Overview

- The Bus Network Redesign has continued and made progress since we last presented to the Board.
- We have learned about new or underserved destinations and identified key corridors for high frequency service (High Priority Corridors).
- The Bus Network Redesign will help the MBTA rebuild.
- The Bus Network Redesign is part of a larger Bus Transformation effort.
Four Bus Transformation Initiatives

**Bus Procurements**
Continue investing in the bus fleet by replacing old fleets on a consistent schedule in order to maintain a safe and reliable bus service (includes continued assessment of future technologies).

**Bus Facilities**
Increase investment in aging and outdated facilities to accommodate modern buses and support fleet wide electrification, while improving conditions for our workforce.

**Bus Transit Priority**
Partnering with cities and towns to prioritize the movement of people instead of vehicles on congested streets.

**Bus Network Redesign**
Complete re-imagining of the network to reflect regional travel needs and create more competitive service for current and future riders.
Why the Bus Network Redesign is still important today

1. The Redesign focuses on examining all trip-making patterns in the region, regardless of mode or existing MBTA service. → This approach helps to validate the MBTA’s Forging Ahead assessment of what the most essential trips are

2. The analysis has identified “High Priority Corridors” that warrant high frequency service → This analysis helps identify where the MBTA should prioritize bus infrastructure investments

3. The Redesign is focused on MBTA bus service for the future → Service is part of the larger vision to transform the bus network

4. The Redesign will develop a vision for the longer-term bus network → The Redesign will help the MBTA rebuild
What does the Bus Network Redesign help accomplish?

1. Create a **more equitable network** that connects people, in particular low income people, people of color, and people with disabilities, to where they need and want to go with a high quality transit option.

2. Design a **more logical system** that is more adaptable to change.

3. Create a **framework for a future bus network that can be implemented over time.**

4. Identify **High Priority Corridors** that merit high frequency service and guide future investments.

5. Identify **new or underserved destinations** to better serve with transit.

6. Create **metrics that are flexible, data-driven, and assess service quality** so that as the region evolves, so will the bus network.
Now, the Redesign helps us rebuild

We are in a different world than when we started.

- We have to adjust the network now to fit within our budget
- But we still want to create a better network and fix what didn’t work before COVID-19

We can use the Redesign as a foundation to restructure the longer-term network and then bring back something better as resources become available.
# Review: current project timeline

<table>
<thead>
<tr>
<th>FALL 2020</th>
<th>WINTER 2021</th>
<th>SPRING 2021</th>
<th>SUMMER 2021</th>
<th>FALL 2021</th>
<th>WINTER 2022</th>
<th>SPRING 2022</th>
<th>SUMMER 2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify High Priority Corridors</td>
<td>Finalize High Priority Corridors</td>
<td>Develop network alternatives to discuss policy trade-offs</td>
<td>Outreach on network alts</td>
<td>Develop draft network structure and phased implementation plan</td>
<td>Outreach on draft network structure and phased implementation plan</td>
<td>Outreach continues</td>
<td>Develop final network structure and phased implementation plan (including Title VI Analysis)</td>
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<td>FMCB decision on preferred alternative</td>
<td></td>
<td></td>
<td></td>
<td>MBTA Board input on draft rec. before public input &amp; after</td>
<td>MBTA Board vote to adopt new bus network structure to be implemented over time</td>
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This decision will guide us on how to allocate resources to the network.

This will adopt a network structure; exact frequencies and spans of service, as well as phasing, will be determined based on resources.
We’ve made a lot of progress on the Redesign

- **Designed network-level metrics**
  - Measures service quality: The % of region’s trips that have a competitive transit option
  - Access to key destinations: The % of region’s residents that can reach their local and regional destinations with a competitive transit option
  - Impacts of frequency, transfers, walk distance, travel time
  - Examines new ways of measuring equity trips that go beyond Title VI by analyzing where low-income populations and communities of color travel, not just where they live

- **Staff consensus on network principles**

- **Completed analysis of travel demand** through new location-based services dataset and Bus Analysis Zone tool

- **Developed online engagement tools** for meaningful public input on metrics to be used in 2021

- **Engaged relevant MBTA departments**

- **Created draft “High Priority Corridors” map** and started initial discussions on transit priority
Approach to designing a new network: corridors to routes

Travel demand data (location based services data) is being used to assess travel in the region.

