Lessons Learned in the Implementation and Public Transit Tracks

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Southeastern Pennsylvania Transportation Authority
Track Summary

• 57 abstracts submitted
• 6 sessions with 24 presentations
  – 3 cosponsored sessions
• 5 poster presentations
• Diverse representation from DOT, MPO, agencies, and practitioners
Two Common Themes

• The State of the Practice is a “Work in Progress.”

• Regulatory Compliance is a Target (but Not the End Goal)
Implementation and Public Transit Tracks

Evolution of the Practice
Evolution of the Practice: Implementation

• Continuation of programs that had started before MAP-21

• Approach may vary depending on agency composition and goals
  – Programmatic
  – Asset-Class Driven
Evolution of the Practice: Implementation

- A shift in culture has enabled evolution.
  - Common vernacular
  - Increased transparency
  - Data-informed decision-making
Evolution of the Practice: Implementation

• Moving the Dial: People, Process, and Technology
  – Defining metrics for management
  – Mapping processes to collect data that informs decisions

• Collaboration among agencies
Implementation and Public Transit Tracks

Sustainability
Sustainability: Implementation

• Executive Champion is Key.

• Solid Framework is integral to ensuring sustainability
  – Shape of the framework will change based on agency
Sustainability: Implementation

• Keep it simple.

• Data handoff protocol.

• Customer focus.
Implementation and Public Transit Tracks

Technology
Technology: Implementation

• Field Data Collection Methods
  – LIDR
  – Mobile Units

• IT Governance Standard

• Data Integrity and Cost
Data for Multiple Audiences

Implementation and Public Transit Tracks
Data for Multiple Audiences: Implementation

• Many “customers” of asset management.

• Data must speak to a diverse audience.
  – Front Line Staff
  – Agency Executives
  – Riding Public
  – Decision Makers
We want to hear your story at the 2018 Conference.
Summary of “Take the A Train: Transit Asset Management Implementation” session

11th National Conference on Transportation Asset Management
Presented July, 12 2016
Speakers

• Robin Roever, Chicago Transit Authority (CTA)
  Linear Asset Management Implementation

• Yvonne Carney, Washington Metropolitan Area Transit Authority (WMATA)
  Target Setting in Transit: Using Data to Involve Staff Across an Agency

• Laura Zale, Southeastern Pennsylvania Transportation Authority (SEPTA)
  Implementing and Asset Management Program at a Legacy Transit System

• Rick Laver, CH2M
  TAM Implementation: Lessons Learned

Session Recording
Session Objective

• This session provides an overview of the implementation of asset management programs at various transit agencies.
• Presenters highlight modifications to business processes, the establishment of performance targets, and lessons learned through implementation.
CTA presentation

• Presented their Linear Asset Management project lessons for Track, Structures, and Signals
• Great walk through of how CTA has set up their asset hierarchy and data collection procedures
  – System level data collection
  – Data attributes/roll-ups at location
• CTA’s asset age & complexity led to a highly complex enterprise asset management (EAM) implementation
• Legacy software created unique implementation issues
CTA lessons learned

• Mobile data collection issues (safety, design, functionality)
• Scalable asset inventory that supports multiple department’s needs
• Proof of concept and requirements documents for major functionality of software
• Prioritize a vendors ability to demo software functionality
• Involve key end users
• Plan more time and cost if shifting from legacy software
• Having the right decision makers involved, at the right time
• Use a phased approach
• Tie business practices to technology to support data management
WMATA presentation

• Presented the 5 components of their Performance Management Approach

• Elaborating on the relationship of Key Performance Indicators (KPI) and Measures to Targets

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**Board Goals, GM Priorities**
- Where we want to go

KPIs & Measures
- Track progress toward goals

Targets
- Sets end point/defines success

Business Plans & Actions
- Plan the work and identify resources

Report Results
- Assess and report results
Goal: Meet or exceed customer expectations by delivering quality service

Key Performance Indicator (KPI): Rail Fleet Reliability

Target:
Current CY15 Target: 65,000
Recommended CY16 Target: 61,000

Explanation of importance:
Low spare ratio means limited flexibility to keep cars out of service for repair, inadequate parts inventories, and cars not hardened for winter
WMATA lessons learned

- Factors to consider in setting a performance measure and target

<table>
<thead>
<tr>
<th>Audience</th>
<th>Purpose</th>
<th>Inputs</th>
<th>Target Type</th>
<th>Timeframe</th>
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</thead>
<tbody>
<tr>
<td>External</td>
<td>Stretch</td>
<td>Data trends</td>
<td>Percent change</td>
<td>Weekly</td>
</tr>
<tr>
<td>Internal</td>
<td>Easy to attain</td>
<td>Actions</td>
<td>Number</td>
<td>Monthly</td>
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<td></td>
<td>Manage expectations</td>
<td>Resources</td>
<td>Return to base year</td>
<td>Annually</td>
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<td>Externalities</td>
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<td>Challenges</td>
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SEPTA presentation

- Presented status update of ongoing Enterprise Maintenance Management System and Asset Management Implementation
- “Gives Transit Needs a Voice”
- Diverse Asset Portfolio and Legacy Systems
- Data Supported Decision Framework
- Lifecycle Data Drives Planning
  - Substation Program Prioritized by risk
  - Weather resiliency addresses risk
- SEPTA Replaced 150 miles of catenary
Data Supported Decision Framework

VMIS

IMMS

Asset Maintenance Data

Capital Asset Data

Project Development and Planning

Program Deliverables

SGR Database

Informs

Capital Planning

Operations

Scope

Growth

Mandates

Adaptation

Funding

Partnership

Informs
CH2M presentation

• Presented considerations, challenges and uses of Inventory, Condition Assessments and Performance Measures

