Green Line Transformation

Fiscal & Management Control Board (FMCB)

May 13, 2019
GREEN LINE AT A GLANCE

Current | Extension (Dec 2021)
---------|-----------------------
3 VEHICLE MAINTENANCE FACILITIES | +1
46 MILES OF TRACK | +8
66 GREEN LINE STATIONS | +6
200,000 PASSENGER TRIPS EVERY WEEKDAY | +50K

FIRST SUBWAY IN AMERICA

HIGHEST RIDERSHIP PER MILE
FOR A USA LIGHT RAIL SYSTEM

SOURCE: APTA 2018 Public Transportation Fact Book

LONGEST NETWORK
WITHIN MBTA'S TRANSIT SYSTEM (46 MILES OF TRACK)
+ Extension (8 miles)

SERVES BOSTON, NEWTON, CAMBRIDGE & BROOKLINE
+ Extension (Medford and Somerville in 2021)
OUR GOAL

Improve the Green Line quality of service, including increased capacity and enhanced accessibility, through fleet modernization, infrastructure/facility upgrades and state-of-the-art technology.
OUTLINE

1. Program Phases
2. Defining Measurable Outcomes (Quality of Service)
3. Short Term Improvements
4. Preserving & Sustaining the Quality of Service
5. Stakeholder Outreach & Engagement
# PROGRAM PHASES

<table>
<thead>
<tr>
<th>PHASE I</th>
<th>Current <strong>repair, renewal, and modernization</strong> investments to increase system lifespan</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHASE II</td>
<td><strong>New Supercar</strong> (Type 10) fleet deployment and infrastructure upgrades to operate single supercars and legacy trains</td>
</tr>
<tr>
<td>PHASE III</td>
<td>Infrastructure upgrades to operate <strong>2-Supercar trains on D &amp; E branches</strong></td>
</tr>
<tr>
<td>PHASE IV (optional)</td>
<td>Infrastructure upgrades to operate <strong>2-Supercar trains on entire system</strong> with raised platforms</td>
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</tbody>
</table>
Quality of Service:
Transit service performance from the point of view of the customer.
24 New Type 9 Light Rail Vehicles

**SHORT TERM IMPROVEMENTS 2019-2021 (2 Years)**

- Systemwide Wayfinding Upgrade
- Intersection Upgrade Under Construction

**Tools for Riders & Operations**
- Re-enabling GPS & Real-Time Data
- e-Ink Signs
- GUIDES
- Transit Signal Priority (TSP)

**Safety & Resilience**
- Addressing Demand
- Service Delivery
- Access
- Customer Experience
3 SELECTED SHORT TERM IMPROVEMENTS

- **Track, Power & Signals**
- **Stations, Structures & Accessibility**
- **Rolling Stock, Specialty Equipment & Facilities**
- **Technology for Riders & Operations**
**Green Line Transformation (GLT)**

**TRACK, POWER & SIGNAL**

**D Branch Track & Signal Replacement**
*(Beaconsfield to Riverside)*

*In Construction (Complete December 2020)*

**Benefits:**
- Reduce delays and eliminate speed restrictions
- Improve ride quality

- Replace 25,000 feet of track
- Modernize signal system
- Install backup power supply system
- Upgrade special trackwork
- Reconstruct pedestrian crossings

**Green Line Central Tunnel Track & Signal Replacement**

*Design Procurement (Consultant NTP Summer 2019)*

**Benefits:**
- Reduce delays and eliminate speed restrictions
- Improve ride quality
- Improve operational efficiency

- Renew track
- Improve drainage
- Upgrade switches, signals, and cable
- Optimize track reconfigurations at Park St. and Boylston
**Green Line Transformation (GLT)**

**STATIONS, STRUCTURES & ACCESSIBILITY**

**Park Street Wayfinding & Station Improvements**

*Construction Procurement (NTP April 2019)*

**Benefits:**
- Improve signage and lighting
- Restore station appearance
- Improve egress/repair stairs

- Upgrade and standardize station signage
- Enhance lighting and reduce maintenance
- Clean station surfaces
- Re-open stairs for additional egress

**Lechmere Viaduct Rehabilitation**

*In Design (Advertise for Construction Fall 2019)*

**Benefits:**
- Remove operational restrictions
- Improve travel time
- Improve operational efficiency

- Strengthen concrete arches
- Extend service life
- Upgrade to handle heavier vehicles
- Preserve historic landmark
**STATIONS, STRUCTURES & ACCESSIBILITY**

### Systemwide Wayfinding

**In Construction** *(Installation began April 2019)*

**Benefits:**
- Improve signage and wayfinding
- Restore station appearance
  
  ✓ Improves riders’ ability to identify station locations
  ✓ Compliant with MBTA Graphic Standards
  ✓ Replaces damaged & deteriorated signs
  ✓ Add surface station signs where none exist today

