

RAIL VISION



Littleton Planning Board

JUNE 6, 2019



Presentation Agenda

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

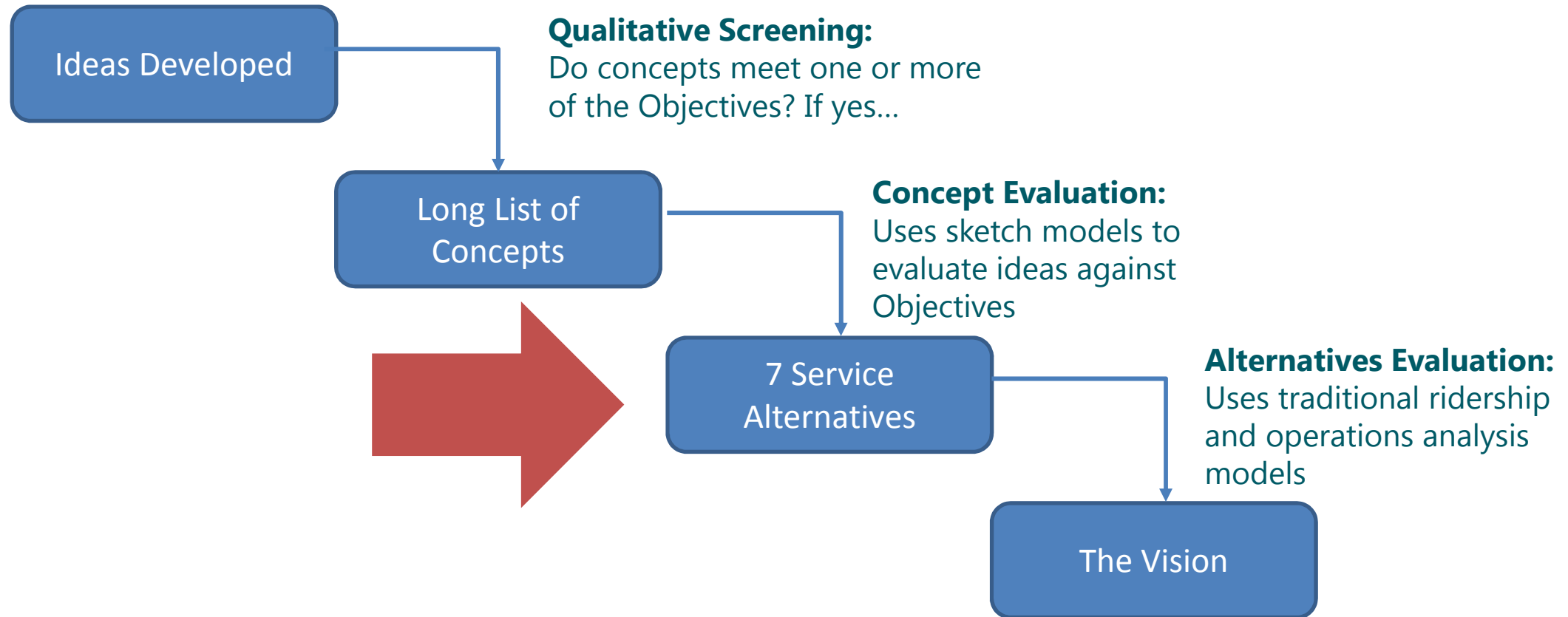
Project Goal

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 | - Station locations |
| - System electrification | - More express service |
| - High level platforms | - Span of service |
| - Station typology and frequency | - Transfer hubs |
| - Double and triple tracking | - Operational feasibility |
| - Facility needs and expansions | - 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



Density

Stations in Gateway Cities, downtown areas, town centers, and high-density locations can support frequent service.



Regional Access

Proximity to the roadway network with sufficient parking allows stations to draw passengers from across the region.



Ridership

Currently one of the 5 highest ridership stations on the line or branch.



Transit Connections

Stations improve transfers to/from public transportation, increasing connectivity to and within the MBTA system.

