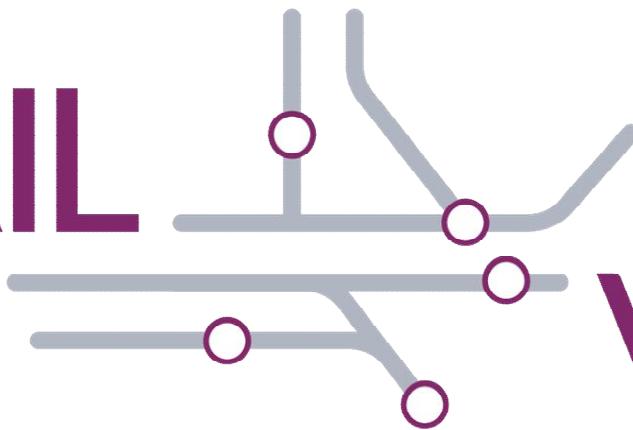




RAIL



VISION

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Littleton Planning Board

JUNE 6, 2019



# Presentation Agenda

- Project Overview
- Seven Service Alternatives
- Example of Operations Analysis Results
- Next Steps

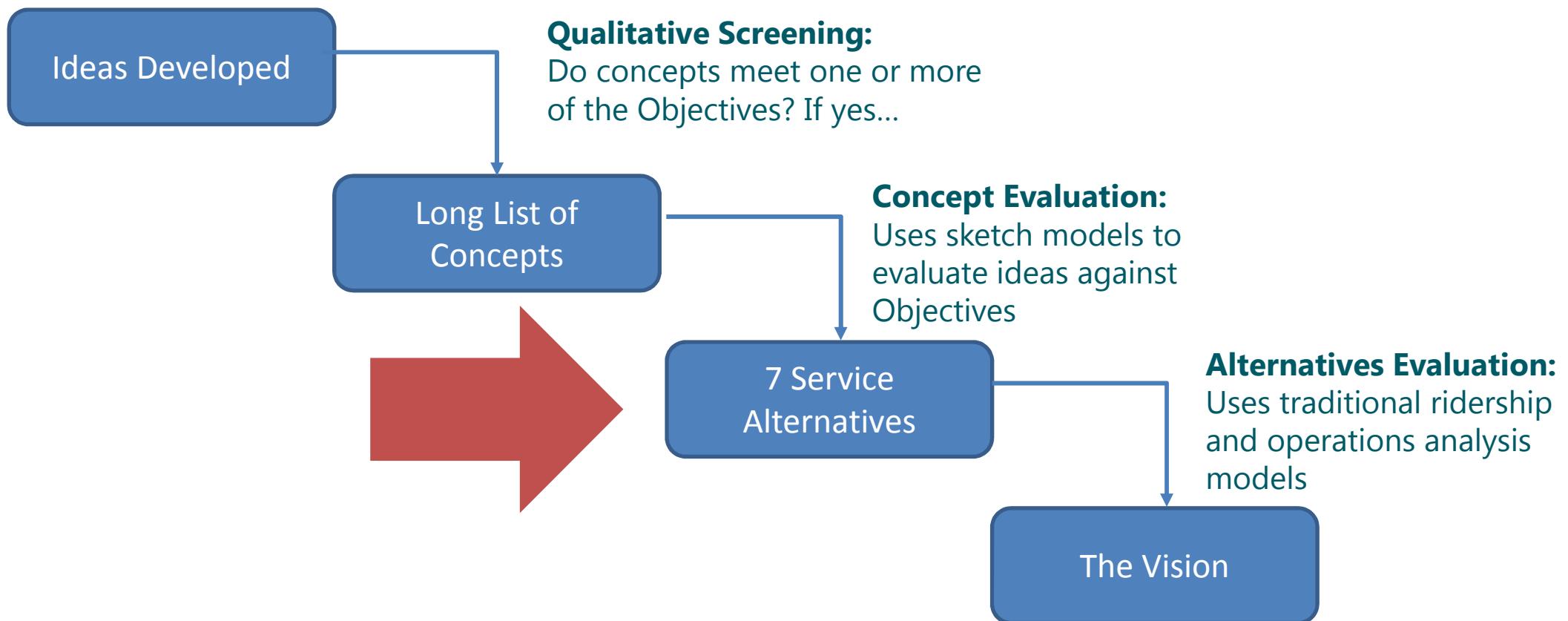
## Project Goal

Leverage the MBTA's extensive commuter rail network to best meet the transportation and economic growth needs of the region.

