Introductions

• Dwayne Weeks, Office of Planning and Environment
• Mshadoni Smith, Office of Budget and Policy
• Morvarid Zolghadr, Office of Transit Safety and Oversight
Overview

• Performance-based Planning and Programming (PBPP) requirements and framework
• Transit Asset Management in PBPP
• Safety Management in PBPP
• Example: Transit Asset and Safety Management in PBPP
Performance Management Requirements

- MAP-21 and the FAST Act require USDOT, States, Metropolitan Planning Organizations (MPOs) and public transportation providers to implement a performance management approach for Federally-supported highways and transit.

- Why?
  - Prioritize needs
  - Align resources to optimize system performance, collaboratively
  - Increase accountability and transparency
MAP-21 establishes seven national performance goals in safety, infrastructure condition, congestion, system reliability, emissions, and freight movement.

USDOT (FTA and FHWA) establish national performance measures.

State DOTs and transit providers develop performance targets and performance-based plans.

MPOs coordinate with States and transit providers to integrate performance targets and plans into planning documents.
Relevant Statutory Provisions, Rules and Guidance – FTA

Title 49 of the United States Code

$134 $135
Statewide & Metro Planning, Non-Metro Planning
- Define Coordination for Target Selection, Planning and Programming

$5326
Transit Asset Management (TAM) 49 C.F.R. § 625
- TAM Plan
- Definition of “state of good repair” (SGR)
- SGR Performance Measures and Targets
- NTD Reporting

$5329
Public Transportation Agency Safety Plan (PTASP) 49 C.F.R. § 673
- Agency Safety Plan
- Safety Performance Targets

§ 5329
National Public Transportation Safety Plan
- Safety Performance Measures
What is Transit Asset Management?

• Transit Asset Management (TAM) is a business model that uses the condition of assets to guide the optimal prioritization of funding at transit properties in order to keep our transit networks in a State of Good Repair (SGR).

• Consequences of not being in a SGR include:
  – Unacceptable safety risk
  – Decreased system reliability
  – Higher maintenance costs, and
  – Lower system performance
TAM Background

- TAM Final Rule provides a foundation for addressing the SGR backlog
- Focuses on measuring and monitoring performance and condition
- Minimizing burden on smaller transit providers
  - Two tier approach with fewer elements for small/rural
- High-level Requirements of Rule:
  - TAM Plan
  - Performance Measure Targets
  - Self-certification of compliance
  - Coordination with Planning
Two Types of Deliverables

**Process**

1. **Compliant TAM Plan**
   - Group
   - Individual Tier I
   - Individual Tier II

2. Recordkeeping & Coordination with Planning

3. Certification

**Reports**

1. Data report
   - Performance targets
   - Performance status
   - Condition Assessments
   - Inventory

2. Narrative report
# TAM Plan Elements

1. Inventory of Capital Assets
2. Condition Assessment
3. Decision Support Tools
4. Investment Prioritization
5. TAM and SGR Policy
6. Implementation Strategy
7. List of Key Annual Activities
8. Identification of Resources
9. Evaluation Plan

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### All Providers
(Tier I & II)

- Tier I only
  - Operates Rail
    - OR
    - \( \geq 101 \) vehicles across **all fixed route** modes
    - OR
    - \( \geq 101 \) vehicles in **one non-fixed route** mode

* FTA estimates that fewer than 20% of transit providers will do a Tier I Plan
TAM Plan Process
TAM in a Transit Agency’s Planning and Programming

**TAM Plan**
- Asset Inventory w/ Condition Assessment
- Investment Prioritization
- SGR Targets

**TAM Program**
- Condition Assessment Monitoring
- Asset Rehabilitation and Replacement
- Policies

**TAM Outputs**
- Performance Mitigation Strategies/Targets
- Costs

- Accountable Executive signs TAM Plan
- Budget and strategic plans are approved by Board of Directors
- Key outputs and reports are shared with external planning processes

Start HERE

Safety Management Program Outputs
- Capital Planning
- Operational Planning

FTA
FEDERAL TRANSIT ADMINISTRATION
PTASP Background

• Congress required operators of public transportation systems that receive FTA funds to develop and implement a Public Transportation Agency Safety Plan (49 U.S.C. § 5329(d))

• Final Rule (49 C.F.R. Part 673) published on July 19, 2018

• Compliance date is July 20, 2020

• Transit agencies must implement a Safety Management System (SMS) by developing and documenting SMS processes in their Agency Safety Plan
What is Safety Management System (SMS)?

• Formal, top-down, organization-wide approach to managing safety risk and assuring the effectiveness of a transit agency’s safety risk mitigation.