### B Branch Station Consolidation

*(St. Paul & BU West) (Babcock & Pleasant St.)*

**In Design** *(Advertise for Construction Summer 2019)*

**Benefits:**
- Improve travel time
- Improve egress
- Improve operational efficiency
  
  ✓ Consolidate four stations into two
  ✓ Separate platforms from roadways
  ✓ Raise platforms for level boarding
  ✓ Add improved amenities
**Type 9 Light Rail Vehicle**

- **Delivery Underway**

**Benefits:**
- Increase accessibility of fleet
- Address new demand from GLX

- ✔️ New low-floor vehicles with latest technology
- ✔️ First Type 9 in service December 2018
- ✔️ Deliver 24 vehicles by the end of the year

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**Supercar (Type 10) Light Rail Vehicle**

- **In Development**

**Benefits:**
- **Significantly increase capacity**
- **Reduce crowding**
- **Improve accessibility**

- ✔️ Transition fleet to longer, accessible cars
- ✔️ Request for Information released to the industry (April 2019)
- ✔️ Upcoming: Technical Specification (end of 2019)
## TOOLS FOR RIDERS

### Upgrading Global Positioning System (GPS) Train Trackers

**In Progress**

**Benefits:**
- Improve Headway Adherence
- Enhance Arrival Predication Accuracy
- Increase Operational Readiness

- Upgrading from 3G to 4G on all vehicles
- Restoring real-time information at affected D-branch stations for Google Maps, website, countdown clocks—and the Operations Control Center (OCC)

### e-Ink Station Signs

**Pilot (B,C,E Branch September 2019 – April 2020)**

**Benefits:**
- Improve Station Amenities
- Improve Communication of Delays

- Provide real-time service information at stations without countdown clocks
- Display delays and service adjustments
- Uses low-power design (solar)
TOOLS FOR OPERATIONS

Green Line Intelligent Decision Execution System (GLIDES)

**Benefits:**
- Improve Headway Adherence
- Decrease Passenger Wait Time
- Increase Operational Readiness

- Mobile application to support Green Line Operations
- Easily view spacing, destination, driver
- Free up radio channel chatter

Pilot (August 2019)

Transit Signal Priority (TSP)

**Benefits:**
- Improve Headway Adherence
- Increase Line Speed
- Decrease Dwell Time
- Enhance Intersection Safety

- Can support more TSP intersections
- Adding intersections in collaboration with municipalities
- Rebuilding TSP software
- Will generate data on TSP efficacy

In Progress
Ensure long-term sustainability and performance of the Green Line through:

- Improved tracking of assets
- Proactive vehicle and infrastructure maintenance
## STAKEHOLDER OUTREACH & ENGAGEMENT

### 2019 Outreach Activities

<table>
<thead>
<tr>
<th>Community Information Sessions</th>
<th>Frontline Employee Meeting</th>
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<tbody>
<tr>
<td>Gather input from neighborhood organizations, businesses and stakeholders on each branch</td>
<td>June 2019 at the Maintenance Facilities/Yards</td>
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### Community Information Sessions: September 2019

<table>
<thead>
<tr>
<th>Date/Time</th>
<th>Branch</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week of Sept. 9</td>
<td>Central Subway</td>
<td>MBTA 10 Park Plaza, Boston</td>
</tr>
<tr>
<td>6:00 – 7:30 PM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Week of Sept. 16</td>
<td>B</td>
<td>Boston University, Boston <em>(Fenway–Kenmore)</em></td>
</tr>
<tr>
<td>6:00 – 7:30 PM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Week of Sept. 16</td>
<td>C</td>
<td>Coolidge Corner School, Brookline</td>
</tr>
<tr>
<td>6:00 – 7:30 PM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Week of Sept. 23</td>
<td>D</td>
<td>Newton Public Library/City Hall, Newton</td>
</tr>
<tr>
<td>6:00 – 7:30 PM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Week of Sept. 23</td>
<td>E</td>
<td>Tobin Community Center, Boston <em>(Mission Hill)</em></td>
</tr>
<tr>
<td>6:00 – 7:30 PM</td>
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# THE GLT PROGRAM PLAN

The GLT Program Plan will be revised each year to align with MBTA goals.

## Key Elements

<table>
<thead>
<tr>
<th>Program Information</th>
<th>Quality of Service</th>
<th>Maintainability</th>
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<tbody>
<tr>
<td>✓ Four Phases</td>
<td>✓ Defined Metrics</td>
<td>✓ Maintenance Strategy</td>
</tr>
<tr>
<td>✓ Portfolio of Projects</td>
<td>✓ Outcomes by Phase</td>
<td>✓ Asset Management</td>
</tr>
<tr>
<td>✓ Priority Projects</td>
<td>✓ Progress Updates</td>
<td></td>
</tr>
<tr>
<td>✓ Sequence of Work</td>
<td></td>
<td></td>
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<tr>
<td>✓ Developed Budgets</td>
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</table>

- **Draft Report for Review** *(June 2019)*
- **Final Report** *(December 2019)*

The GLT Program Plan will be revised each year to align with MBTA goals.
NEXT STEPS

- **Draft** GLT Program Plan
- **Conduct** necessary studies to meet future needs
- **Initiate** community outreach and engagement
- **Provide** quarterly progress update