## Project Objectives

1. Match service with the growing and changing needs of the region
2. Enhance economic vitality
3. Improve the passenger experience
4. Provide an equitable and balanced suite of investments
5. Help the Commonwealth achieve its climate change resiliency targets
6. Maximize return on investment (financial stewardship)

# Where We Are Now



## Advisory Committee

- 22 member Advisory Committee represents diverse MBTA service area perspectives and provides informed advice to agency leadership
  - Local, state and federal elected officials, transportation and business organizations, transit and advocacy groups
  - Members review information and provide advice to MassDOT and MBTA at key milestones
  - Members have attended five meetings and provided comments and concerns

## What We Heard – Riders and Non-Riders

Keolis surveys Commuter Rail riders annually – most recently in February 2018

- 4,000 individual comments on topics ranging from wi-fi to reliability to increasing seat capacity
- Results showed that most respondents are likely to continue to use Commuter Rail in the future
- Fare promotions and special ticket deals were well rated

Rail Vision developed a survey for non-riders to ask what factors affect their decision to drive versus switch to rail

- Nearly 3,000 non-riders completed the survey
- Closed March 29, full results posted on our website
- Lack of convenience was a bigger barrier than cost

# Elements Covered in Rail Vision Service Alternatives

Alternatives aim to **reduce travel time, increase service frequency, and improve system connectivity** based on results from the first phase

Alternatives to consider mix of service and investment elements:

- New vehicle technology
- System electrification
- High level platforms
- Station typology and frequency
- Double and triple tracking
- Facility needs and expansions
- Station locations
- More express service
- Span of service
- Transfer hubs
- Operational feasibility
- Order of magnitude operating and capital costs

# Station Typologies

Alternatives will consider a mix of service and investment elements to provide higher levels of service to:

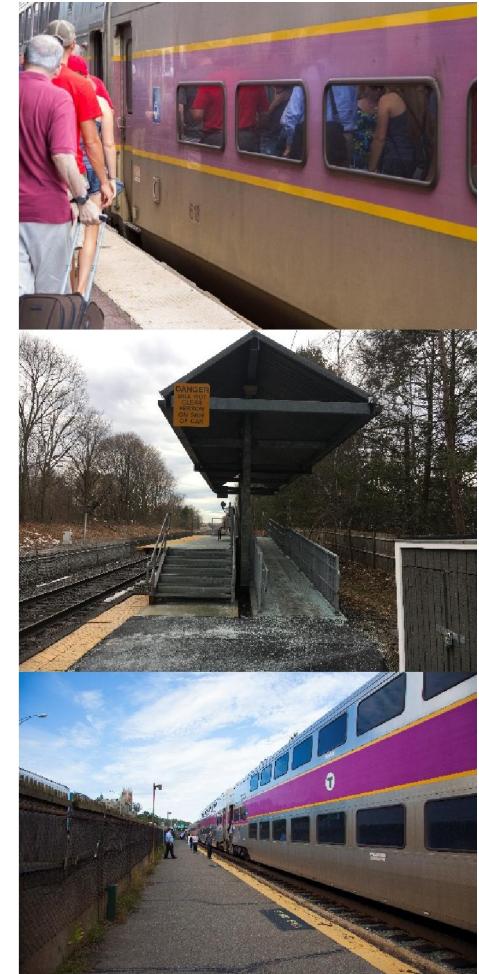
- **Key stations**, due to their density, regional access, and transit connectivity
- **Inner core stations**, in and around Boston
- **Outer stations**, outside the Inner Core

## Typical Characteristics of Key Stations

 <p><b>Density</b> Stations in Gateway Cities, downtown areas, town centers, and high-density locations can support frequent service.</p>	 <p><b>Regional Access</b> Proximity to the roadway network with sufficient parking allows stations to draw passengers from across the region.</p>
 <p><b>Ridership</b> Currently one of the 5 highest ridership stations on the line or branch.</p>	 <p><b>Transit Connections</b> Stations improve transfers to/from public transportation, increasing connectivity to and within the MBTA system.</p>

