Implementing an Asset Management Program at a Legacy Transit System During a Capital Funding Crisis

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The Southeastern Pennsylvania Transportation Authority is a Legacy Transportation System.

- SEPTA was created between 1964 and 1983 from the consolidation of bankrupt regional transportation providers.
- Many assets had fallen into a state of disrepair before SEPTA assumed operations.
- Documentation on assets was lacking.
The Resulting System is Expansive and Multimodal.

- Sixth largest public transportation agency in the country.
- Operating area: 2,200 square miles.
- 1.2 million passenger trips per day.
- Modes Operated:
  - Heavy Rail
  - Commuter (Regional) Rail
  - Light Rail
  - Bus
  - Trackless Trolley
  - Paratransit
- Commuter (Regional Rail) trains also utilize infrastructure owned by Amtrak and CSX.
SEPTA Operates Approximately 3,000 Revenue Vehicles...
... On a Diverse Portfolio of Infrastructure Assets.
Achieving a State of Good Repair is a Core Business Goal that Drives Investment Decisions.

- Reinvestment in “core areas.”
- Maintenance activities that extend useful life for vehicles and infrastructure.
A Need to Prioritize Limited Capital Funds and to Demonstrate our Needs

- SEPTA had lost a large portion of dedicated transportation funding.
- Unfunded mandates put additional strain on the capital budget.
- Increased Ridership.
- SEPTA has partnered with Federal, State, and Local officials to demonstrate Capital Needs.
- Transit Asset Management Program started with FTA Grant (November 2010).
### SEPTA TAM Program Overview

<table>
<thead>
<tr>
<th>Section</th>
<th>Details</th>
</tr>
</thead>
</table>
| Vehicle & Infrastructure Maintenance Management Systems | • Granular Asset Inventories  
• Condition  
• Lifecycle and Maintenance Management |
| SGR Database                                         | • Capital Asset Inventory  
• Investment Prioritization |
| Asset Management Plan                                | • Policy on how assets are maintained throughout lifecycle.  
• Will define how new systems will be updated and maintained. |
Transportation Asset Management Program Team

Executive Sponsor
- J. Knueppel
  - DGM

Senior Level Stakeholders
- W. Zebrowski
  - CIO
- R. Hopkins
  - AGM Operations
- R. Lund
  - AGM EM&C
- K. Jurgelewicz
  - P, PC, and S

Implementation Team
- L. Kamau
  - VMIS
- M. Honebrink
  - Administration and Finance
- A. Gillespie
  - Chief Engineer
- J. Williams
  - IMMS

Asset Maintainers
- Bus
- Rail
- ET
- Track
- C&S
- B&B
Criteria for Choosing Tools

- Ability to incorporate data collection into existing business processes as much as possible.
- Build upon successes in legacy fleet management system.
- Successful implementation at other transit agencies of similar size and complexity.
  - AECOM SGR Database (MBTA)
  - AssetWorks FA Suite (MARTA)
- Flexibility to be used across the business units that maintain assets.
Quantifying our Backlog and Required Investment Levels

Current SGR Backlog: $5.0 Billion

20 Year Rehabilitation/Replacement Needs: $8.5 Billion

Total SGR Needs: $13.5 Billion

- Bridges: $859.0, 17.2%
- Communications and Signals: $329.2, 6.6%
- Maintenance Facilities: $111.0, 2.2%
- Power: $413.5, 8.3%
- Stations: $517.5, 10.4%
- Track: $420.6, 8.4%
- Tunnels: $310.5, 6.2%
- Vehicles: $2,038.8, 40.8%
Annual SGR Needs by Asset Type

20-year Average Need = $658.7 million (2011$)
Quantifying our Backlog and Required Investment Levels

Note: Funding levels and backlog are in 2011$. 

2013 Level of Spending ($200 M/ year)
Maintain Existing Backlog ($329 M/ year)
Eliminate Backlog in 20 Years ($652 M/ year)
Demonstrating Impact of Backlog on Service Viability and Reliability

Track Timbers, Painting & Structural Repairs ($24M) + Replace Crum Creek Viaduct ($60M) + Overhaul Morton and Lenni Substations ($19.6M) = Immediate Need ($103.6M)
Service Realignment Plan: 10 Year Reduction of Service Based on Unaddressed SGR Needs
The Output from the TAM Programs Gave the Infrastructure a Voice.


- SEPTA has developed a “Catching Up” Program.
  - SGR Needs are mapped to Capital Projects
  - Work to reduce SGR backlog
  - Sustainable funding source allows SEPTA to address future SGR needs.
State of Good Repair Projects are Incorporated into SEPTA’s Five-Year Plans
Catching Up on State of Good Repair Investments
Media/Elwyn Line, Delaware County, Pennsylvania

Secane Station
Station Improvements
Project Scope:
The project improvements for Secane Station include a new station building, new passenger access for crossing the tracks, new high level platforms, and canopies. The existing station building will be demolished. A new station building at the site will be constructed. Once the improvements are made, the station will be compliant with the requirements of the Americans with Disabilities Act (ADA).
Estimated Construction Start: Spring 2014
Project Cost: $2.5 Million

Overhead Catenary Replacement Program
Project Scope:
This project will include the replacement of 17 miles of catenary and repairs to the support structures and foundations. The catenary and foundations are the two main components that keep the trains in motion. The project will replace 17 miles of catenary, as well as the supporting structures.
Estimated Construction Start: Summer 2014
Project Cost: $6.7 Million

Bridge Structure Rehabilitation Program
Project Scope:
The project will consist of the rehabilitation and repair of the bridge superstructure and substructure, including the bridge deck, bearings, and other structural elements.
Estimated Construction Start: Fall 2014
Project Cost: $4.5 Million

Crum Creek Viaduct Replacement
Project Scope:
Replacement of Crum Creek Viaduct. The viaduct spans 1,440 feet and is one of the largest structures on the Media/Elwyn Line. The viaduct was constructed in 1936. The estimated cost for the project is $57.0 Million.
Estimated Construction Start: Summer 2015
Project Cost: $57.0 Million

Power Substation Overhaul Program
Project Scope:
Replacement of overhead catenary system. The project will replace all overhead catenary systems in the two substations that provide power to the Media/Elwyn Line. The project will replace the existing overhead catenary system with a new, more efficient system.
Estimated Construction Start: Summer 2016
Project Cost: $21.5 Million

Reinvesting in Core Infrastructure in Delaware County
The New Funding will Still Require SEPTA to Prioritize Investments.
The TAM Program will Improve SEPTA’s Efficiency and Effectiveness at Maintaining Assets.

- The new and improved TAM Programs will allow SEPTA to
  - Identify measures/funding levels required to bring the system to a State of Good Repair;
  - Analyze the impacts of various funding and policy scenarios;
  - Provide quantitative analysis for prioritizing/selecting projects for the capital plan; and
  - Articulate the case for capital funding.
We have a responsibility to maintain the system for our riders, regional stakeholders... ... and future riders.
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