

**Massachusetts Bay
Transportation Authority**

Bus Transformation Part 2

Fiscal and Management Control Board

May 10, 2021

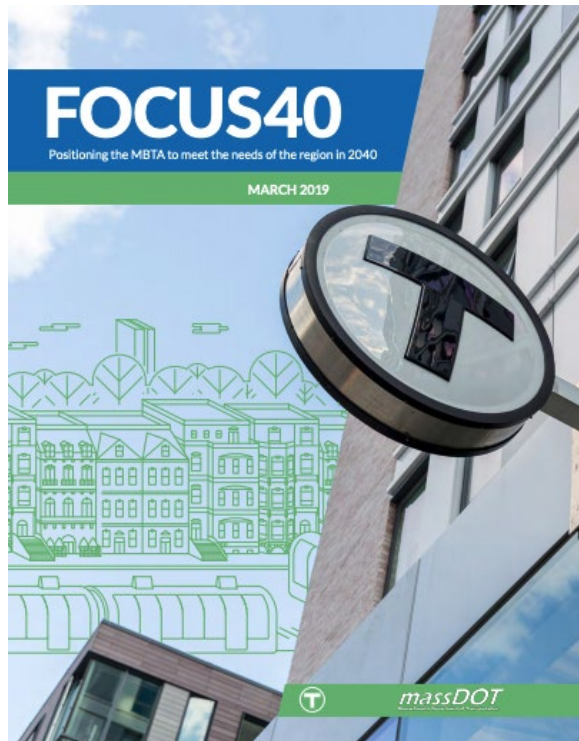
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Bus Transformation Vision



Achieve a better, faster, lower emissions service, supported by all-door boarding and exclusive busways, that is more aligned with where riders live, work, and travel (Focus40)

Focus40 and the MBTA strategic plan highlight equity, sustainability, livability, competitiveness, and safety, all of which will guide the bus transformation work.



Agenda

Updates on:

- **Bus Network Redesign**
- **Transit Priority**
- **Street Furniture Program**



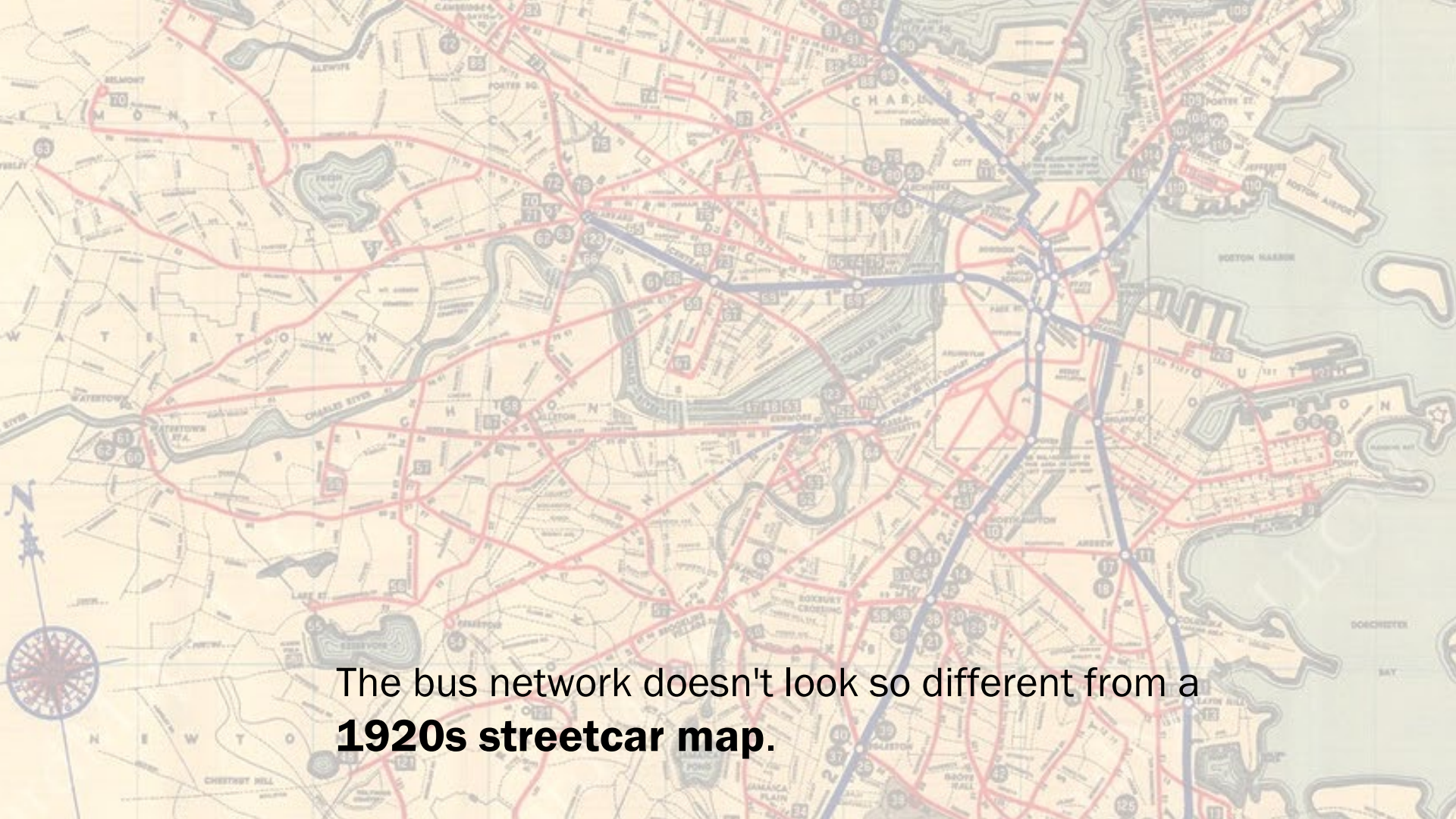
Bus Network Redesign



Greater Boston has experienced significant changes in recent years, while the bus network has stayed largely the same.

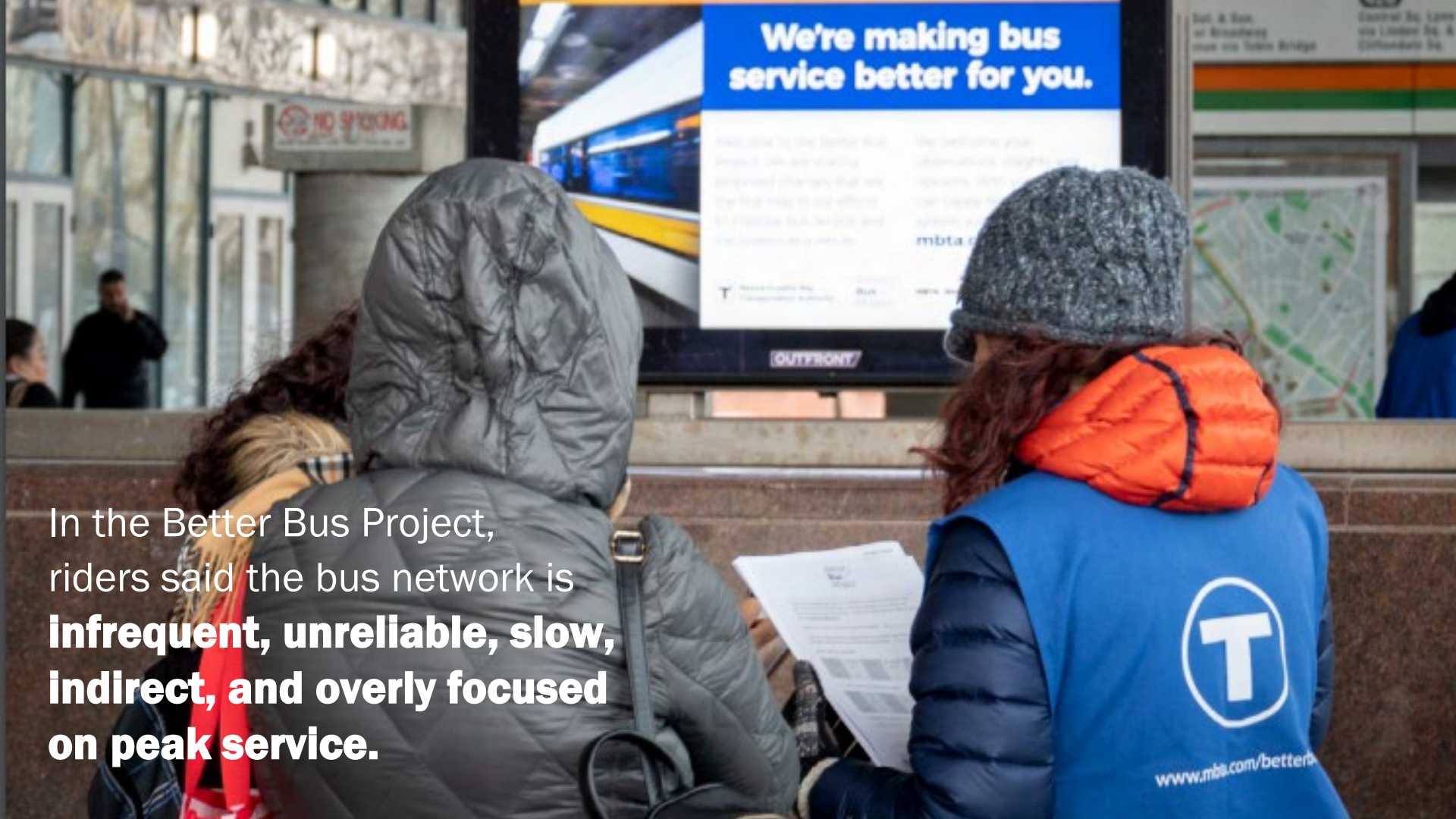
New employment districts have emerged, demographics have shifted, congestion has increased, and **travel patterns have changed.**





The bus network doesn't look so different from a **1920s streetcar map.**

Riders tell us the network
does not work for them.



We're making bus service better for you.

Introduce to the Better Bus Project. We are sharing proposed changes that are the first step in our efforts to improve bus service and the system as a whole.

We welcome your observations, thoughts, questions, and comments. You can create an account on our website at www.mba.com/betterbus.

mbta

T Massachusetts Bay Transportation Authority

Bus

www.mba.com

In the Better Bus Project, riders said the bus network is **infrequent, unreliable, slow, indirect, and overly focused on peak service.**



www.mba.com/betterbus

This is a once-in-a-generation attempt to transform the network for the people who depend on it.