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.



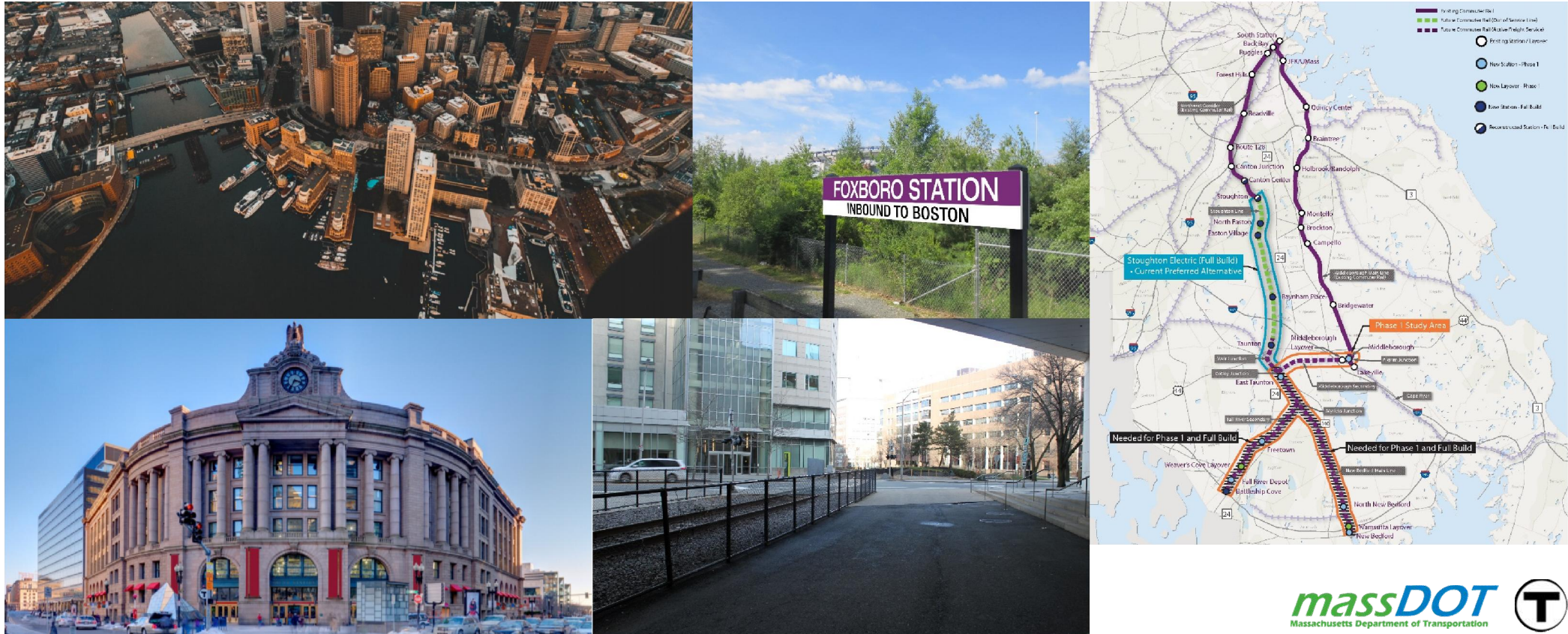
Electrification and Vehicle Technology

- 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

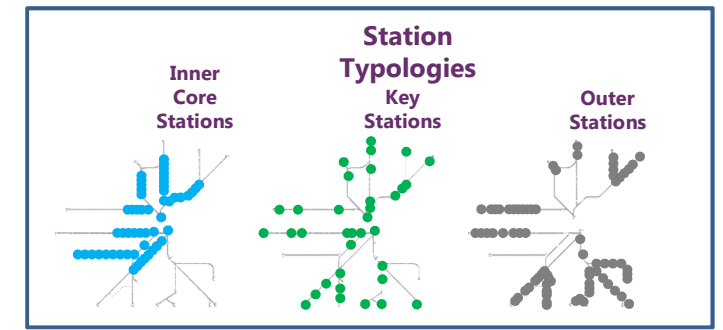


Seven Rail Vision Service Alternatives

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



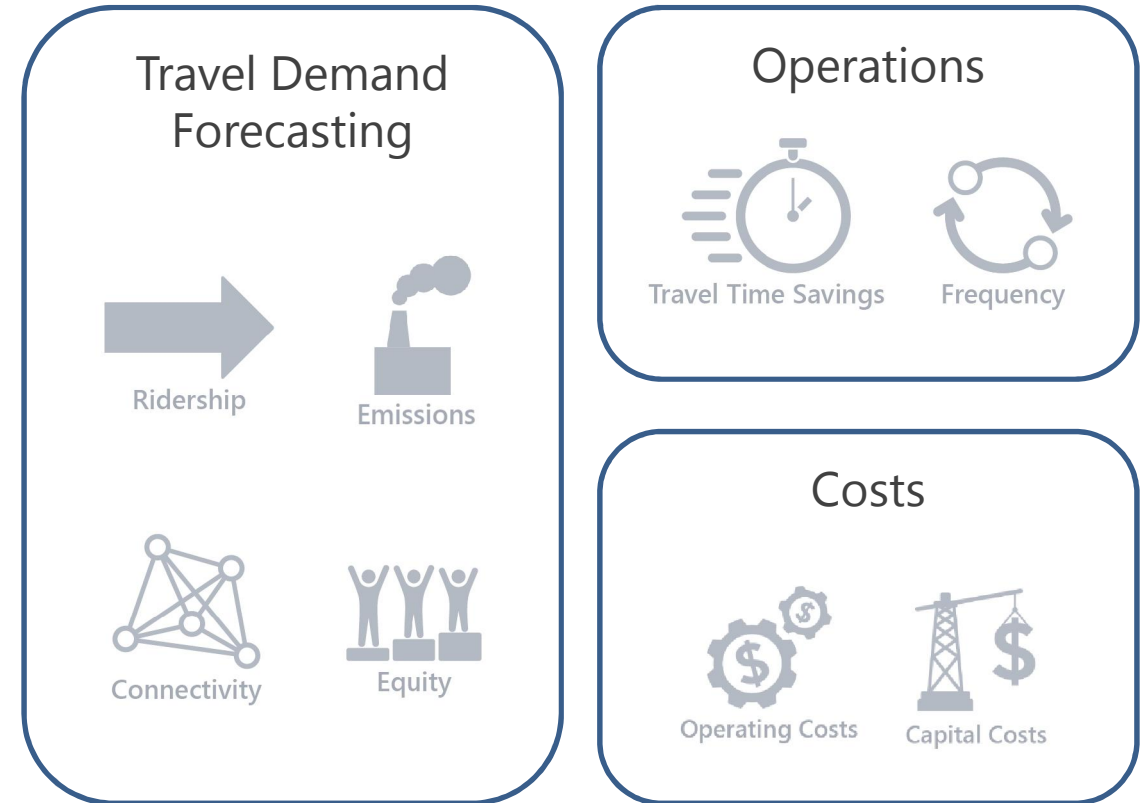
	Typical Frequency (Peak/Off-Peak)	1: Optimize Existing System	2: Regional Rail to Key Stations (Diesel)	3: Regional Rail to Key Stations (Electric)	4: Urban Rail (Diesel)	5: Urban Rail (Electric)	6: Full Transformation	7: Hybrid System
Key Stations		● 30/60	● 15/15 (North Side) ● 30/30 (South Side)	●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

Evaluating relative **benefits and costs** across the seven alternatives will provide the foundation to build **one or more Visions** for the future of commuter rail, which **may combine features from multiple alternatives** to maximize the effectiveness of the MBTA rail network.

