RAIL ° VISION

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Advisory Committee Meeting

DECEMBER 13, 2018



Purpose of Today's Meeting

- 1. Welcome
- 2. Potential Service Alternatives
- 3. Other Updates
- 4. Public Comment



Evaluation Process









Potential Tier 2 Service Alternatives



Purpose of Today's Discussion

- