

# Current Asset Management Practices



**4th** Federal Transit Administration  
**State of Good Repair Conference**  
July 16-18, 2012 • Philadelphia, PA

# Overview of Assets

## Visible Infrastructure

- 6,737 Railcars
- 4,336 Buses
- 468 Stations (with 409 elevators/escalators)



# Overview of Assets

## Invisible Infrastructure

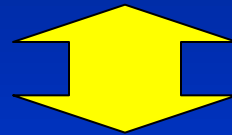
230	Pump Rooms
216	Power Substations
720	Miles of Track
3,446	Miles of Power Cabling
190	Fan Plants
16	Railcar Maintenance/Overhaul Shops
24	Rail Yards
728	Signal track miles (183 interlockings)
1,541	Mainline Switches
23	Bus Depots/Shops
136	Subway tunnel route miles
70	Elevated structure route miles
22	At-grade route miles





# Capital Planning Process

## 20-Year Needs Assessment



## Rolling Five-Year Plan Process



# 20-Year Needs Assessment

## Step One - Asset Inventory & Conditions

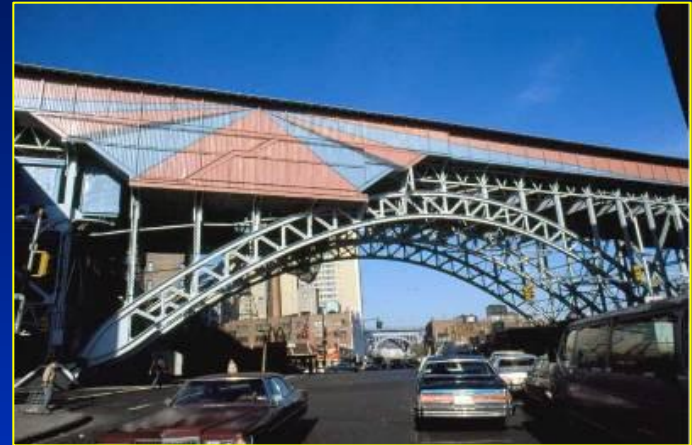
- Asset inventory updated by user groups
- Includes location, age, most recent capital investment, and a 1-4 condition rating
- Condition of assets: typically an extract of more detailed maintenance data
- Determination of whether asset is in good repair or not



# 20-Year Needs Assessment

## Step Two - Investment Pace and Strategy Statements

- Statement required for each investment group (e.g., signals, station rehabilitation)
- Provides rationale/justification for level of investment and timing
- Pace and strategy also guided by other agency planning efforts (e.g., compliance issues, operations directives, constructability)

