial planning and investment analysis
TAMP Outline

Where are we now?
- Asset inventory & condition
- Performance assessment, including challenges
- Life cycle management (current)
- Funding and finance (current)
- Organization framework

Where are we going?

How do we get there?
TAMP Outline

- Objectives and measures
- Life cycle management (future)
- Risk management
- Targets
- Investment Strategies
- Funding and finance (future)
- Organizational vision
TAMP Outline

Where are we now?

Where are we going?

How do we get there?

• Improvement plan
  - Process improvements
• Financial plan
• Risk management plan
• Communication and reporting plan
Task A – Project Start-Up & Kickoff Meeting

• Conduct project kickoff meeting with TAM Steering Committee
• Conduct interviews with TAM stakeholders
  • Pavement Management, Bridge Management, Planning and Programming, Budget and Finance, Districts, Others?
• Document current TAM organizational framework
• Steering Committee Role
  • Regular meetings to provide guidance on project activities
  • Make staff available for interviews and technical assistance
  • Ambassadors to the rest of the department on value of TAM and TAMP
Task B – Literature and Data Review

• Conduct a review of SHA’s TAM resources and processes
  • Coordination with current initiatives
  • Existing process documentation
  • Funding landscape

• Use AASHTO TAMP Builder to identify relevant peer agency TAMPs

• Use AASHTO TAM Portal to identify research documents, guidance and tools to support the development of SHA’s TAMP

• Conduct additional research as needed to identify relevant resources for the development of SHA’s TAMP
Task C - Technical Analysis & Performance Measures

- TAMP Building Workshops to communicate TAMP needs and gather input
  - Bridge Management
  - Pavement Management
  - TAM Objectives and Measures
  - Risk Management
  - Financial Planning and Investment Analysis
Task D – Plan Preparation and Editing

- Development of the final TAMP outline
- Completion of the draft TAMP
- Completion of the final TAMP
- Final workshop – presentation of the TAMP
Possible Product: Asset Performance x Investment

- $99.8m average annual investment
- $69.4m average annual investment
- $54.1m average annual investment

Target
- Current Investment plus Article 21 Funds
- Current Investment

Graph showing percent of pavement lane miles in good or fair condition over years 2014 to 2025.
Possible Product: Inventory and Condition Trends

Example G/F/P 2015-2025
Possible Product: Vulnerabilities
Possible Product: Scoping

Roadway Classification
- Interstate
- Other NHS
- Non-NHS

Programmed Work
- Bridge (FY 2014)
- Pavement (FY 2014)

Data used for the Spatial Analysis
- Safety Hotspots
- Priority Corridors
- Pavement Needs

Priority Segment
Possible Product: Funding Scenarios

- **Scenario 1: Current Funding**
- **Scenario 2: With Revenue Package**

<table>
<thead>
<tr>
<th>Asset Condition</th>
<th>Deficient</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Roadway Classification</th>
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</thead>
<tbody>
<tr>
<td>Interstate</td>
</tr>
<tr>
<td>Other NHS</td>
</tr>
<tr>
<td>Non-NHS</td>
</tr>
</tbody>
</table>

% Deficient Assets in 2016

- **Deficient**
- **Not deficient**
Next Steps

• Conduct interviews with stakeholders
• Document current organizational framework for TAM and for the development of the TAMP
• Develop TAMP communications plan
A web tool that makes it easier to develop your TAMP – using available TAMPs

www.tamptemplate.org
The TAMP Builder helps you develop your own TAMP by answering questions like...

AASHTO TAMP Builder
Using the TAMP Builder

• How can I find examples of specific TAMP chapters that meet my agency’s needs?

• How can I identify existing TAMPs created by peer agencies?

• Where can I find a basic outline in order to get started developing my agency’s TAMP?
Questions?
Contact me at....

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or

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