Transit Asset Management 101

Thursday, January 19, 2017
Transit Asset Management

NATIONAL RTAP 101 WEBINAR
JANUARY 19, 2017
Transit Asset Management (TAM) Plan

Background

♦ Originated in MAP-21 – 49 U.S.C. 5326
  ○ Requires Secretary of Transportation to establish and implement a National TAM System which defines “state of good repair”

♦ $89.8 Billion State of Good Repair (SGR) Backlog
  ○ Derived from FTA's Transit Economic Requirements Model (TERM)
  ○ $1.5 Billion a Year is Needed To Keep Backlog From Growing
  ○ Based on newly released Conditions and Performance Report
Transit Asset Management (TAM) Plan

Currently

  - Effective October 1, 2016 with a 2 year implementation period
  - Applies to all recipients and subrecipients of Federal financial assistance under 49 U.S.C. 53 that own, operate or manage capital assets used for providing public transportation
  - Designed to be scalable for small and large systems
  - FTA will provide technical assistance and tools
    - https://www.transit.dot.gov/TAM
Transit Asset Management (TAM) Plan

Plan Is Designed to Assist Providers in...

- Assessing the current condition of its capital assets
- Determining what the condition and performance of its assets should be (if they are not already in a state of good repair)
- Identifying the unacceptable risks, including safety risks, in continuing to use an asset that if not in a state of good repair
- Deciding how to best balance and prioritize reasonably anticipated funds (revenues from all sources) towards improving asset condition and achieving a sufficient level of performance within those means
Transit Asset Management (TAM) Plan

Scalability
Tier I – Owns, operates or manages:
♦ Rail transit mode
♦ More than 101 revenue vehicles
Tier II – Owns, operates or manages:
♦ 100 or fewer revenue vehicles
♦ Or is a rural subrecipient under 5311, or an American Indian Tribe
♦ Has no rail or fixed guideway
Tier I Transit Asset Management Plan includes

- Inventory, number and type of capital assets
- Condition report of those assets
- Description of analytical process or decision making tools
- Project-based prioritization of investments
- TAM and SGR policy
- TAM’s implementation strategy
- Description of key TAM activities
- Summary or list of resources including personnel to carry out TAM
- Outline of monitoring, update and evaluation of TAM
Transit Asset Management (TAM) Plan

Tier II – Transit Asset Management Plan includes

- Inventory, number and type of capital assets
- Condition report of those assets
- Description of analytical process or decision making tools
- Project-based prioritization of investments

Tier II providers may be part of a group plan with a sponsor (eg. State DOT)
Transit Asset Management (TAM) Plan

State of Good Repair (SGR) and Safety Management Systems (SMS)

♦ A TAM helps to identify safety risk through asset management in determining SGR of an asset and mitigation strategies

♦ Both a TAM and SMS require a designated Accountable Executive responsible for ensuring funding and culture in place to support both

♦ Performance measures are required with both
Transit Asset Management TAM Plan

Tier II – Where do I start?

Developing a Transit Asset Management Plan requires

- Accurate data collection and reporting
- Organization of data and asset related policies (i.e. Preventive Maintenance Program for vehicles, facilities and equipment, vehicle disposition, asset monitoring)
- Development of goals and performance measures
- Investment and replacement strategies
## Tier II – Asset Categories

<table>
<thead>
<tr>
<th>Asset Category</th>
<th>Asset Class</th>
<th>Asset Sub-Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rolling Stock</td>
<td>Bus</td>
<td>35' +</td>
</tr>
<tr>
<td></td>
<td>Medium Bus</td>
<td>Cutaway</td>
</tr>
<tr>
<td></td>
<td>Van/Car</td>
<td>15pas</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Minivan</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Auto</td>
</tr>
<tr>
<td>Facility</td>
<td>Support Facilities</td>
<td>Administration</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Maintenance</td>
</tr>
<tr>
<td></td>
<td>Passenger Facilities</td>
<td>Transfer Center</td>
</tr>
<tr>
<td></td>
<td>Parking Facilities</td>
<td>Park and Ride</td>
</tr>
<tr>
<td>Equipment</td>
<td>Maintenance</td>
<td>Lift System</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bus Wash System</td>
</tr>
<tr>
<td></td>
<td>Non Rev. Vehicles</td>
<td>Service Truck</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Admin Car</td>
</tr>
</tbody>
</table>
How do I classify my vehicles?