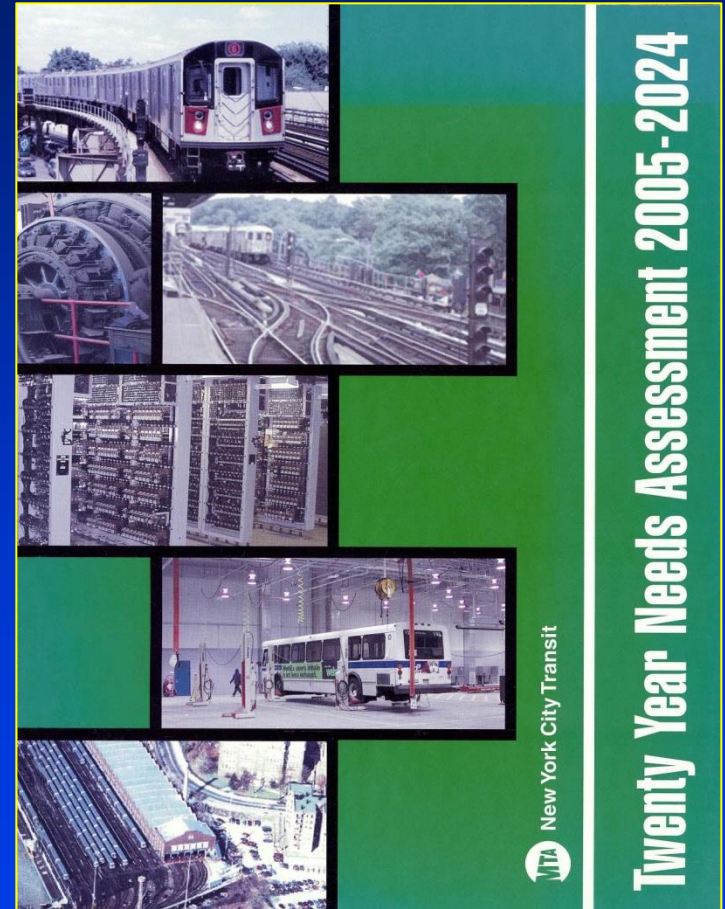


# 20-Year Needs Assessment

## Final Product

Investment strategy of five year increments:

- Number of units (total #, in SGR)
- Investment projections, in dollars and units
- Updated every five years
- Broadly defined dollar constraints



# Managing the Asset Data

## Project Status Reporting (PSR) system

- Home-grown system (Oracle server-Windows client)
  - Project budgets/milestones
  - Project description/purpose
- Asset records have been added to the system
  - Project-to-asset linkages for reporting on capital projects from asset perspective
- Outputs include:
  - Capital program progress to MTA Board
  - Website information
  - Federal biennial “satisfactory continuing control”
- Continual enhancements with a dedicated staff of application specialists



# Examples of Asset Groups

➤ Track

➤ Subway Cars

➤ Traction Power

➤ Stations

- Each group has different levels of asset management “sophistication”
- Each has different levels of detail depending on the maintainer and the needs of the capital plan and 20-year needs process (grain of investment)

# Track and Switches

720 miles of track, 1,541 switches

Multi-level inspection and assessment protocols; weekly, monthly, quadrennial condition assessments

Detailed database by track segment:

- Defects to be fixed by maintenance.
- Major issues affecting replacement decisions, e.g. track type, alignment, etc.
- Expected remaining useful life



Track reconstruction priorities weighed by ROW access opportunities

Condition data is maintained in Excel spreadsheets based on quadrennial condition assessments

# Subway Cars

6,737 cars in fleet

- Replacements programmed on 40-year useful life, based on irreparable structural fatigue
- Detailed investigations influence specific retirement decisions, e.g. 42-year-old cars retained while 36-year-old cars with structural deterioration were retired
- Summary of car class characteristics is extracted from detailed operating data and maintained in Excel spreadsheets



# Traction Power

216 substations; 303 circuit breaker houses;  
3,446 miles of power cables

Substations components rated separately, informing a **component based investment** strategy

- Enclosures
- Rectifiers
- Utility feeders/transformers

Excel spreadsheets updated  
from operating information

- Asset condition determines  
SGR status





# 468 Stations

277 subway, 142 elevated, 49 at-grade



- Condition-based survey of station elements – performed every five years
- Coordinated consultant teams collect data over a 12-month period
- Over 14,000 components rated, including: stairs, platforms, mezzanines, windscreens, and canopies
- Condition data kept in an Oracle database; allows tracking of repair progress and updated condition information

# ***NYCT has numerous, complex and sizeable assets to maintain***

## **Several Means to End**

- Different asset = different means of gathering and maintaining asset information
- Simple spreadsheet tools

## **Value of Accurate / Timely Data**

- Proper planning leads to fewer surprises
- Foresees size of problem/scale of the roll-out for asset investment

## **Consistency of Condition Data from Program to Program**

- Changes over time must be explainable by investment, degradation, or obsolescence.

## Next Steps

*Move to enterprise-wide asset management, to align capital investment with maintenance and operations toward optimal whole-life costs*

- Decide on suitability of available standards: PAS 55, ISO 55000
- Design standardized core business processes -- work orders; failure analysis; performance reporting
- Roll out as a pilot to selected infrastructure categories
- Develop models for whole life costs, including O&M, capital renewal/replacement