• Inventory
  – Need to assess Capabilities and Develop Long-term plan
  – What level of detail
    – Focus on assets that generate most needs
    – Avoid maintaining records for low cost assets
• Condition Assessment
  – Risk-based condition assessment (sampling)
  – Multiple views and uses of Condition Data
    – High: helpful for reporting
    – Mid: assessing distribution of need, critical priority and risk
    – Low: details for asset managers
CH2M presentation

• Performance Measures
  – Useful to measure Current status and Progress towards targets
  – Many SGR PMs (e.g., backlog, condition) are really
    – “Indicators” of performance or Measure of financial need
  – Ensure PM calculations provide true “apples to apples” trend comparisons
CH2M Lessons Learned

• Develop a data collection / maintenance plan:
  – Collect data to align with your decision making needs (start simply)
  – Ensure data value exceeds cost of collection
  – Develop long-term plan to maintain inventory data efficiently

• Ensure data value is fully exploited

• Take care when calculating and comparing aggregate Performance Measure trends
  – Adjust for changes in costs, policies, level of detail
Transit Asset Management
11th National Conference on Transportation Asset Management

Moving the Dial – Realizing the Benefits of Asset Management

10:00 to 11:30 am
July 12, 2016
Moderator’s Lessons Learned Overview

David Rose, PhD
Director Business and Technology Solutions
Gannett Fleming, Inc.
drose@gfnet.com
Moving the Dial – The Panel

Successes, Challenges and What’s Next?
Q & A from the Front Lines

- David Rose, Gannett Fleming
- Collette T. Ericsson, P.E., LEED A.P., ENV SP, CRL MTA Bus & New York City Transit Dept. of Buses
  - Chief Sustainability Officer & Enterprise Asset Management Lead
- John McCormick, Bay Area Rapid Transit District
  - Department Manager, Operations Planning
- Mike Hubbell, Dallas Area Rapid Transit
  - Vice President, Maintenance
- Lou Cripps, Denver RTD
  - Senior Manager, Asset Management
- Paul Edwards, Utah Transit Authority
  - Senior Program Manager
- Satyen Patel, Massachusetts Bay Transportation Authority
  - Director of Asset Management
If you Want to Dive Deeper

Session Background Paper

Full Session Recording
- http://events.webcastingconferences.com/708_trb_asset_management/lobby/2.5.2.php
The Context and the Questions Discussed

1. What Asset Management Results are Your Agency Managing to?
   - 12, months, 24 months, Next 5 years

2. What are Your Top 3 Successes - Measured by Business Impact?

3. What are Your Barriers to Moving the Dial? How Are You Addressing Them?

4. What is Next? How Can We Add Value and How Long Will It Take?
"I am tired of hearing that we are on a journey, we need to get somewhere!"

Owner’s quote about their EAM program
## Context

**The ROI Promise “Significant Long-Term Benefits”**

<table>
<thead>
<tr>
<th>Business Scenario</th>
<th>Key ROI Data Points</th>
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<tbody>
<tr>
<td>Labor Utilization</td>
<td>Up 10 - 20%</td>
</tr>
<tr>
<td>Asset Availability</td>
<td>Up 3 - 10%</td>
</tr>
<tr>
<td>New Equipment Purchases</td>
<td>Down 3 - 5%</td>
</tr>
<tr>
<td>Warranty Recovery</td>
<td>Up 10 - 50%</td>
</tr>
<tr>
<td>Inventory</td>
<td>Down 20 - 30%</td>
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<tr>
<td>Inventory Carrying Costs</td>
<td>Down 5-20%</td>
</tr>
<tr>
<td>Material Costs</td>
<td>Down 5 - 10%</td>
</tr>
<tr>
<td>Purchasing Costs</td>
<td>Down 10 - 50%</td>
</tr>
</tbody>
</table>

Source: Gartner Group Report: G00122453
**Lesson learned #1**

- Requires sustained leadership support
- Multi-year effort
- Benefits in years not months

**Moving the Dial** Involves Agency (Enterprise) Wide Change

- Lifecycle management process
- Decision-making process: capital planning, procurement, and M&O
- Asset information data and technology
- New competencies and new collaborations

**The management challenges**

- Implementation price tag is high: budget, pain experienced by front line employees and supervisors, leadership band-width consumed.
- Benefits don’t flow until something is implemented and this can be a number of years into the future.
- Getting results and realizing benefits as we put in place the building blocks for mature asset management presents one of the greatest challenges we face.
Lessons Learned

#2

Technology enabled business change is key.

Provides the data and tools for basic asset management, reliability engineering, and performance management.

Establishing Basic EAM Maturity is Foundational: Inventory, Location, Condition ... and then performance history

Requires much change management of people, process, and technology across the

Can take 5+ years. I am including implementation planning, data capture and cleansing and other change....

Basic Asset Management Maturity
Requires EAM Information that Addresses

- Asset hierarchy
- Location hierarchy
- Maintenance data, Failure data
- Asset registration, Asset inventory
- Condition Inspection and Performance data
- Work order management
- Maintenance crew scheduling
- Fault management

David Rose, Gannett Fleming, Inc.
Lessons Learned # 3

People and Organization are Key

Provide a common language and a common understanding for asset management and specify Target State and interim states on route

Establish an Asset Management organization to provide leadership across the enterprise key to success

Focusing the organization on asset management information – and the use of that data for decision-making
What is Next?

- Using/Linking inventory attribute data for capital planning, prioritization

- Lifecycle cost information and incorporation into opex and capex planning and asset creation

- Reliability centered maintenance