Table ES-1
Minimum Service-life categories for Buses and Vans

<table>
<thead>
<tr>
<th>Category</th>
<th>Length</th>
<th>Approx. GVW</th>
<th>Seats</th>
<th>Average Cost</th>
<th>Minimum Life</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heavy-Duty Large Bus</td>
<td>35 to 48 ft and 60 ft artic.</td>
<td>33,000 to 40,000</td>
<td>27 to 40</td>
<td>$325,000 to over $600,000</td>
<td>12</td>
</tr>
<tr>
<td>Heavy-Duty Small Bus</td>
<td>30 ft</td>
<td>26,000 to 33,000</td>
<td>26 to 35</td>
<td>$200,000 to $325,000</td>
<td>10</td>
</tr>
<tr>
<td>Medium-Duty and Purpose-Built Bus</td>
<td>30 ft</td>
<td>16,000 to 26,000</td>
<td>22 to 30</td>
<td>$75,000 to $175,000</td>
<td>7</td>
</tr>
<tr>
<td>Light-Duty Mid-Sized Bus</td>
<td>25 to 35 ft</td>
<td>10,000 to 16,000</td>
<td>16 to 25</td>
<td>$50,000 to $65,000</td>
<td>5</td>
</tr>
<tr>
<td>Light-Duty Small Bus, Cutaways, and Modified Van</td>
<td>16 to 28 ft</td>
<td>6,000 to 14,000</td>
<td>10 to 22</td>
<td>$30,000 to $40,000</td>
<td>4</td>
</tr>
</tbody>
</table>

FTA Circular 5010.1D
Defining State of Good Repair (SGR)

What factors go into defining SGR?

♦ **Useful Life Benchmark** – most common factor and user defined

♦ **Useful Mileage Benchmark** – mileage based factor used to identify excess mileage rolling stock that may exceed SGR though not exceeding ULB

♦ **Condition Assessment** – rating scale of vehicle condition, maintenance, safety
Defining State of Good Repair (SGR)

Defining SGR based on Useful Life Benchmarks (ULB)

- Useful life is user defined based on operating environment, historical evidence, manufacturer guidelines, and other relevant factors.
  - System A runs 4 year old vehicle 4 hours a day
  - System B runs 4 year old vehicle 20 hours a day
- There must be a rationale behind useful life definitions, not necessarily tied to funding cycles.
- Can be used in defining performance targets, lifecycle costs and maintenance structure.
- ULB’s should be re-visited periodically to determine if adjustments are necessary.
- FTA considers ULB as the age at which a vehicle is expected to reach condition 2.5 (on a scale of 1 to 5)
Defining State of Good Repair (SGR)

Useful Life Mileage

- Taken from inspections and periodic reporting requirements
- Comparison of Useful Life Mileage to current mileage
- A factor to be used in addition to other factors for determining SGR and asset management (replacement, re-condition)
- Can be used in defining performance targets, lifecycle costs and maintenance structure
- Must still be able to translate mileage expectations into the age-based ULB that are required by FTA
Defining State of Good Repair (SGR)

Condition Assessment

♦ Typical State of Good Repair (SGR) includes ranks 3-5
♦ Description of ranking is determined by transit system.
♦ A factor to be used in addition to other factors for determining SGR and asset management (replacement, re-condition)
♦ Can be used in defining performance targets, lifecycle costs and maintenance structure
♦ Assessments must be conducted on a consistent basis – must be well defined.
♦ Can use FTA’s Transit Economic Requirement Model (TERM) in assessing facilities. (must be 5 point scale)
Defining State of Good Repair (SGR)

Condition Assessment cont..