• Includes systematic procedures, practices, and policies for managing risks and hazards that help
  – Control risk better
  – Detect and correct safety problems earlier
  – Share and analyze safety data more effectively
  – Measure safety performance more carefully
## PTASP Applicability and Requirements

<table>
<thead>
<tr>
<th>Applicability</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Would Apply to:</strong></td>
<td>Safety Management System (SMS)</td>
</tr>
<tr>
<td>• Operators of transit systems that receive FTA funds (Section 5307) and all rail transit operators (regardless of funding source).</td>
<td>Safety Performance Targets</td>
</tr>
<tr>
<td><strong>Would Not Apply to:</strong></td>
<td>Rail Agencies Only: Emergency Preparedness Plan</td>
</tr>
<tr>
<td>• FTA recipients that do not operate transit systems.</td>
<td>Employee Reporting Program</td>
</tr>
<tr>
<td>• Commuter rail service regulated by FRA.</td>
<td></td>
</tr>
<tr>
<td>• Passenger ferry service regulated by USCG.</td>
<td></td>
</tr>
<tr>
<td>• Deferring applicability for operators that only receive Section 5310 and Section 5311 funds (both recipients and sub-recipients).</td>
<td></td>
</tr>
</tbody>
</table>

- Public Transportation Agency Safety Plan
  - Approved by Accountable Executive and Board of Directors (and SSOA for rail transit agencies)
  - Annual Review/Update
  - Compliance with Public Transportation Safety Program/National Safety Plan
  - Assignment of Chief Safety Officer
PTASP in a Transit Agency’s Planning and Programming

- Budget and strategic plans are approved by Board of Directors
- Key outputs and reports are shared with external planning processes

**PTASP Outputs**
- Safety Performance Targets
- Safety Risk Mitigations
- Costs

**Agency Safety Plan**
- Establishes safety management program
- Establishes safety performance targets

**Accountable Executive** signs Agency Safety Plan and the Board approves

**Safety Management System**
- Identify safety hazards
- Evaluate risk mitigations
- Assign resources to address unacceptable safety risk

**Transit Asset Management Outputs**
- Capital Planning
- Operational Planning
Simplified Performance-based Planning and Programming (PBPP) Cycle

How did we do?

Where do we want to go?

How can we get there?

What will it take to get there?

Keys to Success
- Quality data
- Public involvement
Transit Asset and Safety Management in PBPP

States and public transit providers:

- Carry out these activities to manage transit assets and safety
- Develop inputs for and engage in broader PBPP efforts with MPOs and USDOT
Planning

**Strategic Direction**
- Set goals and objectives
- Develop performance measures

**Strategic Analysis**
- Identify insights and trends
- Set performance targets
- Coordinate performance targets “to the maximum extent practicable”
- Consider alternatives
- Develop investment priorities
Performance Measures

- USDOT set four TAM performance measures for the condition of capital assets.

Performance Targets

- SGR targets reported annually to NTD
  - Individual providers or group plan sponsors of multiple providers
  - For applicable asset classes in the four asset categories
  - Made available to MPO and State DOT
  - Submit with regular NTD report
## Example of TAM Performance Targets

<table>
<thead>
<tr>
<th>Asset Category - Performance Measure</th>
<th>Asset Class</th>
<th>FY 2019 Asset Conditions</th>
<th>FY 2020 Performance Targets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue Vehicular Equipment</td>
<td>Automobile</td>
<td>55%</td>
<td>45%</td>
</tr>
<tr>
<td>Revenue Vehicular Equipment</td>
<td>Bus</td>
<td>15%</td>
<td>13%</td>
</tr>
<tr>
<td>Revenue Vehicular Equipment</td>
<td>Cutaway Bus</td>
<td>28%</td>
<td>28%</td>
</tr>
</tbody>
</table>

### Equipment

- **Age - % equipment or non-revenue vehicles within a particular asset class that have met or exceeded their Useful Life Benchmark (ULB)**
  - Non Revenue/Service Automobile
    - FY 2019: 67%
    - FY 2020: 67%
  - Trucks and other Rubber Tire Vehicles
    - FY 2019: 50%
    - FY 2020: 40%
  - Maintenance Equipment
    - FY 2019: 50%
    - FY 2020: 50%
  - Route and Scheduling Software
    - FY 2019: 100%
    - FY 2020: 100%

### Facilities

- **Condition - % of facilities with a condition rating below 3.0 on the FTA Transit Economic Requirements Model (TERM) Scale**
  - Administration
    - FY 2019: 0%
    - FY 2020: 9%
  - Maintenance
    - FY 2019: 6%
    - FY 2020: 12%
### Example of TAM Investment Priorities

