Flushing Line

2016 Town Hall

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Sunnyside, Queens

New York City Transit
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Flushing Line At A Glance

- 27.5 Miles of Track
- 22 Stations
  - 34th Street-Hudson Yards opened in September, 2015
- Average Daily Ridership:
  - Weekday = 525,000
  - Saturday = 350,000
  - Sunday = 300,000
- 7 line (tied with the 6 line) has the most frequency of service in the entire system.
- 27 Trains per hour in each direction during Weekday Peak
Operational Challenges

- Aging Signal System
- Aging Track Panels
- Bottlenecks
  - Steinway Tubes
  - Track Configuration (2 track segments).
- Elevated Line’s Particular Restrictions
- High Ridership (Peak and Off-Peak) and High Service Frequency
Aging Signal System

- Flushing line uses “Fixed Block Signal System,” parts of which are almost 100 years old
- Old and Malfunctioning signal equipment is a significant source of incidents and delays
Aging Track Panels

- 25-year lifespan. Some sections are over 30 years old.
- Face increased deterioration due to weathering.
- Worn or damaged track can lead to major service problems, including emergency “slow speed orders.”
- In a 24/7 system, replacing tracks is, in itself, a source of delays.
Bottleneck: Steinway Tubes

- Two single track “Tubes” that pre-date the subway system.
- Suffered age-related deterioration and damage from Superstorm Sandy in 2012.
- No clearance for workers to occupy Tubes while trains are running.
- Adds to delays by exacerbating impact of incidents due to space constraints.
Bottleneck: 2-Track Railway Configuration

- West of 33 St-Rawson, the line drops from 3 tracks to 2 tracks
- Merging of trains into 2 tracks, with Local and Express services sharing the Right-Of-Way, coupled with high service frequency, creates bottlenecks and more room for delays.
- 2-Track segments pose problems for maintenance and capital improvement work.
Elevated Line

- Most work must be done during daylight hours, when ridership is higher.
- For employee safety, work is done “under flagging,” requiring trains to travel at slower speeds.
- Cranes hoist heavy track segments from street level, requiring service disruptions as track panel swings overhead.
- Traffic patterns on roadways beneath structure are impacted.
- Work is greatly affected by weather.
High Ridership and High Frequency of Service

- High Ridership on the 7 requires High Frequency of Service
  - 7 Line’s High Frequency of Service amplifies service impacts because more individual trains are affected by delays for each individual incident.

- Ridership on the 7 is high at all times:
  - This leaves little room to suspend service without inconveniencing thousands of customers
Confronting These Challenges:

- Communications-Based Train Control (CBTC)
- Track Panel Replacement
- Steinway Tube Reconstruction and Rehabilitation
- Capital Investments
- Operational Initiatives
Communications-Based Train Control (CBTC)

- $774 million capital improvement to replace old signal system
- Completed by end of 2017
- Improve system safety, reliability, capacity, and flexibility
- Allow for real-time arrival information for trains at stations
- New cars - CBTC needs compatible trains

Track Circuit Cases

CBTC Radios and Antennas
Track Panel Replacement

- By the end of 2016, we will have replaced 45,708 feet of old track panels at a cost of $213,000,000.

- Track panel replacement work is a cause for delays, but we are almost done.

- By end of 2016, 94% of the Flushing line’s tracks will be within the lifespan for use.
We are one weekend’s work away from being done with the Sandy-related repairs.

We will complete the reconstruction, rehabilitation, and fortification of the Steinway Tubes by the end of the month.

We have repaired the duct banks, cables, communications, tracks, pump rooms, discharge lines, and electrical equipment in the Tubes.

Total Cost for this work: Approximately $41 million.

Reconstructed Duct Bank
Additional Capital Investments

- **Stations**
  - Component Renewals: (2015-2019 Capital Program)
    - Junction Boulevard - 2017
    - Elmhurst Avenue/90th Street - 2017

- Station Renewals: (2015-2019 Capital Program)
  - Mets-Willets Point - 2018
  - 111th Street - 2018
  - 103 Street-Corona Plaza - 2018
  - 82 Street-Jackson Heights - 2018
  - 69 Street - 2019
  - 61 Street-Woodside - 2019
  - 52 Street - 2019
Additional Capital Investments

- **Structural Painting:**
  - Hunters Point to Queensboro Plaza: Completed in 2004.
  - Queensboro Plaza to 33 St-Rawson: Completed in 2005.
  - Main Street to Junction Boulevard: Completed in 2011.
  - 72nd Street to 103rd Street contract will be awarded in 2017.
  - 48th Street to 72nd Street contract will be awarded in 2019.

- **Help Point Installation**
  - 16 stations have Help Point Installed and 6 stations remain with installation slated for 2017.
Operational Initiatives

- Incident Prevention
  - Enhanced Right of Way (ROW) inspections to correct defects.
  - Installation of 3rd rail heaters at Queensboro Plaza, 33rd Rawson, 52nd Street, 61st Street and the track section south of Main Street to reduce impact of ice and snow.

- Incident Mitigation
  - Combined Action Teams (CATs) – to respond to major incidents.
  - Additional staff to improve response to ROW incidents, including central coordination at the Rail Control Center and additional Train Service Supervisors at major 7 Line stations.

- Service Delivery
  - Platform Controllers – stationed at Grand Central, Queensboro Plaza, and 74th St/Broadway.
Conclusion

- 7 Line is one of the busiest lines in the system
- 7 line is receiving significant capital investment to improve existing infrastructure
  - Sandy-related work in the Steinway Tubes will be complete this month
  - CBTC installation will be complete by the end of next year
  - Most of our 7 line tracks have been replaced

- 7 line is also part of an operational initiative devoted to addressing crowding and service

- Even with CBTC, New Trains, Renewed Tracks, and restored Steinway Tubes, ever-increasing ridership will continue to pose challenges.
  - Record-high ridership is a challenge we are facing throughout the entire system.