Greater Boston needs **better bus service.**



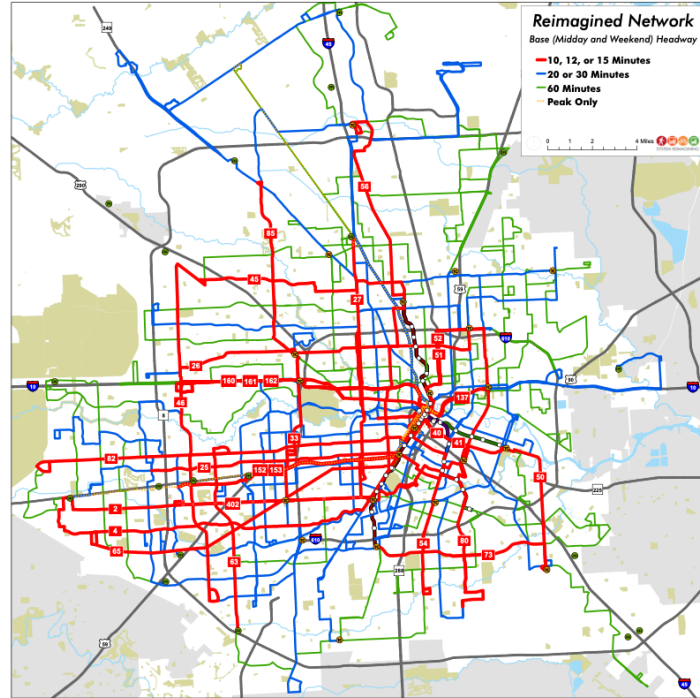
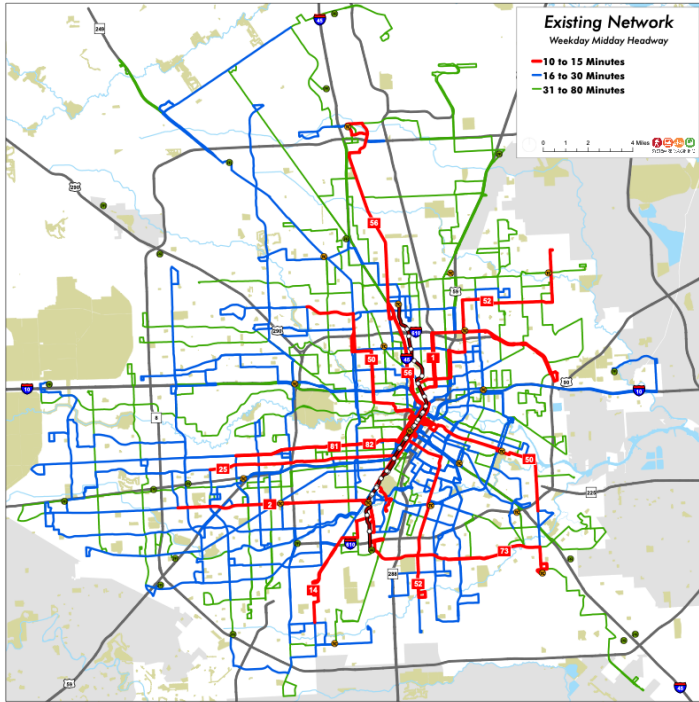
We can make bus service better with **bus lanes.**

We can make bus service better by **redesigning individual routes.**

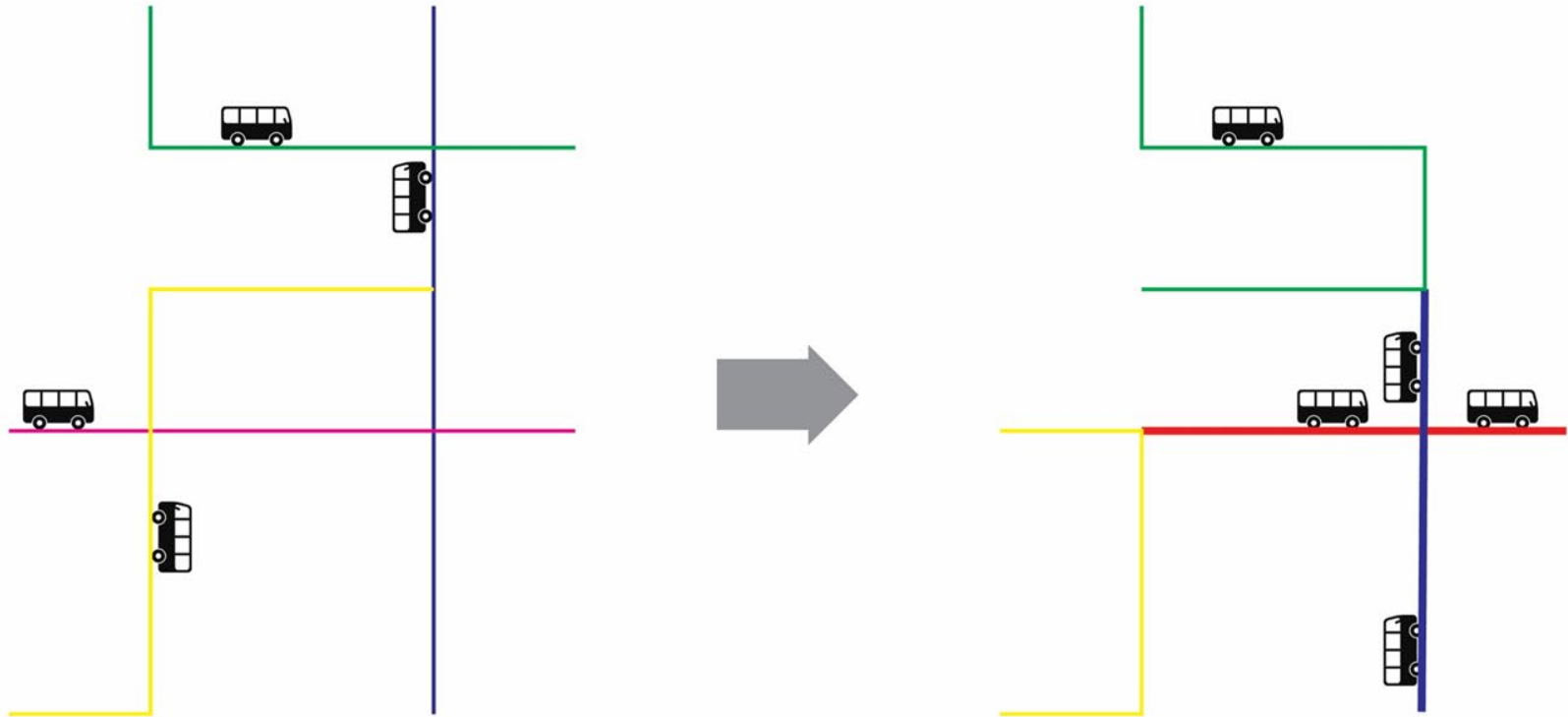




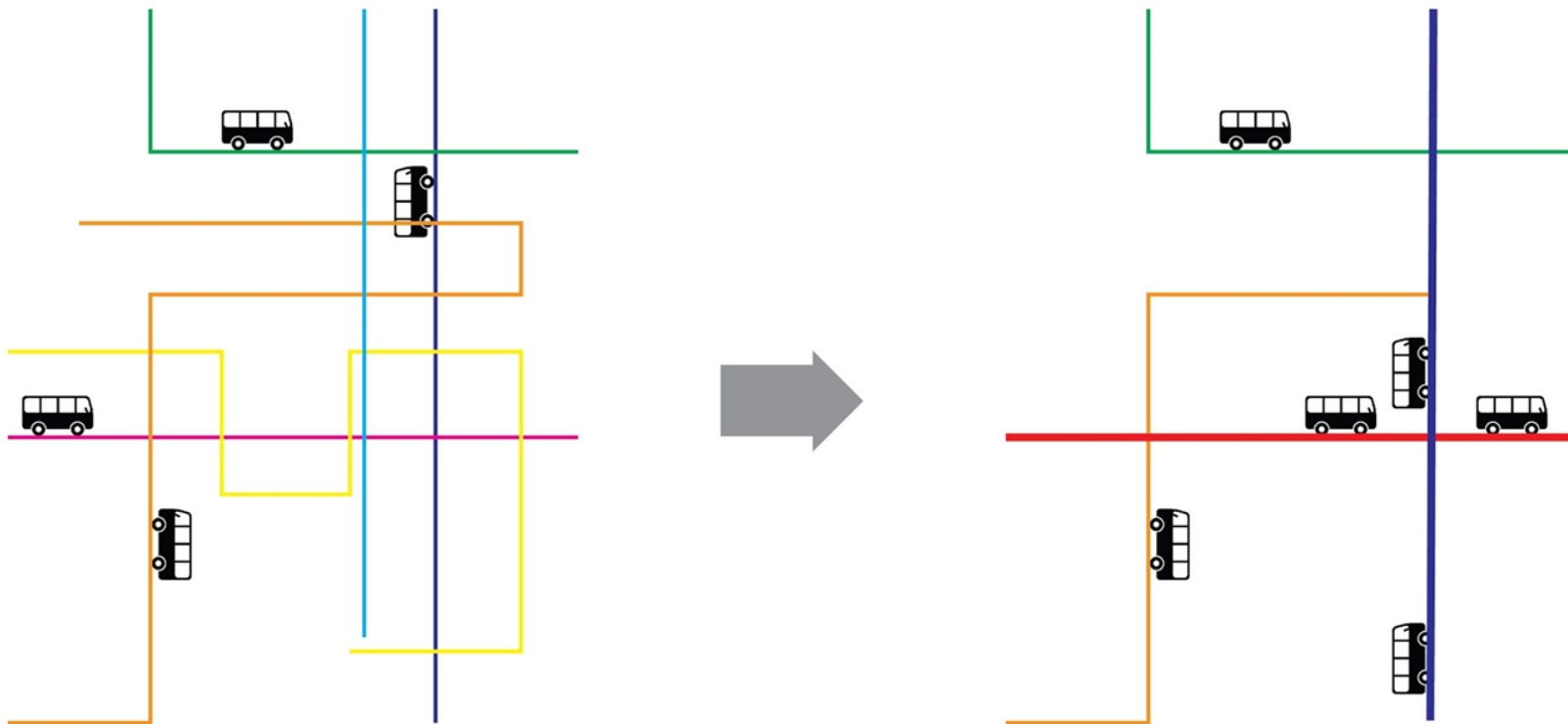
But there are **limitations** to what that can accomplish.



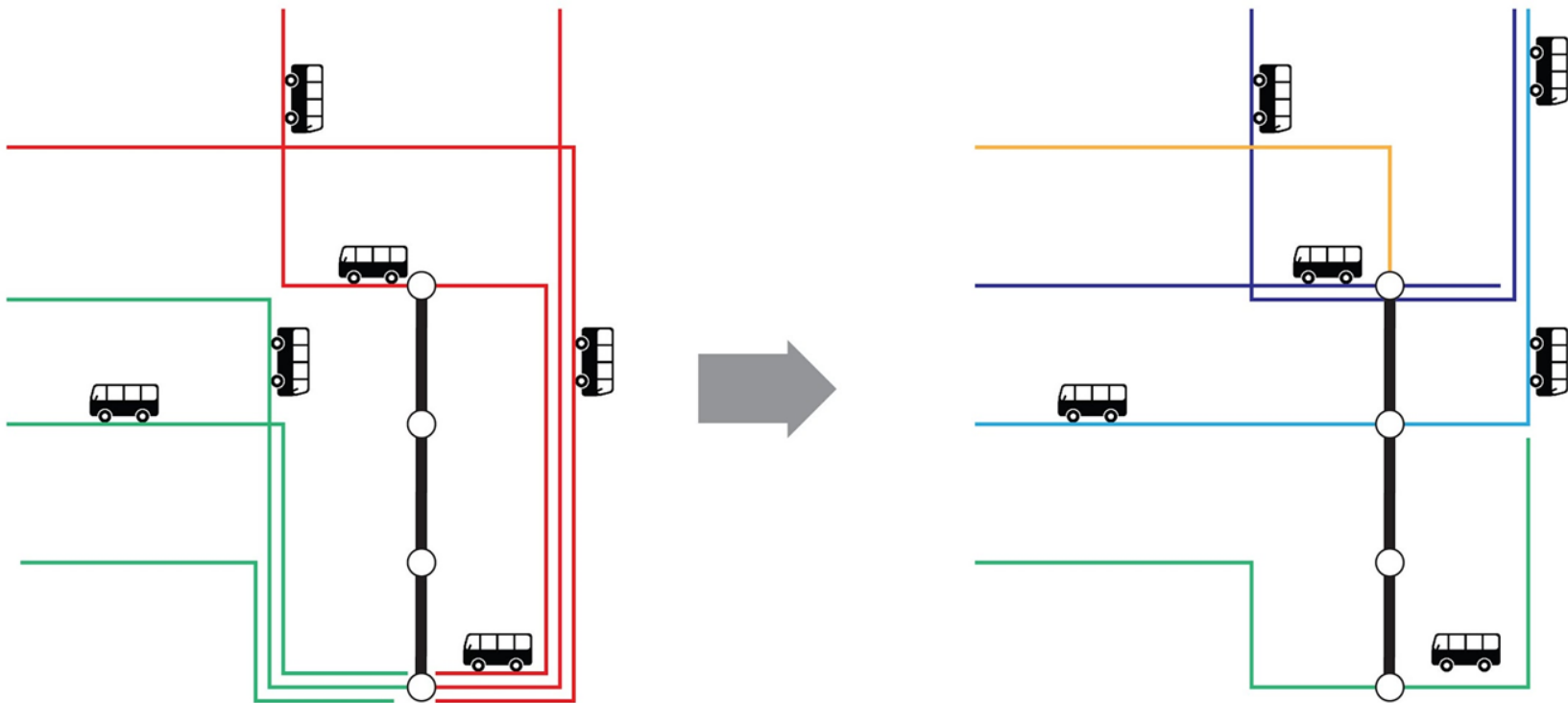
There are some things that only a **redesign** can do.



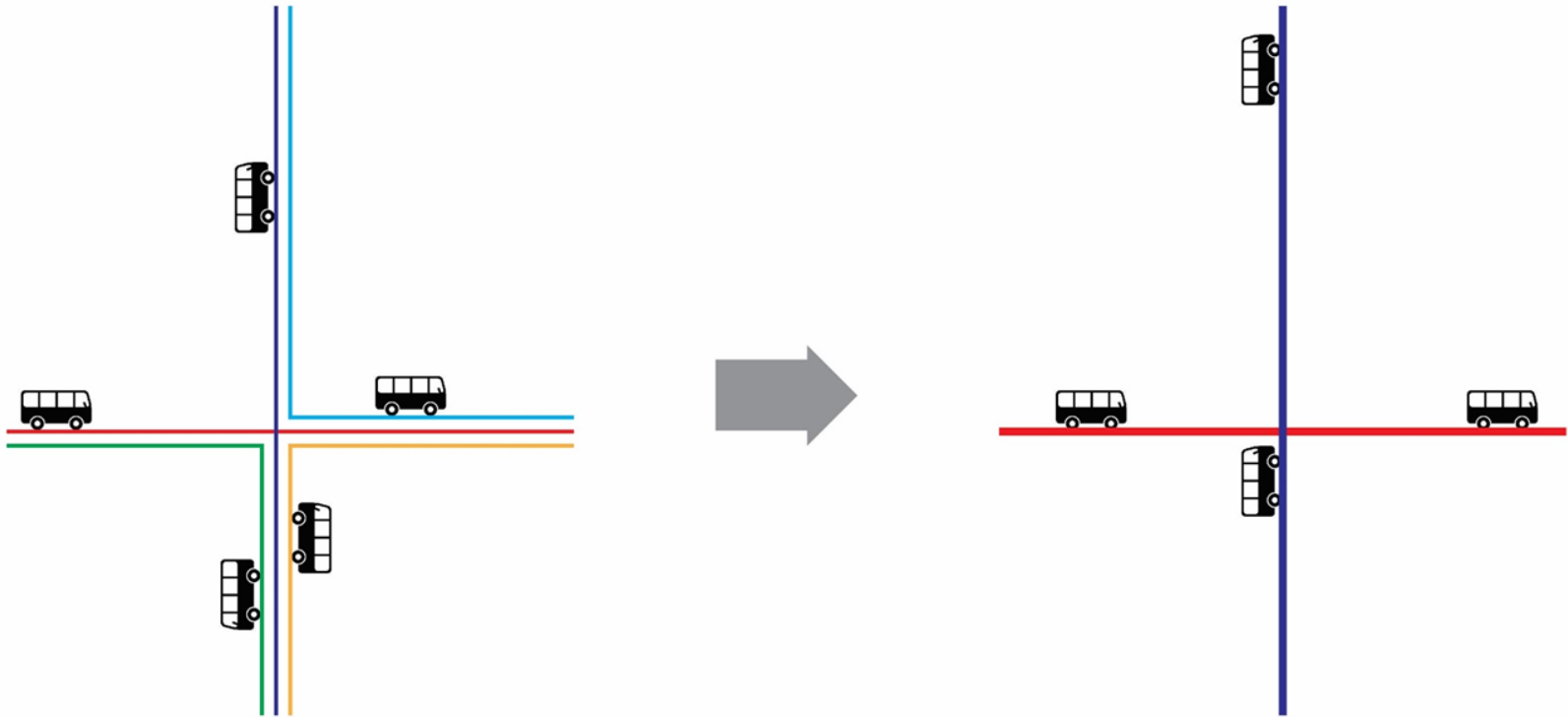
A network redesign can **focus service into core areas.**



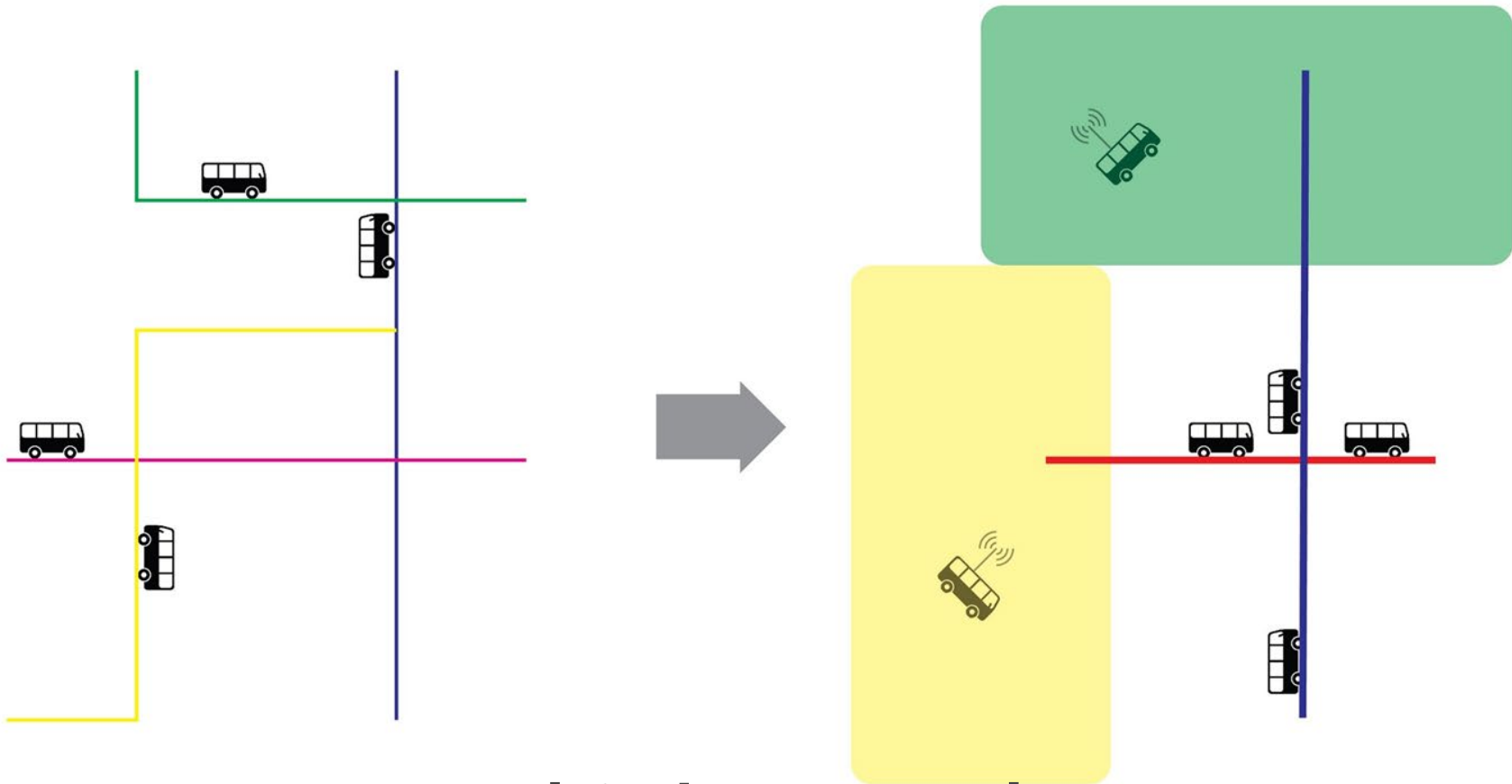
A network redesign can **focus service into corridors.**



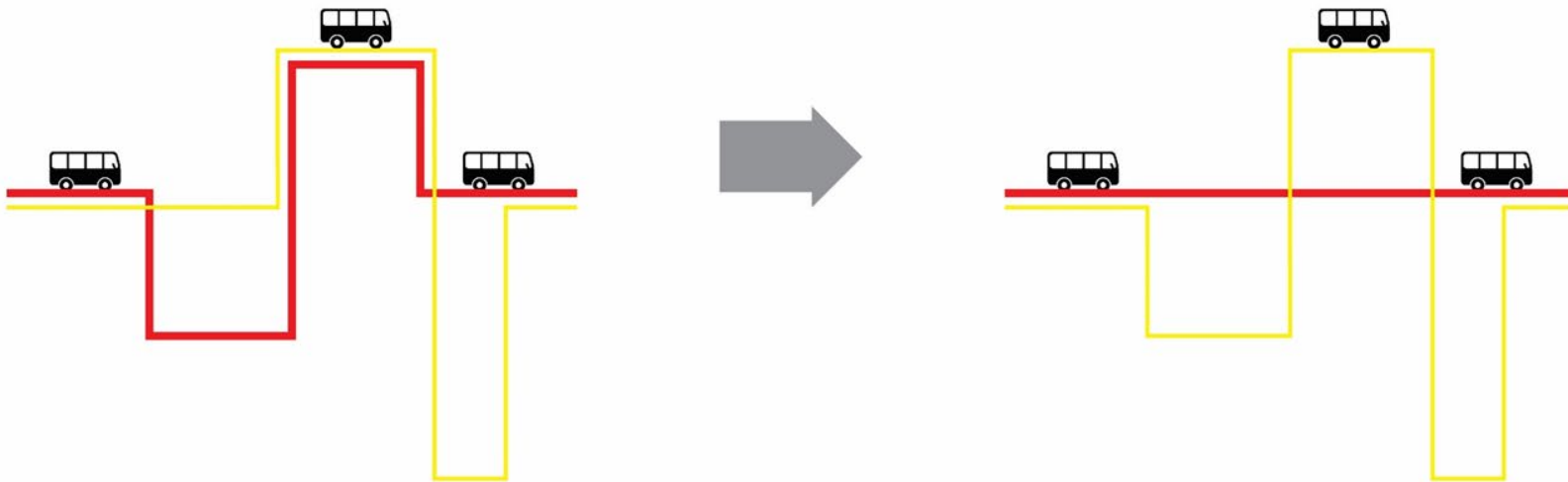
A network redesign can **connect more riders to rapid transit.**



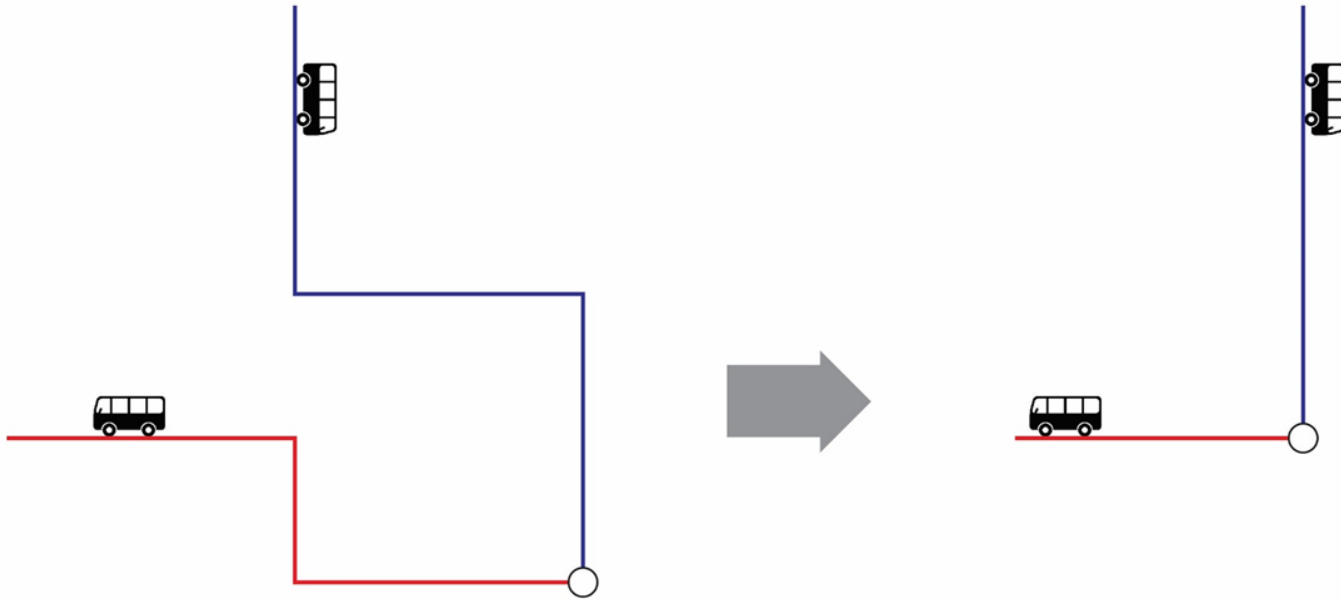
A network redesign can **increase frequency.**



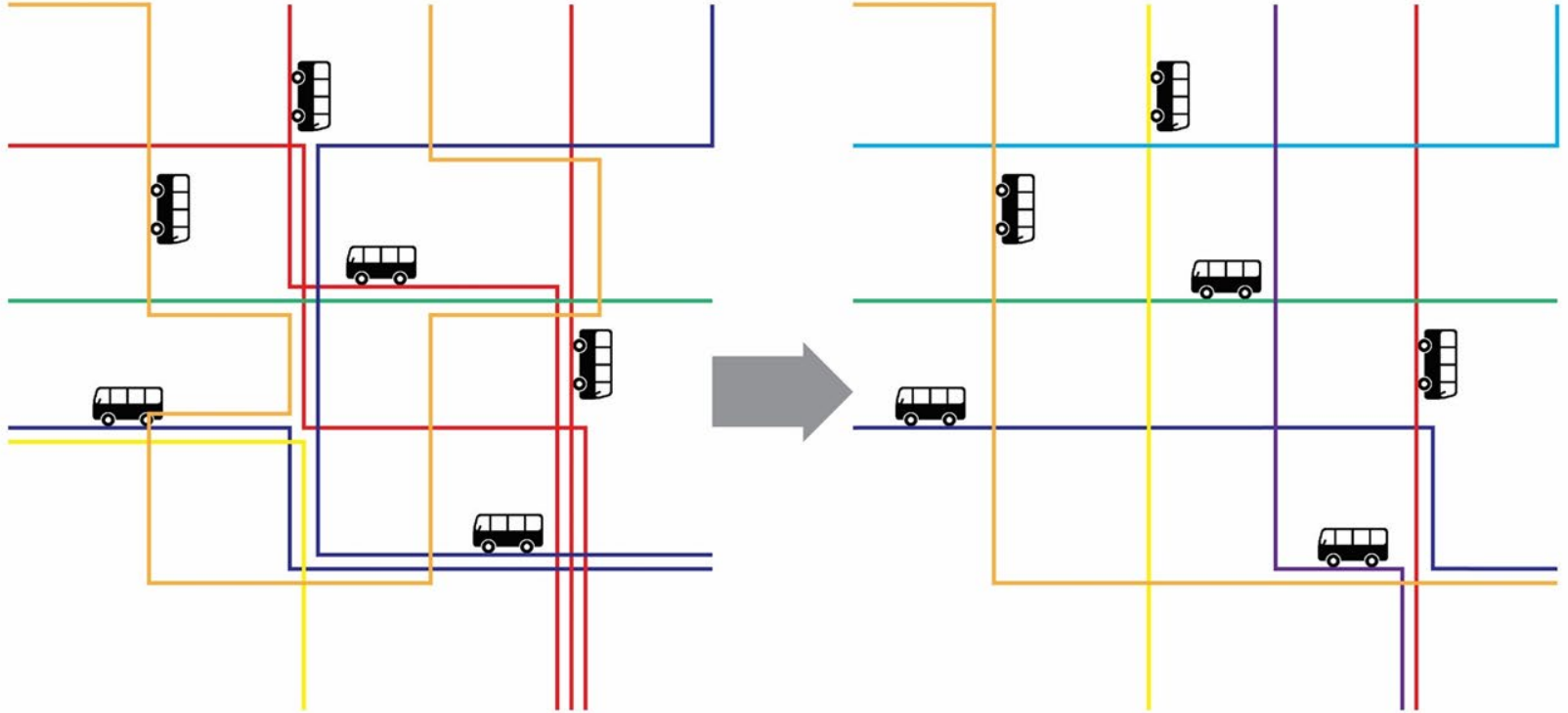
A network redesign can **introduce new services.**



A network redesign can **straighten routes.**



A network redesign can make trips **more direct.**



A network redesign can make the system **more legible.**

A redesign can create a network that's **better for riders.**



Bus has always been the MBTA's on-street workhorse



Pre-pandemic, the MBTA Bus Service network served nearly **450,000 trips** on a single weekday **across more than 50 cities and towns**, and provided **more than a third of all MBTA trips**.

MBTA bus riders are our most transit-critical ridership—most likely to be lower-income, people of color, seniors, or people who live in households with few or no vehicles.

And yet, even pre-COVID, too many of our bus routes failed to live up to our own standards. **The Better Bus Project 2019 route changes started to address that, focusing on restructuring routes and investing in additional operators to improve simplicity, reliability, and frequency**; and were successfully implemented in Fall/Winter of 2019/2020.

COVID underscored how essential the bus is to the region



During the COVID-19 pandemic, bus ridership was **more durable than any other mode, retaining up to 4x more of its riders than Commuter Rail or Ferry.**

Ridership during the pandemic has been less focused on the traditional peak times around 8 AM and 5 PM on weekdays and more focused on off-peak travel . These new travel patterns merit a new network that better serves all trip types throughout the day.

Within the MBTA's network and the Commonwealth's Mobility Marketplace, **the bus is the most flexible and resilient mass transit mode** and one which, with consistent stewardship and investment, can be made more robust, resilient, and reliable for all customers.

It is essential that our bus network adapt to change.

We're not just restoring – we're transforming

- Going back to the pre-COVID network is not good enough
- We want to build a *better and more equitable network* than what we had pre-COVID
- Better transit is essential to economic recovery
- The redesign is based on pre-COVID service hours
- The redesign will also show where we can add more service when we have the resources

The network should change to reflect the changing travel needs of the region.