<table>
<thead>
<tr>
<th>Project Year</th>
<th>Project Name</th>
<th>Asset/Asset Class</th>
<th>Cost</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018</td>
<td>Repower 3 gasoline hybrid electric buses to 100% Electric</td>
<td>Revenue Vehicles</td>
<td>$2,285,328.00</td>
<td>High</td>
</tr>
<tr>
<td>2018/2019</td>
<td>Vehicle Surveillance System Replacement Proj 66 buses</td>
<td>Revenue Vehicles</td>
<td>$1,401,698.00</td>
<td>High</td>
</tr>
<tr>
<td>2018</td>
<td>Bus Repl of 5 Gasoline hybrid with 5 2018 CNG buses</td>
<td>Revenue Vehicles</td>
<td>$503,000.00</td>
<td>High</td>
</tr>
<tr>
<td>2019</td>
<td>36 Hybrid Gasoline Electric HVAC rebuilds</td>
<td>Revenue Vehicles</td>
<td>$1,400,456.00</td>
<td>High</td>
</tr>
<tr>
<td>2019</td>
<td>Transit Expansion Bus, Low Carbon Transit Program funding</td>
<td>Revenue Vehicles</td>
<td>$165,000.00</td>
<td>High</td>
</tr>
<tr>
<td>2019</td>
<td>Bus Replacement, 2008 Gasoline hybrid, replaced with one</td>
<td>Revenue Vehicles</td>
<td>$1,003,796.00</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>Near Zero Emmission CNG bus arrives in late 2019</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2019</td>
<td>Cut-away Bus Transit Expantion, Route Line 70</td>
<td>Revenue Vehicles</td>
<td>$163,275.00</td>
<td>High</td>
</tr>
<tr>
<td>2019</td>
<td>Transit Expantion Bus, SB1 Funding</td>
<td>Revenue Vehicles</td>
<td>$165,000.00</td>
<td>High</td>
</tr>
<tr>
<td>2018/2019</td>
<td>Bus Stop Improvement Project</td>
<td>Facilities</td>
<td>$2,235,307.00</td>
<td>High</td>
</tr>
<tr>
<td>2019</td>
<td>New Shop Truck, Vehicle Replacement</td>
<td>Equipment</td>
<td>$140,000.00</td>
<td>High</td>
</tr>
<tr>
<td>2019</td>
<td>Universal Fare System Equip, Vaults and other Items</td>
<td>Facilities</td>
<td>$2,028,122.00</td>
<td>High</td>
</tr>
<tr>
<td>2019</td>
<td>Phase II of Vehicle and Bus Stop Information Surveillance Systems</td>
<td>Revenue Vehicles</td>
<td>$2,540,000.00</td>
<td>Medium</td>
</tr>
<tr>
<td>2019</td>
<td>Bus Radio Equipment Replacement</td>
<td>Revenue Vehicles</td>
<td>$732,000.00</td>
<td>High</td>
</tr>
<tr>
<td>2019</td>
<td>Bus Operator Seat and Passanger Insert Kits 46 Buses</td>
<td>Revenue Vehicles</td>
<td>$206,478.00</td>
<td>Medium</td>
</tr>
<tr>
<td>2019</td>
<td>Computer Server Room to house Transit Servers</td>
<td>Facilities</td>
<td>$757,898.00</td>
<td>High</td>
</tr>
</tbody>
</table>
PTASP in Planning

**Performance Measures**


**Performance Targets**

- Transit providers set safety performance targets for each measure.
- Targets are shared with the MPO and State DOT.
## Transit Safety Performance Measures

<table>
<thead>
<tr>
<th>Category</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>FATALITIES</td>
<td>Total number of reportable fatalities and rate per total revenue miles by mode</td>
</tr>
<tr>
<td>INJURIES</td>
<td>Total number of reportable injuries and rate per total vehicle revenue miles by mode</td>
</tr>
<tr>
<td>SAFETY EVENTS</td>
<td>Total number of reportable events and rate per total vehicle revenue miles by mode</td>
</tr>
<tr>
<td>SYSTEM RELIABILITY</td>
<td>Mean distance between major mechanical failures by mode</td>
</tr>
</tbody>
</table>
Planning

• States receive safety performance targets from transit agencies to incorporate into their STIPs.

• MPOs are required to set initial safety targets no more than 180 days after receipt of the transit safety plans from the providers, which include the providers’ targets.

• If the transit safety plans are shared on July 20, 2020, the MPO’s initial targets are required to be set by January 20, 2021.
Programming

- Develop plans that link investment priorities to performance targets.
- Integrate different performance-based plans.
- Develop a program of projects.
- Allocate resources.
• Transit providers and States develop TAM Plans with investment priorities to improve the SGR of capital assets.

