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
- Asset Inventory and Condition Assessment
- Investment Pace & Strategy
- 20-Year Investment Summaries

Rolling Five-Year Plan Process
- Project Problem Statement
- Project Scoping
- Design/Construction
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