Our commitments

1. **Equity***, first and foremost
2. Truly **transformational change**—no nitpicking at small margins
3. A better network **for the people who ride today**
4. Extensive stakeholder **engagement**
5. Implementation in the **near-term** (in phases, starting 2022)
6. Integrate service changes with **bus priority** and other **infrastructure improvements** to maximize benefits

***Equity** is defined as improving access and quality of service for transit-critical populations (low-income populations, people of color, seniors, people with disabilities, or people who live in households with few or no vehicles)



Measuring success

Where are people going?



TRAVEL DEMAND

Is transit connecting people to where they need and want to go?



ACCESS

Is transit a good option?



COMPETITIVENESS

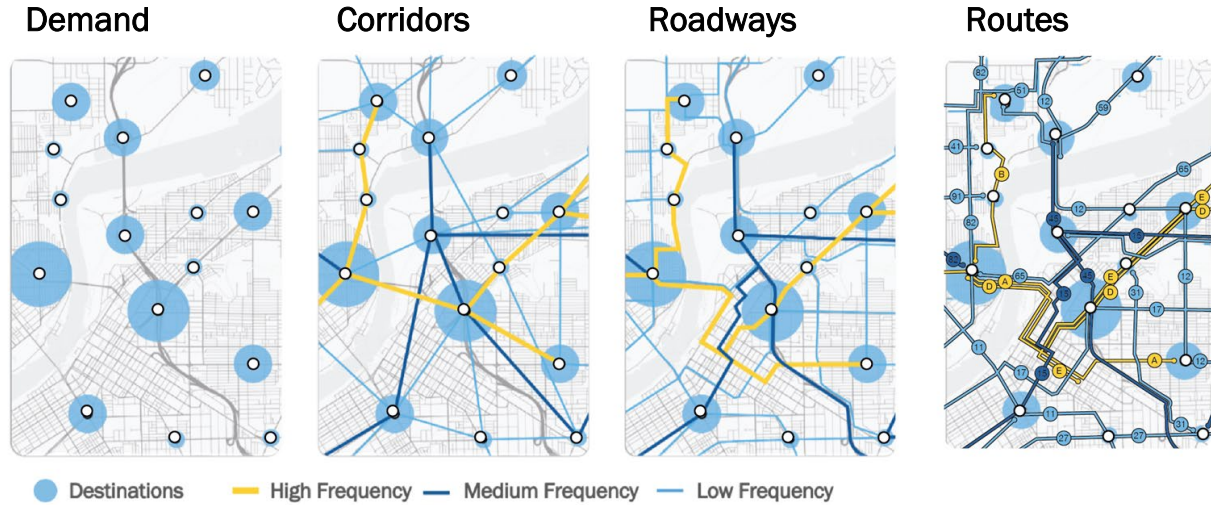
(relative to car-based options in terms of frequency, travel time, transfers, and walk distance)

Our metrics will become part of the MBTA's Service Delivery Policy and focus on evaluating service and access improvements for transit-critical populations (low-income populations, people of color, seniors, people with disabilities, or people who live in households with few or no vehicles)



We're redesigning the entire network

- A data-driven blank slate redesign
- Based on everything we've heard from riders since the Better Bus Project started
- Using travel data to capture all the trips people are taking
- A lot of engagement with many stakeholders (e.g., municipalities)



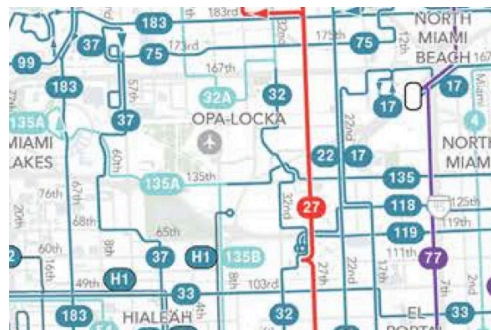
Change will be hard

We can make the network better for the vast majority of current riders – but to make that happen many people's trips will change, and some will get worse.

In Houston – where the number of riders with all-day existing service tripled and **ridership grew by 17%** – the public complaints in the 5 months before implementation outnumbered positive comments 330 to 1.

To truly transform the network, we will need to take on tradeoffs, and we're using everything we've heard from riders to think through that.

We will be back to the Board in July to talk about tradeoffs.



Example from Miami:
shorter walks to the bus (top)
or more frequent service (bottom)



What our proposal will look like

We haven't drawn the maps, but we know they will show:

1. A **simpler** and **easier-to-understand** network
2. More **high-frequency** corridors
3. **Better connections** to major regional destinations and local destinations
4. Focus on **all-day service** (better midday, evening, and weekend service)



—

This isn't a long range plan...
we want a better network on
the street starting next year.

This project is well underway

- Engaged relevant MBTA departments
- Designed network-level metrics to be used both for this project and as part of the MBTA's Service Delivery Policy
- Staff consensus on network principles
- Completed analysis of new travel demand through new location-based services dataset
- Developed online engagement tools for meaningful public input on metrics
- Created service design tool to identify “High Frequency Corridors” and created draft map
- Coordinated map with ongoing transit priority efforts
- Held 10+ meetings with BNRD External Task Force



How are we measuring travel demand?

Location-Based Services (LBS) data provides a way to examine total travel demand so we know what to evaluate our network against.

LBS data:

- Describes average weekday, Saturday, and Sunday travel based on 12 months of travel across all modes (not just transit).
- Comes from a range of smart phone applications (multi-language, lifestyle, travel, news, etc.) that have opted into location-based services.
- Representative of many different demographics.
- Is anonymized and unlinked from cell phone numbers and individuals to preserve privacy.
- Is validated against local conditions, the National Household Travel Survey, etc.

*General Travel Patterns
Exhibited from the
LBS Data*



Bus Network Redesign Upcoming Public Outreach

May - July 2021

July - Oct 2021

Nov 2021 - Jan 2022

Phase 1: Input on metrics to define good service and key destinations

Survey riders on changing transportation needs that will help determine the design and evaluation of the new bus network.

Phase 2: Conversations about what network level change looks like

Discussion on the policy choices and types of improvements to better meet the needs of the rider.

Phase 3: Draft map of proposed new bus network with routes and frequencies

Gather input on proposed bus network.

Bus rider focused public engagement

- Online engagement tools
- Focus groups with community based organizations
- Webinars

- Meetings with community based orgs.
- Surveys
- Webinars
- Open houses
- In-station street teams (with community partners)

- Regional public meetings & webinars
- Meetings with community based orgs.
- Station pop-ups
- Online engagement tools

Continuous public engagement

Channels:

- BNRD External Task Force meetings
- Operator engagement
- FMCB Briefings
- Briefings with elected officials
- Briefings with municipal partners

Online engagement tool on metrics will be online **this May:**

mbta.com/busnetworkredesign

Bus Transformation 5-year Implementation Timeline

| Project | | CY 2021 | 2022 | 2023 | 2024 | 2025 | 2026 |
|----------------------|----------------|---------------------------------------|--|---------------------|--------|---------------------|--------|
| Bus Network Redesign | Planning | Draft network (Fall-Winter 2021/2022) | Adopt final network Commit to full implementation | | | | |
| | Infrastructure | | Transit Priority, Bus Stop Installation, Busway Modifications, Signage | | | | |
| | Service | | Rolling route changes | | | | |
| Fleet & Facilities | Facilities | | North Cambridge retrofit | Quincy | | Arborway | |
| | Fleet | | 80 Hybrid | 35 BEB 80 Hybrid | 80 BEB | 40 BEB 40 Hybrid | 80 BEB |

We are planning for 3-5 phases of implementation for the Bus Network Redesign that will potentially be rolled out by geography. Implementation timing will depend on structure of the new network, staff and public outreach capacity, and the ability to implement bus priority.

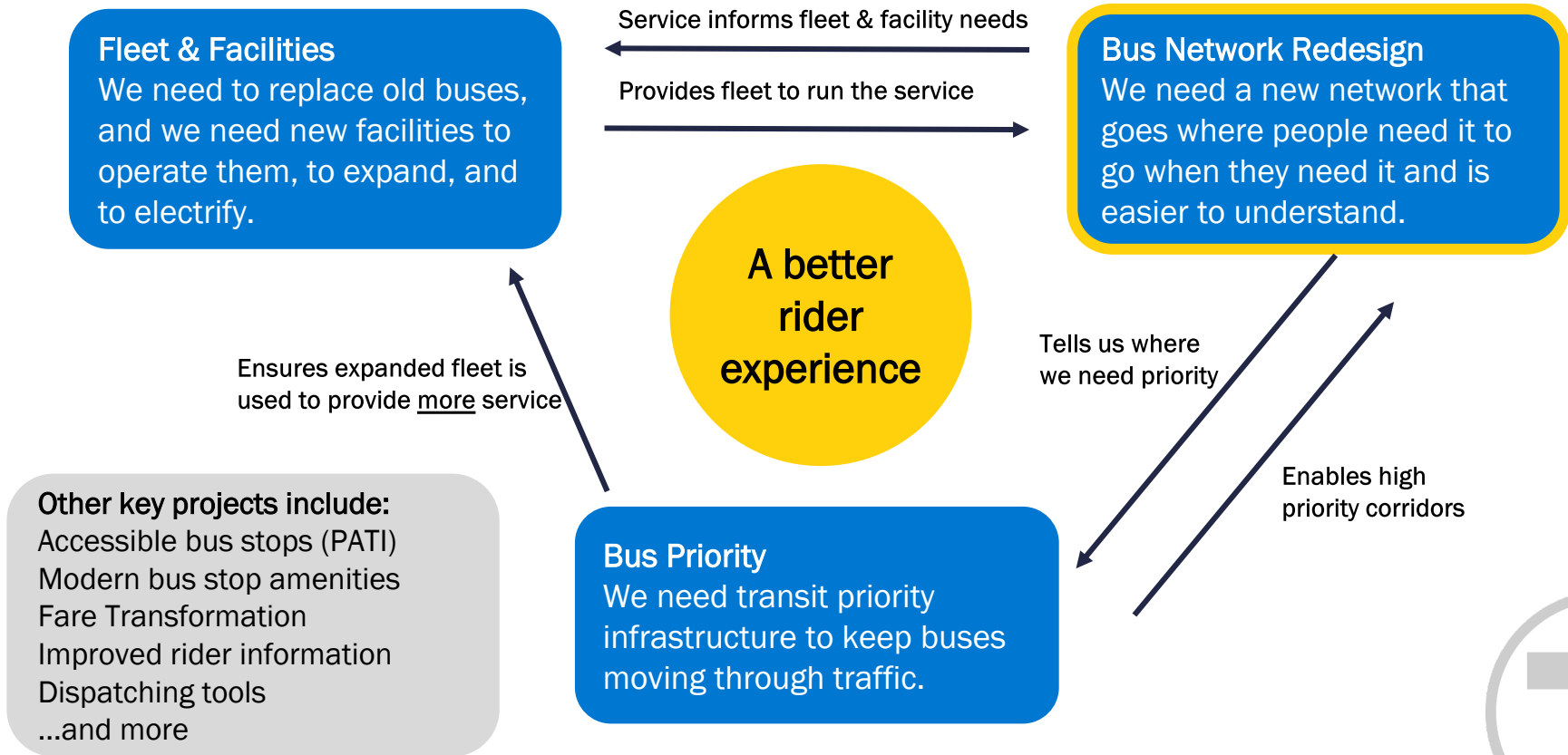
Municipal partnerships are key to success

- To increase service in congested corridors we need effective transit priority.
- Increased service will also require new and expanded layover locations.
- We will need bus shelters and accessible bus stops in new locations.
- We will need new and upgraded garages to operate this service.

The MBTA will only increase service in congested corridors where partnerships with municipalities and other roadway owners result in the infrastructure to provide that service.



The Redesign is coordinated with other initiatives to maximize benefit to riders



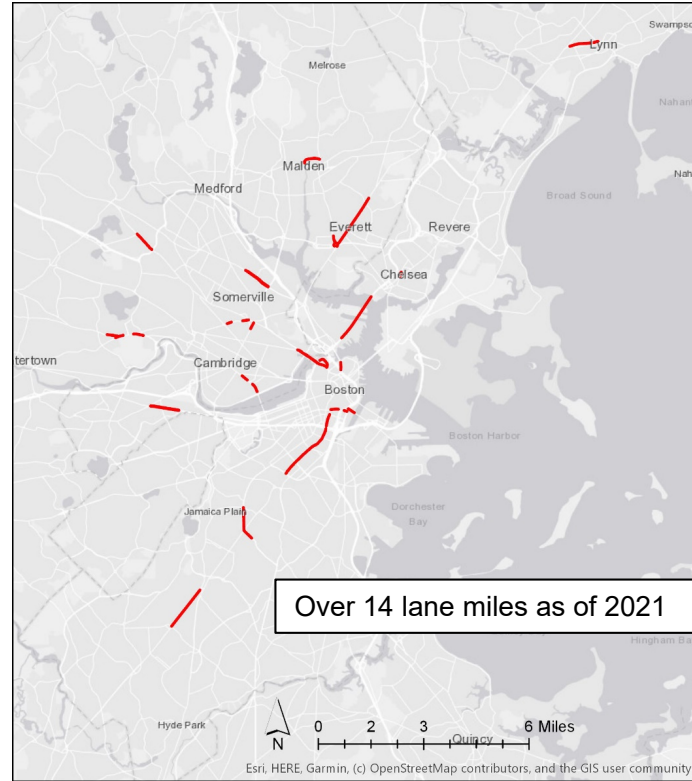
Transit Priority



Recent Bus Lanes Expansion



Bus lanes constructed as of 2015



Bus lanes constructed/in-construction as of spring 2021; Includes pilots



New Partnerships and Regional Firsts



Welcoming new municipalities to the bus lane club!



Florence St, Malden



N Common St, Lynn



Broadway, Chelsea



High-priority major projects for next ~2 years

- *Recap:* Transit Priority stretch goal of delivering 7-10 lane miles annually (includes side-running projects)
- **Under construction & to be expanded:** Columbus Ave Center-running Bus Lane, Jamaica Plain/Roxbury
 - New type of bus lane facility for New England
 - High-quality facility type that includes:
 - Upgraded bus stop amenities
 - Traffic calming
 - Pedestrian accessibility improvements
 - Open by fall 2021
 - **Extension of center-running Columbus Ave facility to Ruggles recently funded by MPO**
- Three additional high-quality corridors in discussion (up to 5 lane miles):
 - Mass Ave, Cambridge
 - At least two additional corridors in Boston
- Additional quicker build projects ongoing simultaneously across region



Transit Priority Program Next Steps

- Update of 2016 CTPS Study to more interactive tool for visualizing bus delay and identifying potential project areas
- Communicating benefits of existing transit priority projects through an interactive, self-service dashboard
- Developing a Bus Speed and Reliability Toolkit to help municipalities implement their own transit priority projects to MBTA standards
- Industry technology scan and development of a Next Generation Transit Signal Priority (TSP) specification
- Supporting Bus Network Redesign through transit priority build-out of the high priority network



Street Furniture



Importance of Bus Stops and Amenities

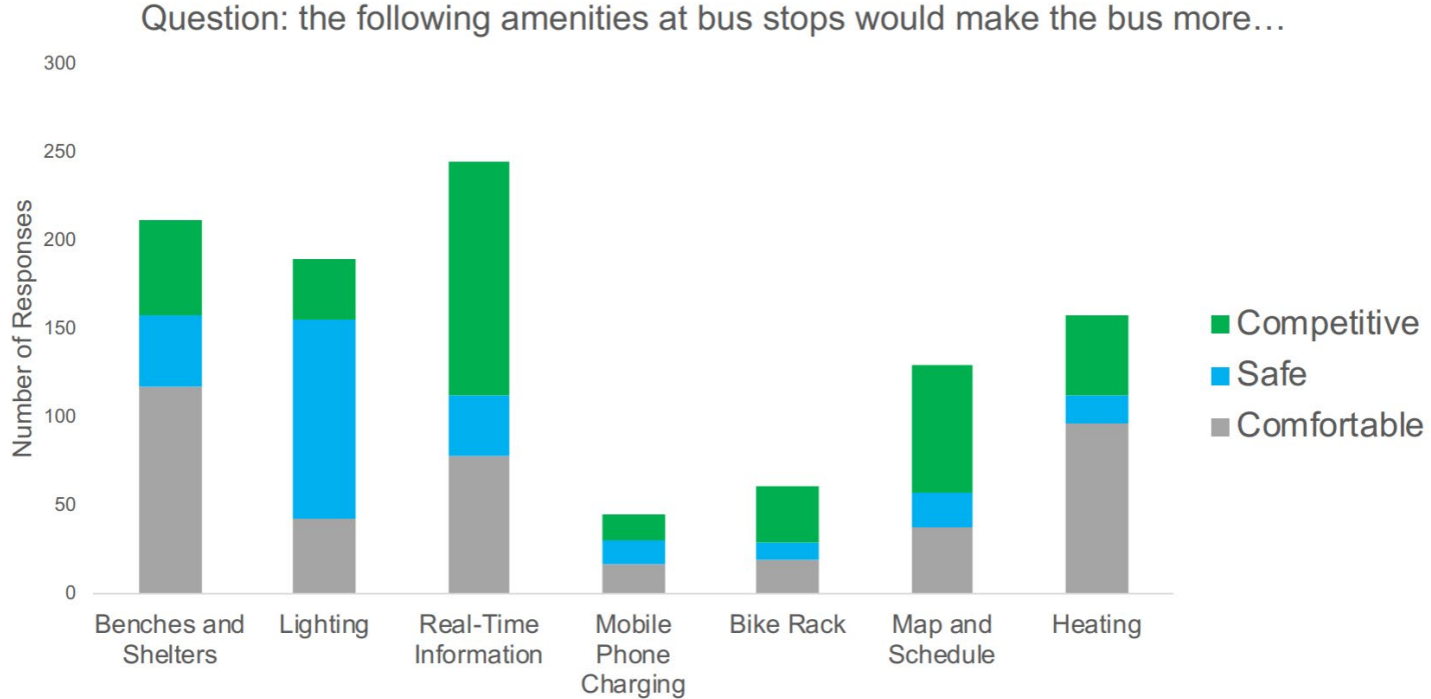
"Researchers at the University of Utah found that enhanced bus stops grew ridership...compared to ordinary stops, suggesting that...better stops entice new riders to try the bus."

TransitCenter. (2018). From Sorry to Superb: Everything You Need to Know about Great Bus Stops.

"...most waits at stops with no amenities are perceived at least 1.3 times as long as they actually are. Basic amenities including benches and shelters significantly reduce perceived waiting times."

Fan, Guthrie, & Levinson. (2016). Waiting time perceptions at transit stops and stations: Effects of basic amenities, gender, and security. Transportation Research Part A, 88, 251-264

Importance of Bus Stops and Amenities



Source: MBTA Better Bus Project Customer Feedback Sessions. (2019).



Existing Bus Shelters

| Shelter Owner | Maintenance | Number |
|-------------------------|--------------|-------------------|
| MBTA | Intersection | 340 |
| City of Boston | JCDecaux | 280 |
| Municipalities & Others | Varies | 20+ |
| Total Shelters | | 640 (8% of stops) |



MBTA, Intersection-managed shelter



City of Boston, JCDecaux-managed shelter



Municipal Shelter

Plan for Accessible Transit (PATI) Bus Stop Accessibility

System-Wide Survey of Bus Stops

Stops Surveyed: 7690

Towns Impacted: 51

Routes Covered: 184

942 critical and high priority stops identified

PATI Phase 1

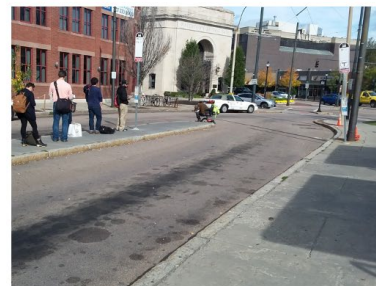
- Design completed for 145 ADA-compliant bus stops
- Construction of 83 completed
- Remaining 14 ADA-compliant stops in PATI1 will be constructed in 2021; resulting in 97 improved stops
- 129 bus stops eliminated
- 134 curb ramps across the MBTA system replaced

PATI Phase 2

- 250 bus stops currently in design and construction
- 10 stops constructed;
- 90-115 more PATI2 stops will be constructed in 2021; remaining PATI2 stops will be constructed in 2022
- 405 bus stops are being addressed by the PATI project

Bus Stop Accessibility Improvements

Stop 8178: Watertown Square Terminal
Watertown



Before

- **Insufficient landing area**
- **Old sidewalks**
- **Faded bus stop signs**
- **Missing curb ramps**
- **No crosswalks**