• TAM Plans by October 1, 2018 (or later, if FTA approved an extension):
  • Individual providers or group sponsors of multiple providers
  • Sent to MPO and State DOT, and updated at least every four years
PTAS in Programming


- Individual providers (only 5307 recipients and sub-recipients) and rail transit agencies

- Transit agencies review plans each year, for possible update

- Includes safety performance targets
Programming

- States and MPOs develop Statewide Transportation Improvement Programs (STIPs) and Transportation Improvement Programs (TIPs) to achieve all performance targets.

- States and MPOs describe anticipated effects of STIPs and TIPs to make progress toward achieving performance targets in Long-Range Statewide Transportation Plans and Metropolitan Transportation Plans.
Programming

- The first descriptions of the anticipated effect of investments in the Transportation Improvement Program (TIP)
  - Triggered by the first TIP update or amendment after October 1, 2018 (TAM) or July 20, 2021 (PTASP)
- The second descriptions
  - Triggered by the next TIP update (not amendment)
Evaluation

- Implement plans and projects.
- Monitor activities.
- Evaluate performance.
- Report outcomes.
TAM in Evaluation

- Annual reports to the National Transit Database (NTD)
  - Individual providers report based on fiscal year
    - Inventory & conditions of transit assets
    - Transit SGR targets Narrative report of annual changes (starting 2019)
PTASP in Evaluation

- Transit providers already submit reports to the National Transit Database (NTD)
  - Fatalities, Injuries and Safety Events (each fiscal year)
  - Total revenue miles by mode (each fiscal year)
  - Does **not** include “Mean distance between major mechanical failures”
  - Does **not** include targets
PTASP & TAM in Evaluation

- The **first** MPO system performance report
  - Is a baseline of the existing conditions and targets
  - Triggered by the first long-range plan update or amendment after
    - First TAM Plan - October 1, 2018
    - First PTASP - July 20, 2021
  - Can include the MPO’s initially-prepared targets, or updated targets
    - Based on the TAM and future Safety measures in respective plans
PTASP & TAM in Evaluation

- The second MPO system performance report
  - Triggered by the next long-range plan update (not an amendment).
  - Describes how the latest (existing) conditions have changed since the baseline report, and how they compare to the targets identified in the first baseline report.
  - Also contains updated transit performance targets.
Nexus between TAM and PTASP

Transit Asset Management (TAM)
TAM rule, 49 CFR Part 625

Safety Management Systems (SMS)
PTASP rule, 49 CFR Part 673

SAFETY MANAGEMENT POLICY (SMP)

SAFETY RISK MANAGEMENT (SRM)
- Safety Hazard Identification
- Safety Risk Mitigation

SAFETY ASSURANCE (SA)
- Safety Performance Monitoring & Measurement
  - Management of Change
  - Continuous Improvement

SAFETY PROMOTION (SP)

NEXUS 1
The Accountable Executive
Reviews and Approves the TAM plan | Reviews and Approves the Agency Safety Plan

NEXUS 2
Condition Assessments can identify potential safety issues, which could undergo safety risk assessment in SRM.

NEXUS 3
TAM data and analysis can be used for performance monitoring and measurement in SA.

NEXUS 4
The outcome of a safety risk assessment in SRM, or safety performance monitoring and measurement in SA, could inform the prioritization of an asset for repair or replacement.

NEXUS 5
The outcome of a safety risk assessment in SRM, or safety performance monitoring and measurement in SA, could inform resources for TAM.
Example: Transit Asset and Safety Management in PBPP

- Through the annual target setting process for rolling stock, City Transit Agency finds that X model bus fleet has exceeded its ULB.
- Which initiates a Safety Risk Assessment through SMS process, City Transit Agency finds that there are a high number of pedestrian injuries along bus route Y due to high levels of pedestrian and vehicle traffic and fleet X also has an obsolete radio system.
- The agency proposes a safety mitigation of moving the bus stops and modifying bus operator training to reduce the safety risk, in addition to purchasing new rolling stock with newer radio system.
- City Transit Agency shares TAM and safety investment priorities and performance targets with State and MPO.
- The MPO leads a process to determine that the high safety risk bus route should be converted to a BRT operation, with new buses purchased for the BRT to replace the fleet over its ULB.
Resources

  - Frequently Asked Questions
  - Fact Sheet

  Guidance on Transit Safety Plans
  - Transit Safety Plan Template for Bus Transit

- [www.transit.dot.gov/TAM](http://www.transit.dot.gov/TAM)