Corridors connect areas of demand.

Corridors with high travel demand made by transit critical populations are identified as High Priority Corridors that warrant high frequency service.

Corridors are applied to roadways to identify where to prioritize investments in bus infrastructure.

Routes are the service that run in corridors. Corridors with bus infrastructure can be shared by multiple routes in order to optimize investments and improve connections.
High Priority Corridors are the first step in redesigning the entire network. High Priority Corridors are coordinated with transit priority to achieve high frequency service. Core network of High Priority Corridors exist under any future Network Redesign. High Priority Corridors cover 79% of essential trips*.

As we continue with Bus Network Redesign, we will examine what the best structure for neighborhood service is in order to integrate other essential trips into the network.

*Essential Trips are defined as part of Forging Ahead: https://www.mbta.com/forging-ahead
High Priority Corridors

Some of these corridors already have high frequency service.

Note: bus numbers on the map represent service in that corridor, not routes that exactly create that entire connection.
Other corridors would be upgrades of current local bus service.

Many of the corridors that show up here are corridors that have retained ridership during COVID and are part of the service being preserved (79% of essential service routes).

The current bus priority work also supports this map.
Some corridors are entirely new connections.
The High Priority Corridors help prioritize investments

- These would not all be implemented at once, and we can prioritize based on value of each corridor to the network

- These corridors would provide better service for transit critical populations since the analysis prioritizes travel made by communities of color and low-income populations.

Note: bus numbers on the map represent service in that corridor, not routes that exactly create that entire connection.
The current transit priority work supports build out of this vision

Current transit priority projects
1. Mass Ave - Cambridge
2. Columbus Ave Corridor
3. Hyde Park Ave
4. Blue Hill Ave
5. Broadway & Sweetser Circle - Everett
6. Broadway - Chelsea
7. Washington Street - Roslindale
8. Washington Street - Somerville
10. Mass Ave - Boston
11. Nubian to Ruggles via Malcolm X Blvd
12. Summer Street
13. Brighton Ave - Allston
14. Mass Ave - Arlington
15. Broadway - Somerville
16. Tobin Bridge
17. Mt Auburn Area Cambridge
18. Warren Street
Service is part of the larger vision to transform the bus network.

**Bus Procurements**
- **2020**: 60-ft EEH NTP
- **2021**: 40-ft EEH NTP
- **2022**: 160x 40-ft EEH
- **2023**: 45x 60-ft BEB
- **2024**: 35x 40-ft EEH
- **2025 and beyond**: 40-ft BEB or EEH Buses

**Bus Facilities**
- **2020**: Identify high priority corridors
- **2021**: Board approval construction Quincy + N Camb
- **2022**: N. Cambridge facility design & construction
- **2022**: Quincy facility design
- **2022**: Quincy facility construction
- **2023**: Release BNRD final recommendation
- **2024**: Future Fleet Plan

**Bus Transit Priority**
- **2020**: Columbus Ave; COVID Rapid response bus lanes
- **2021**: Partner BNRD with roadway owners on draft HPCs
- **2021/2022**: Blue Hill Ave planned

**Bus Network Redesign**
- **2020**: Board adopt new network
- **2021**: Release BNRD network alternatives for public input
- **2022**: Release BNRD final recommendation

**Future Fleet Plan**
- **2022-2023**: 160x 40-ft EEH
- **2022**: 45x 60-ft BEB
- **2023**: 35x 40-ft EEH

**Key Decision-Making Point**
- **2020**: Identify high priority corridors
- **2021**: Release BNRD network alternatives for public input
- **2022**: Release BNRD final recommendation
- **2023**: Board adopt new network

**Planning**
- **2020**: Columbus Ave; COVID Rapid response bus lanes
- **2021**: Blue Hill Ave planned

**Implementation**
- **2021**: Board approval construction Quincy + N Camb
- **2022**: N. Cambridge facility design & construction
- **2022**: Quincy facility design
- **2022**: Quincy facility construction

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**Key Decision-Making Point**
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**Design and construct remaining facilities on a rolling basis. Use additional capacity at new facilities as swing space for subsequent facilities (rehabbed, not moved).**

**Continue expanding the bus priority infrastructure to further improve bus reliability and enhance rider experience.**

**Starting 2022, Continue evaluating and implementing bus route improvements as travel demand shifts and resources become available.**
Bus Network Redesign in the context of Bus Transformation