# High Level Platforms / Accessibility Upgrades

- Existing system has a mixture of platform types:
  - **High-level**, with a level boarding surface
  - **Mini-high**, with a portion of the platform at a high-level to provide a level boarding surface
  - **Low-level**, requiring use of stairs or ramp
- High-level boarding and powered doors on trains could reduce dwell times at stations
- The project will assume different levels of platform upgrades across the alternatives to test a range of capital improvements.



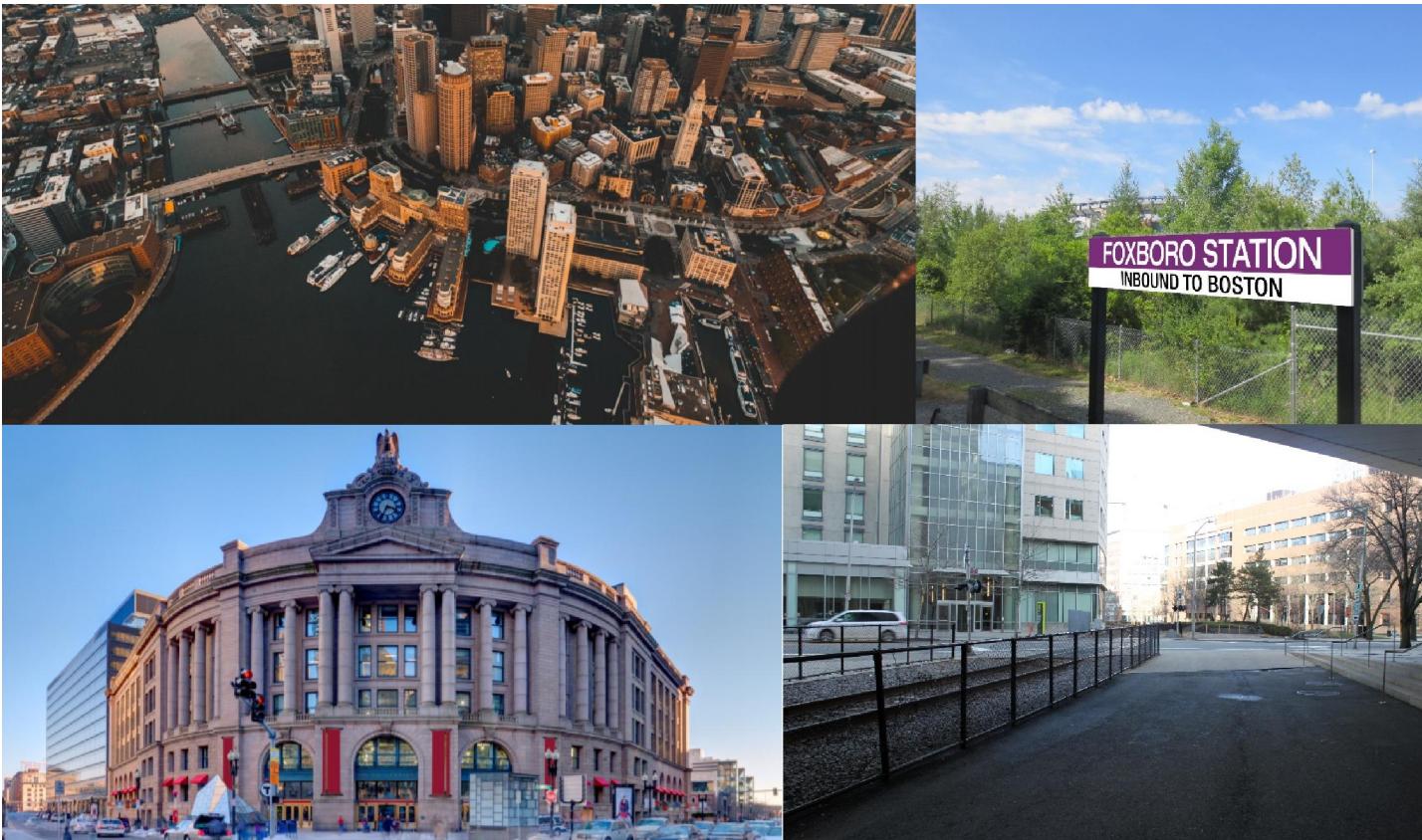
## Electrification and Vehicle Technology

- Some alternatives will consider full or partial system electrification
- Vehicle options include locomotives paired with coaches or multiple units (multiple self-propelled vehicles) – either can be diesel, electric, or dual mode
- Vehicle powered by electricity produce lower emissions
- Multiple unit trains can provide travel time savings
- Procurement and O&M costs vary across the range of vehicle types



# Terminal Capacity and System Expansions

Examples include North South Rail Link, South Station Expansion, South Coast Rail (Phase 1 and Full Build), Foxborough, Grand Junction

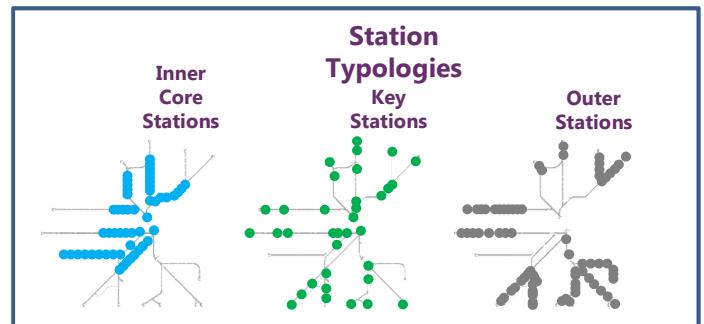


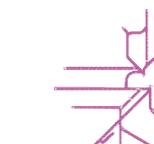
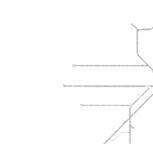
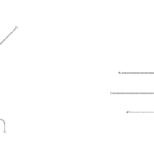
# Seven Rail Vision Service Alternatives

Handouts provide more detail on alternatives:

- Alternative 1: Optimize Existing System
- Alternative 2: Regional Rail to Key Stations (Diesel)
- Alternative 3: Regional Rail to Key Stations (Electric)
- Alternative 4: Urban Rail (Diesel)
- Alternative 5: Urban Rail (Electric)
- Alternative 6: Full Transformation
- Alternative 7: Hybrid System

# Comparing Alternatives

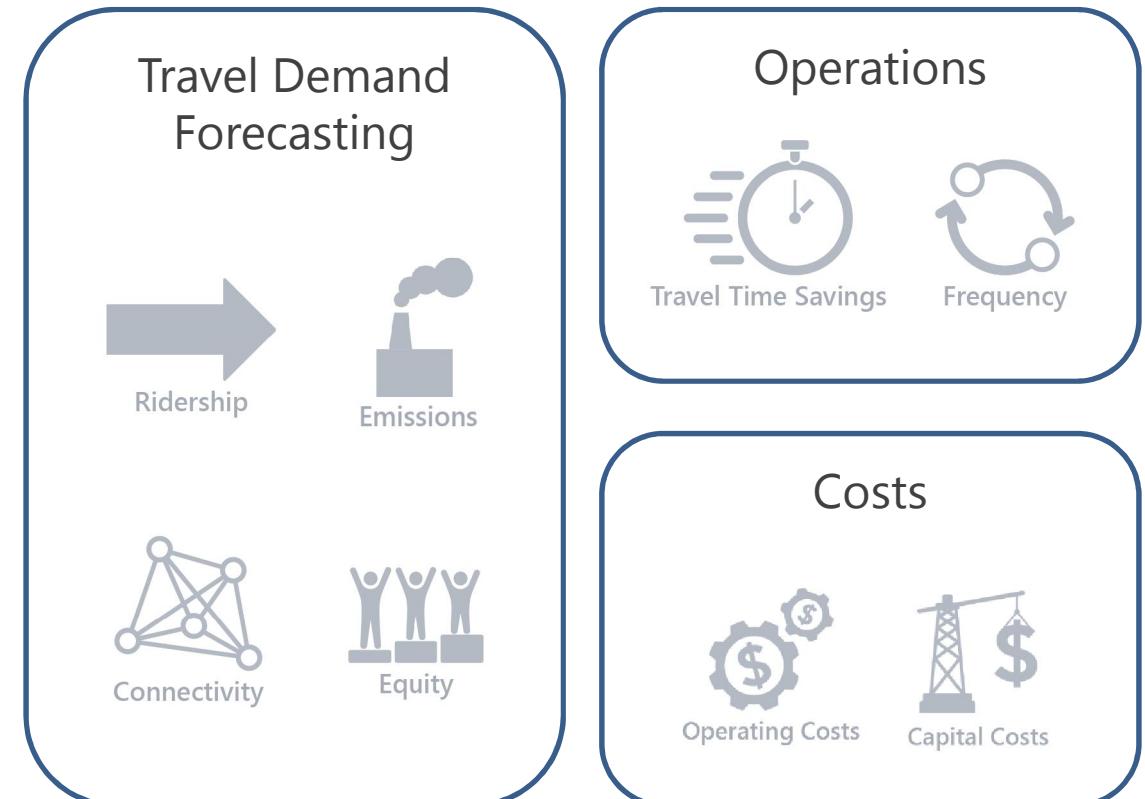


Typical Frequency (Peak/Off-Peak)	1: Optimize Existing System	2: Regional Rail to Key Stations (Diesel)	3. Regional Rail to Key Stations (Electric)	4: Urban Rail (Diesel)	5. Urban Rail (Electric)	6. Full Transformation	7. Hybrid System
Key Stations	● 30/60	● 15/15 (North Side) ● 30/30 (South Side)	● 15/15	● 30/60	● 30/60	● 15/15	● 30/60
Inner Core	● 30/60	● 30/60	● 30/60	● 15/15	● 15/15	● 15/15	● 15/30
Outer Stations	● 30/60	● 30/60	● 30/60	● 30/60	● 30/60	● 15/30	● 30/60
<b>Fully Accessible High-Level Platforms</b>							
Key Stations		✓	✓	-	-	✓	✓
Inner Core	Existing or Programmed Upgrades Only	-	-	✓	✓	✓	✓
Outer Stations		-	-	-	-	✓	-
<b>Electrification</b>							
							
<b>Major Expansions</b>							
							

**Note:** The alternatives as described above are subject to change during the modeling process. All text and maps describe a typical application at the system level but may vary to some extent at the line, station, or segment levels.

# Key Results

- Results will be summarized:
  - By alternative
  - For each line (for some metrics)
- Understand for each alternatives:
  - Operations (frequency, travel times, etc.)
  - Infrastructure required
  - Fleet requirements
  - Ridership
  - Costs
  - Benefits (emissions, equity, connectivity)

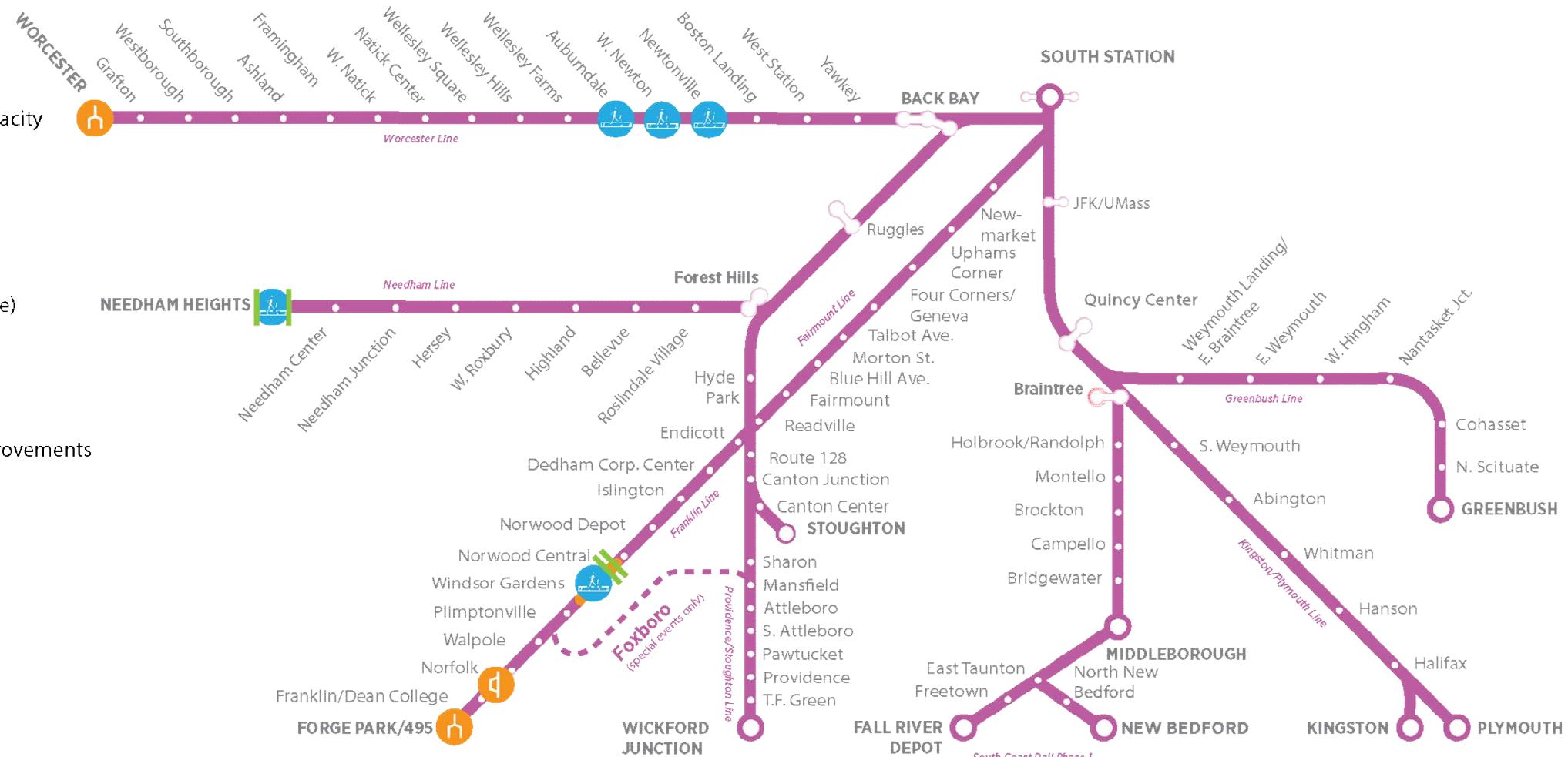


# Alternative 1 Analysis: Optimize Existing System – Initial Capital Improvements

## Stations

 Accessibility Upgrades

 Additional Platform/Track Capacity



**Note:** Systems and signal upgrades will be required. Some land acquisition may also be required.

# Alternative 1 Analysis: Optimize Existing System – Initial Capital Improvements

## Stations

 Accessibility Upgrades

 Additional Platform/Track Capacity

## Tracks

 Turn tracks

 Passing Sidings

 Additional Track (Double, Triple)

## Other Improvements

 Electrification

 Grade Crossing or Bridge Improvements

## Terminal Improvements

 Terminal Upgrade

 Terminal Expansion

 North South Rail Link



**Note:** Systems and signal upgrades will be required. Some land acquisition may also be required.

## Next Steps: Alternatives Evaluation

- Complete modeling for operations, infrastructure and capital costs with Rail Traffic Controller (RTC) modeling tools
- Develop robust ridership estimates for all 7 Alternatives using the CTPS Travel Demand Model
- Identify potential land-use and demographic effects of one or more Alternatives using the Regional Dynamic Model (RDM)
- Develop capital and operating cost estimates
- Share results with Advisory Committee and public

# Integrating Parking and Fare Policy

## Parking Constraints

- Test the effects of un-constraining parking supply at some stations, in some alternatives

## Fare Policy Analysis

- Work with the MBTA team conducting a network-wide analysis of fare policy, which will identify and evaluate potential alternative fare structures
- Test the effects of implementing a different fare structure in at least one alternative

## Project Contacts & Website

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