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




Tracks

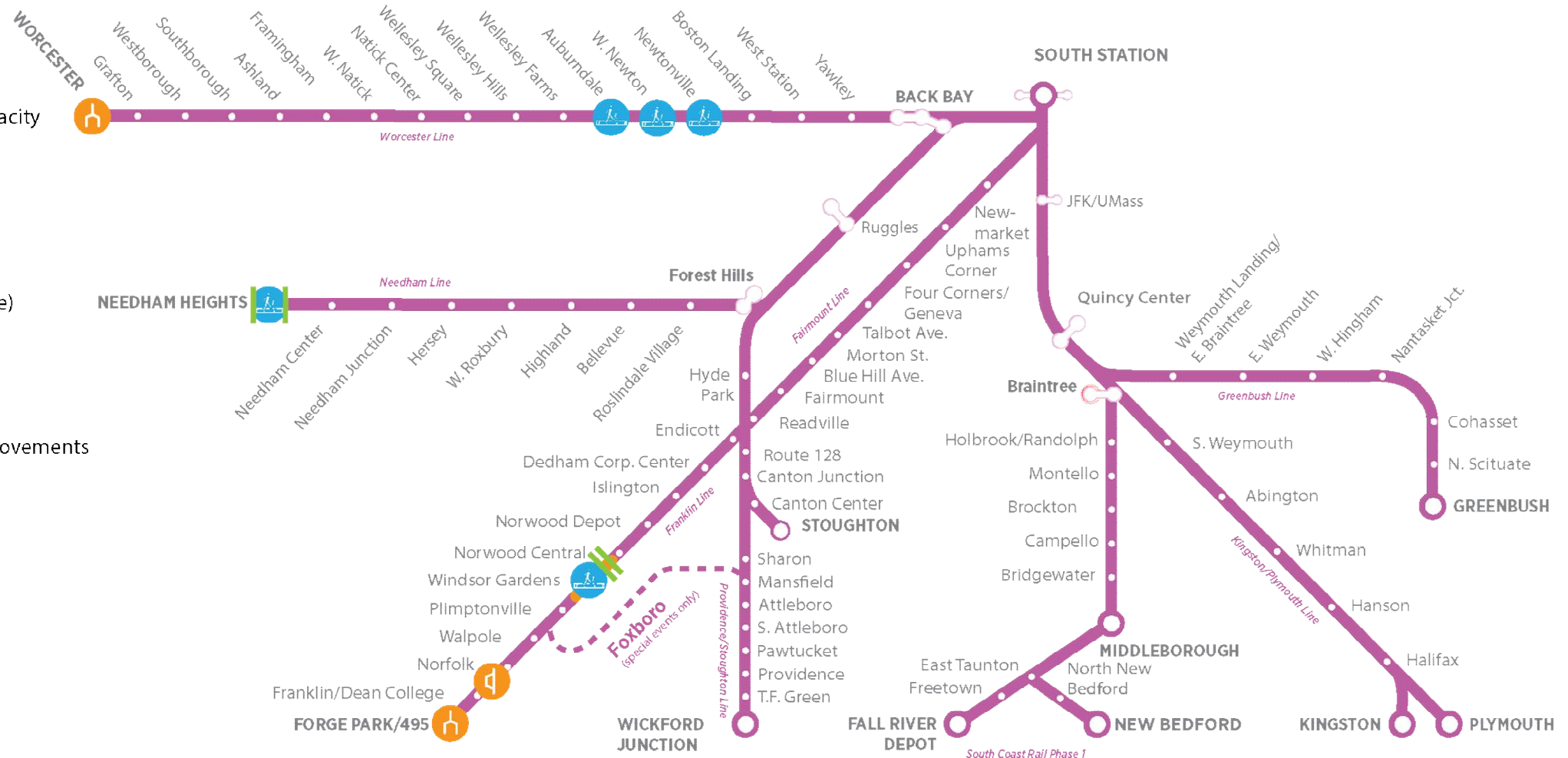
-  Turn tracks
-  Passing Sidings
-  Additional Track (Double, Triple)

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.

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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

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