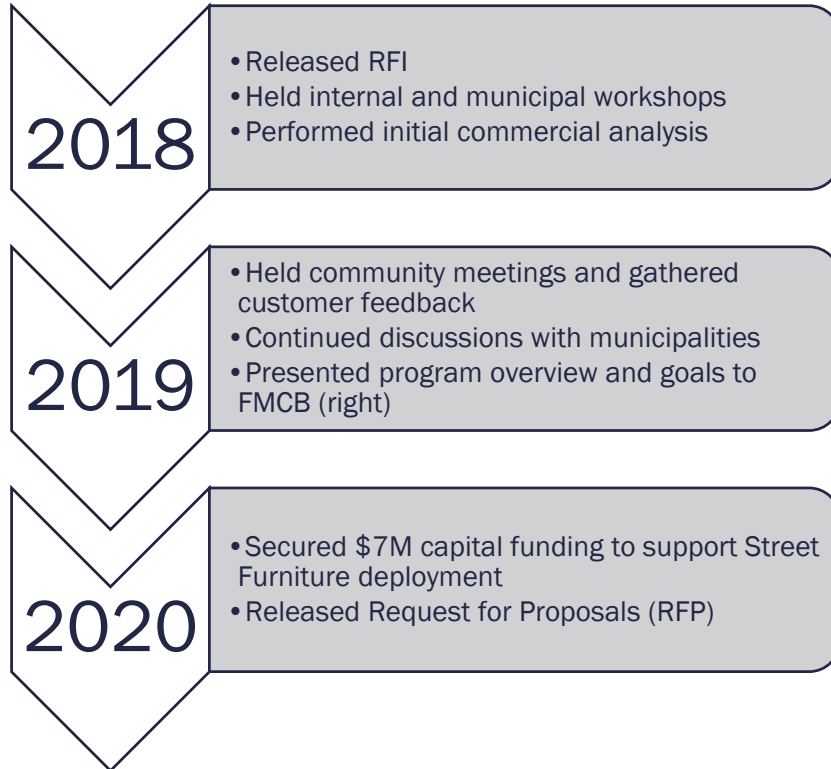


After

- **Expanded landing area**
- **New sidewalks**
- **New bus stop signs**
- **New curb ramps**
- **New crosswalks**



Background



Goals of the Street Furniture Program

- 1) Provide **real-time information** for bus customers at bus stops
- 2) Increase the number of **shelters and benches** to provide a safe and dignified place to wait
- 3) Encourage **regional collaboration** to equitably and consistently improve the bus stop experience
- 4) Delineate clear roles and responsibilities for **maintenance and snow removal** between the MBTA, municipalities, and commercial partner

Fiscal and Management Control Board, April 2019.

New Street Furniture Partner: Intersection

Intersection was awarded the MBTA's Street Furniture concession in early 2021

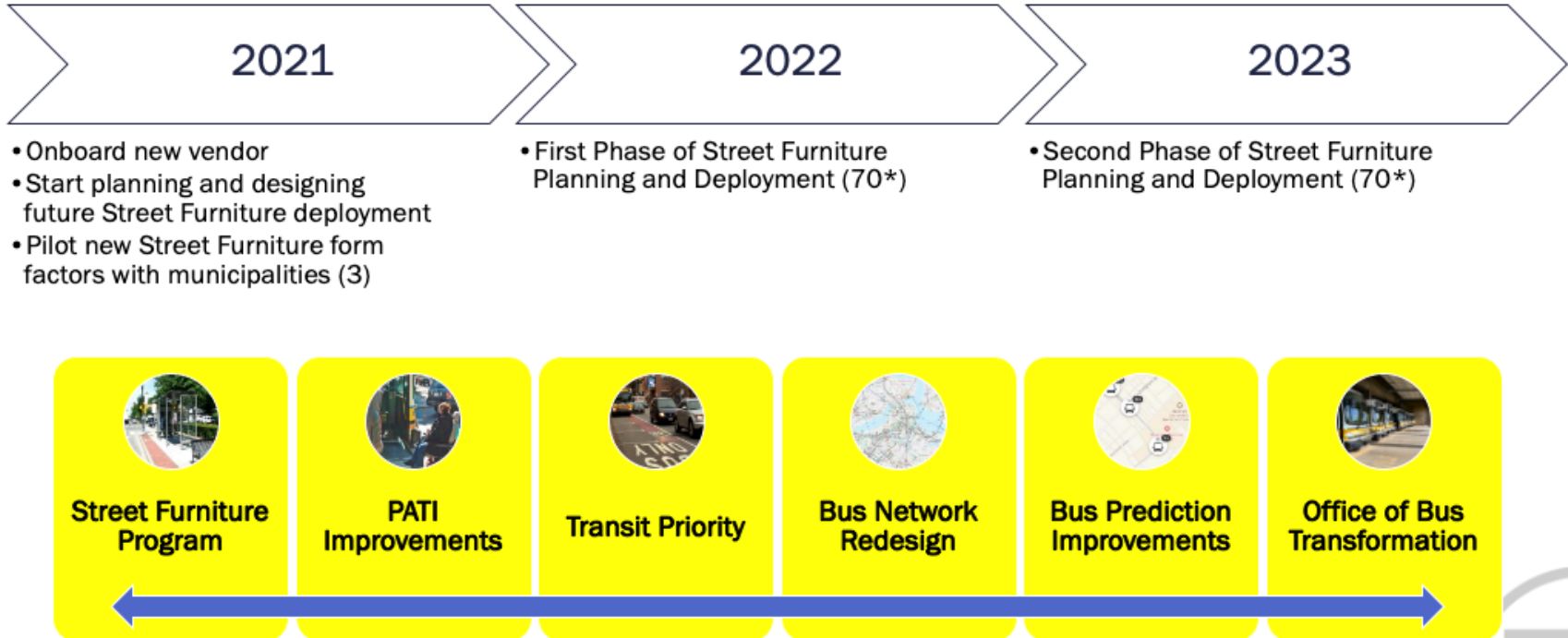
- 7-year term with three one-year options
- 300+ street furniture locations operated by Intersection
- Introduced maintenance standards and communication protocols
- Updated street furniture design requirements
- MBTA and Intersection will co-invest in new Street Furniture
- New contract provides opportunity for municipalities and other groups to buy off menu of Street Furniture
- New and upgraded street furniture will provide a consistent rider experience



Intersection Bus Shelter in the City of Philadelphia



Project Timeline



*Estimated number of proposed street furniture locations at current capital funding of \$7M and final figure will vary due to cost of installation and site preparation. Program designed to allow Municipalities or other partners to fund additional sites

Appendix

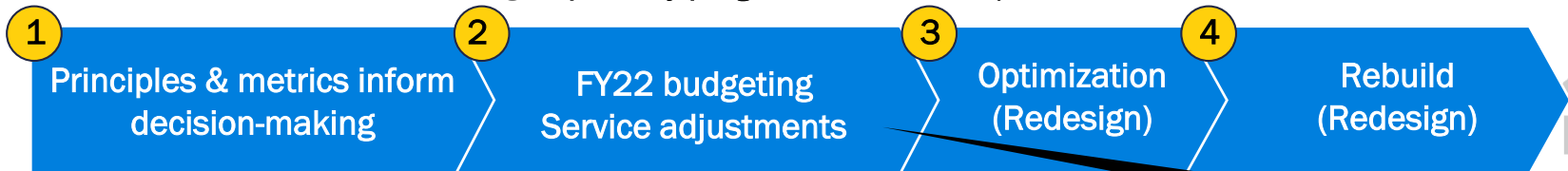


Vision to bring back service in the future

The Bus Network Redesign is a complete re-imagining of the MBTA's bus network to reflect the travel needs of the region and create a more competitive bus service for current and future bus riders.

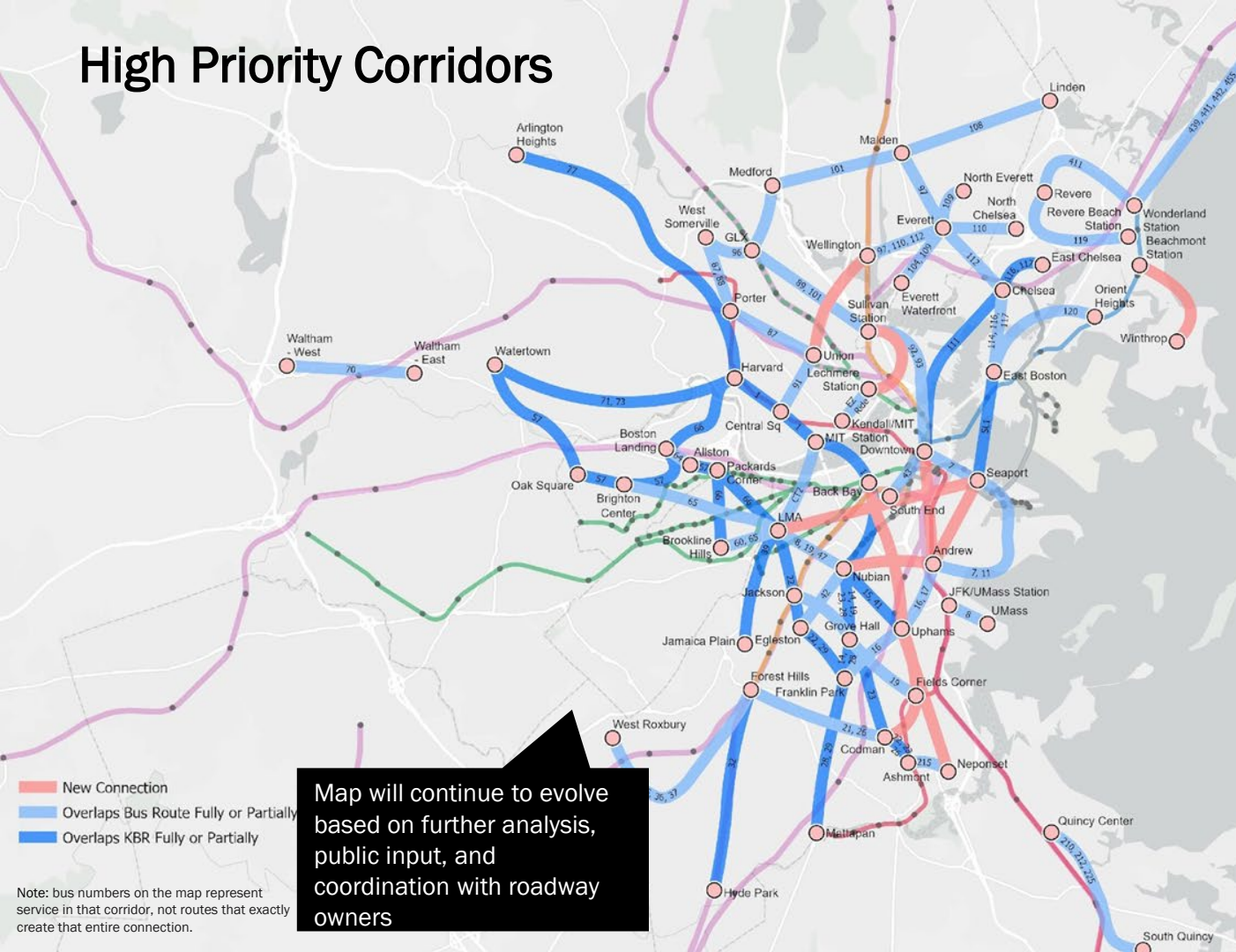
The Bus Network Redesign will serve as a blueprint for how to rebuild the longer-term network in the future and requires:

- Planning (*underway*)
- New service (*can be cost neutral*) & demonstration projects (*unprogrammed, \$3-5M*)
- Project management (*programmed*)
- Service planning and scheduling capacity (*unprogrammed, \$1-4M*)
- Public outreach and marketing (*unprogrammed, \$2-4M*)
- Infrastructure: signage, transit priority (see transit priority slides for costs), bus stop improvements/changes (*partially programmed, \$2-10M*)



New tools will help us evaluate and adjust.

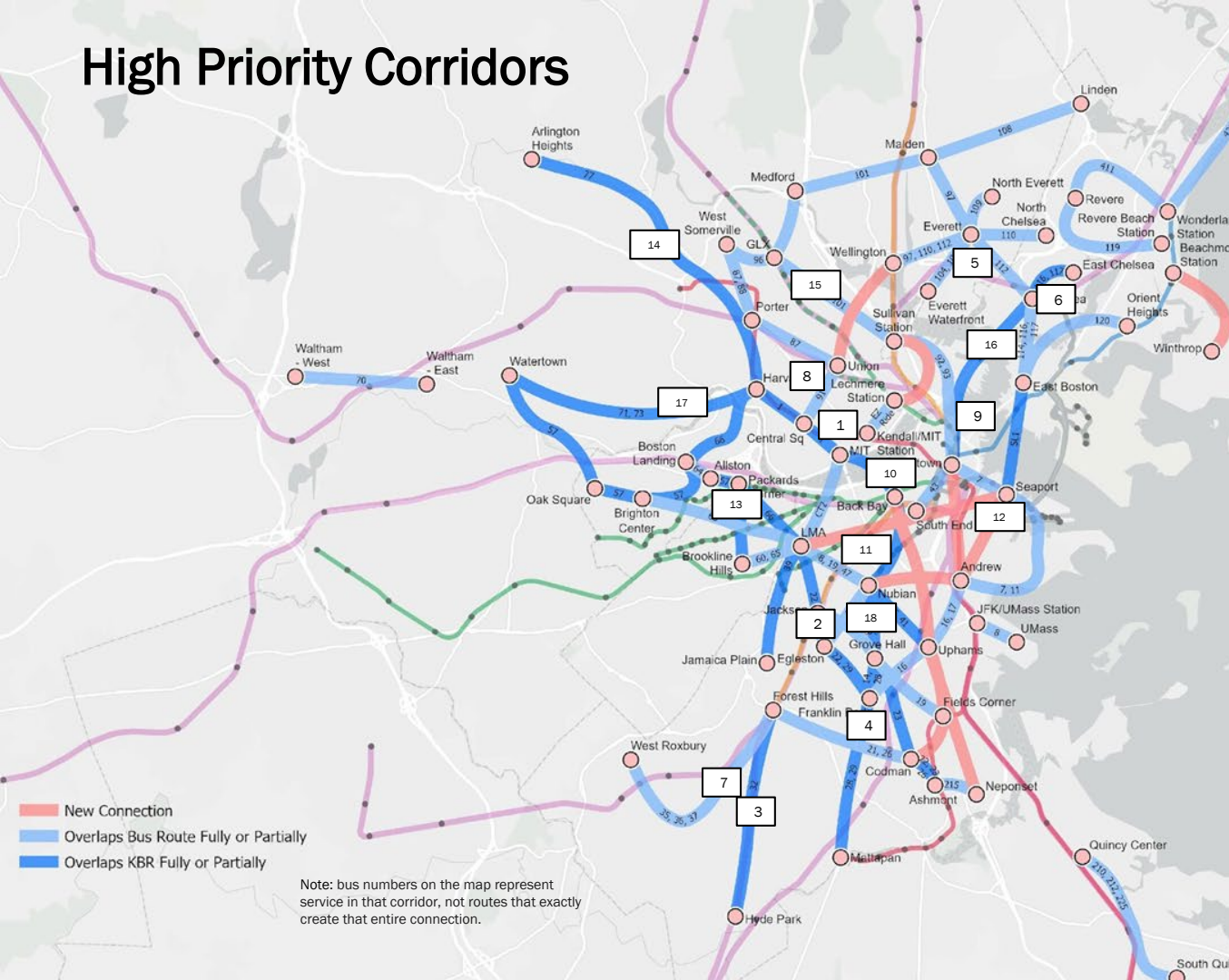
High Priority Corridors



The High Priority Corridors help prioritize investments

- These would not all be implemented at once, and we can prioritize based on value (cost/benefit) 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
- 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 transit priority work supports build out of this vision

High Priority Corridors



Red Line
Blue Line
Orange Line
Green Line
Silver Line
Commuter Rail

New Connection
Overlaps Bus Route Fully or Partially
Overlaps KBR Fully or Partially

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
9. North Washington Street - Boston
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

How Center-Running Bus Lanes Work

Cars travel safely behind passengers at platform.

Compatible with existing fleet; Buses pull to passenger platforms the same as they pull up to bus stops today.



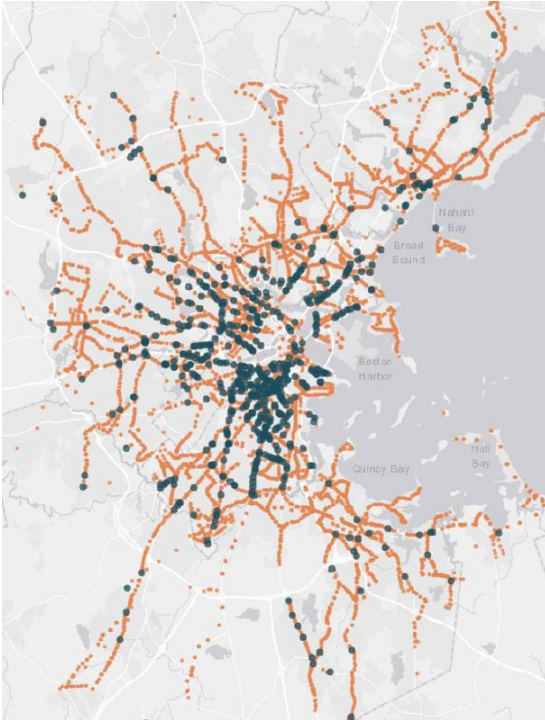
Shortened crossings; Boarding platforms create safe, ADA-accessible refuges for crossing the street.

Middle of roadway becomes safer and more open for pedestrians, and neighborhood perception of “busy” street improves.

Narrowed street slows cars to expected and safer speeds, and reduces lane shifting. Also limits buses blocked by double parked cars.



Bus Shelter Distribution



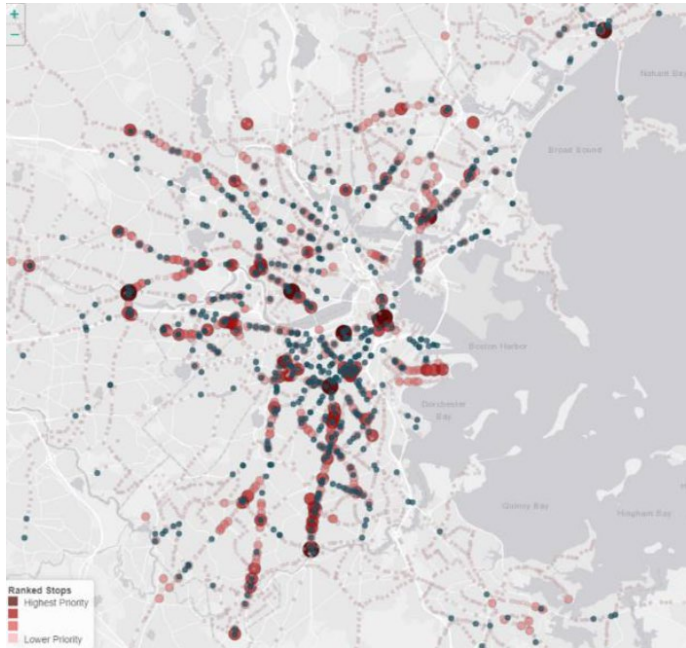
Map of Greater Boston with existing bus stops denoted by orange dots and existing bus shelters denoted by blue dots

By funding the capital to build out the Street Furniture Program, MBTA has better ability to control placement and equitable distribution of shelters and other amenities



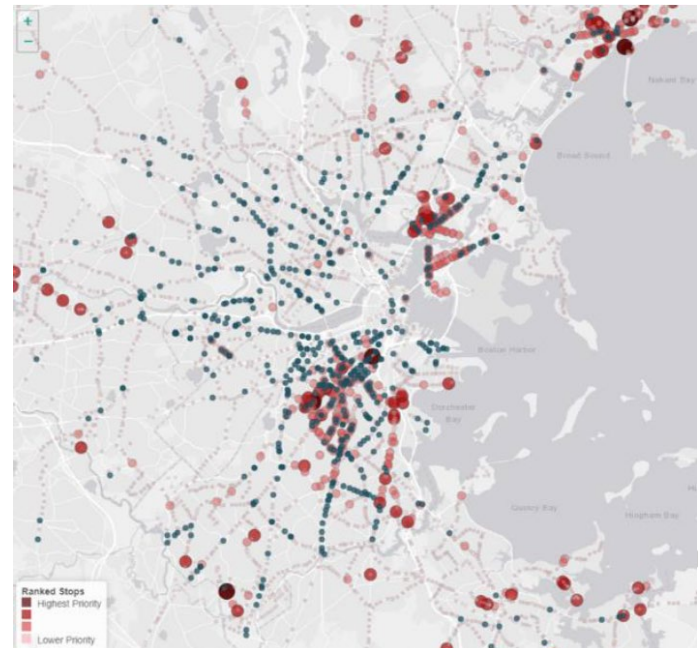
Distribution of Existing Shelters

Distribution by Ridership



Map of Greater Boston. Larger, red dots denote high ridership bus stops, small pink dots denote low ridership bus stops. Blue dots denote existing bus shelters.

Distribution by Equity



Map of Greater Boston. Larger, red dots denote bus stops located in more vulnerable areas. Smaller, pink dots denote bus stops in less vulnerable areas. Blue dots denote existing bus shelters.