- Not needed for third party assets if no direct capital interest

Sample from WVDOT

<table>
<thead>
<tr>
<th>Rank</th>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Excellent</td>
<td>Brand new, no major problems exist, only routine preventive maintenance.</td>
</tr>
<tr>
<td>4</td>
<td>Good</td>
<td>Elements are in good working order, requiring only nominal or infrequent minor repairs (greater than 6 months between minor repairs).</td>
</tr>
<tr>
<td>3</td>
<td>Fair</td>
<td>Requires frequent minor repairs (less than 6 months between repairs) or infrequent major repairs (more than 6 months between major repairs).</td>
</tr>
<tr>
<td>2</td>
<td>Poor</td>
<td>Requires frequent major repairs (less than 6 months between major repairs).</td>
</tr>
<tr>
<td>1</td>
<td>Bad</td>
<td>In poor condition that continued use presents potential problems.</td>
</tr>
</tbody>
</table>
Data Collection

Start by collecting data

- Fleet list
  - Vehicle ID
  - Vehicle Type
  - Mileage
  - Year built/in service
  - Condition
  - Purchase price
  - Anticipated Replacement or Rehab Year
  - Seating Capacity and WC positions
  - Status of Vehicle
  - Length of Vehicle
  - Fuel Type
Data Collection

Additional data to be included in TAM Plan

- Rolling Stock and Facility Maintenance Plans
- Decision Making Tools (Prioritizing replace or refurbish)
- Preventive Maintenance Programs
- Inspection Details
- Maintenance Costs for Life of Asset
- Relevant policies (i.e. procurement, disposition)
Defining Targets

Performance Targets must be developed and revisited annually.

♦ Based on current data
♦ Should be reasonable and achievable
♦ Quantifiable
♦ Incorporate other factors like funding, operational changes, and planning
♦ Optional for 2016-2017
<table>
<thead>
<tr>
<th>Asset Category</th>
<th>Asset Class</th>
<th>Asset Sub-Class</th>
<th>Performance Targets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rolling Stock</td>
<td>Bus</td>
<td>35' +</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Medium Bus</td>
<td>25'-35'</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Van/Car</td>
<td>15pas</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Minivan</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Auto</td>
<td></td>
</tr>
<tr>
<td>Facility</td>
<td>Support Facilities</td>
<td>Administration</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Maintenance</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Passenger Facilities</td>
<td>Transfer Center</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Parking Facilities</td>
<td>Park and Ride</td>
<td></td>
</tr>
<tr>
<td>Equipment</td>
<td>Maintenance</td>
<td>Lift System</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bus Wash System</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Non Rev. Vehicles</td>
<td>Service Truck</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Admin Car</td>
<td></td>
</tr>
</tbody>
</table>
Asset Management

- Prioritize replacement through analysis and decision making tools
- Determine asset replacement through a combination of factors (Useful Life, Useful Mileage, Condition Assessment, Funding, Service Planning)
- Review of Life cycle costs over the life of the vehicle, facility or equipment
TAM Plans

Systems will be required to develop TAM Plans by October, 2018.

States may choose to be sponsor for rural public transit systems and develop a statewide plan.

Many States have developed an asset inventory program taking into account TAM elements.
Benefits:
This requirement, though data intensive, once set-up can be easily updated.

TAM can be used as a planning tool.

TAM Plans will provide FTA with a nationwide State of Good Repair to help with infrastructure investments in the future.
Thank You

Kelly Shawn
RLS & Associates
KShawn@rlsandassoc.com
(703)919-9237
Thank you!

National RTAP
888-589-6821
info@nationalrtap.org
nationalrtap.org
facebook.com/nationalrtap

Recording will be available at nationalrtap.org/webinars; transcripts available upon request

Rob Tassinari
Senior Technical Director
rtassinari@nationalrtap.org

3rd National RTAP Technical Assistance Conference
Oct 29-Nov 1, 2017
Omaha, Nebraska
nationalrtap.org/conference2017

U.S. Department of Transportation
Federal Transit Administration