- Bus Network Redesign is developing the structure of a new bus network.
- The MBTA and its partners are implementing bus priority for that network.
- We are developing a definition of what a High Priority Corridor could mean for the passenger experience, including priority, stop spacing, amenities, and passenger information.
- We are coordinating ongoing efforts on fleet and facilities, bus priority, fare collection, passenger information, shelters, and more. We are also coordinating with the Silver Line Extension study (from Chelsea to Everett), which launched in August 2020.
- We are using internal capacity to develop metrics that address all aspects of the passenger experience.
- We are laying the groundwork for a Bus Transformation office.
- We are defining projects that help us implement pieces of this vision as resources are available.
**Progress of Bus Transformation**

**Bus Procurement**
- Average fleet age decreased from 9.5 years to 6.5 years
- Funded procurement underway to allow for retirement of last non-hybrid diesel buses in fleet
- Initial 5 BEB pilot to be expanded to 35 BEB procurement for North Cambridge

**Bus Facilities**
- Design work underway on first two bus facility modernization projects
- Quincy and North Cambridge projects will increase capacity by 36%
- Quincy and North Cambridge will increase BEB charging capacity from 5 buses to 160

**Bus Transit Priority**
- 3% of weekday passenger mileage is in a bus lane, but reliability benefits extend to 41% of weekday passenger miles system-wide
- Approximately 6.1 lane miles implemented from 2002 through 2018; Approximately 2.9 lane miles implemented in 2019; Approximately 10.7 lane miles implemented in 2020
- Planning underway to implement more miles in 2021

**Bus Network Redesign**
- Designed network-level metrics that will inform evaluation of service changes & Redesign
- Completed analysis of travel demand data through new location-based services dataset
- Identified High Priority Corridors

We are continuing to coordinate among initiatives to identify opportunities to maximize operating and capital investments.
Appendix
**MBTA Bus Transformation Program – Goals and Objectives**

**Why bus?** The MBTA will continue to make integrated investments in bus because of the stable demand for service, especially from our transit critical ridership.

**What is the Vision for Bus?** Better, faster, lower-emissions service, that is more aligned with where riders live, work, and travel, using modern vehicles that provide safe, reliable, and comfortable service.

**How will we get there?**

- **•** Continue to invest in our fleet in a consistent manner that reduces Green-House-Gas (GHG) emissions, and makes maintenance needs more predictable.

- **•** Advance facility investments to improve working conditions, be ready for advancements in bus fleet technology, and be good neighbors.

- **•** MBTA’s Better Bus Project also includes a range of transit priority, customer amenity, and service improvements.
What the High Priority Corridors could be

1. The MBTA will have a designated network of frequent bus routes
2. This network will be presented to the public (through route nomenclature, on maps, at stops, etc.) as distinct from the regular local bus network
3. Our long-term aspiration is that this network will have a higher quality experience than the regular bus network
   a. more thorough passenger information
   b. higher minimum standard of stop amenities
   c. optimized stop spacing
   d. extensive bus priority
We’ve used travel demand to identify High Priority Corridors

To identify high priority corridors, we narrowed down travel demand using the method on the right.

- **This method centers equity**, by prioritizing travel made by people of color and members of low-income households.
- High Priority Corridors are a work in progress
  - Currently cover O-Ds with high demand for a direct connection and also O-Ds that are well-served with feeder bus routes into the rapid transit network.
  - Still need to conduct outreach with roadway owners to propose best street alignments.
  - Broader public outreach planned for spring 2021
Silver Line Extension Alternatives Analysis

Project Purpose:
• Assess the feasibility, utility, and cost of various alignment and service frequency options of an extension of the Silver Line from Chelsea through Everett to Glendale Square and on to the Orange Line, Lechmere, Kendall Square or North Station.

Project Need:
• Identified in Focus40 as a potential way to lessen crowding on existing bus routes and provide service at near rapid-transit levels for those living just beyond the reach of the Orange and Blue lines.

Stakeholder Process:
• Coordination with municipal partners and other stakeholders through a Stakeholder Working Group with representatives from Chelsea, Cambridge, Boston, Everett, and Somerville

Timeline: August 2020 – early 2022 (18 months)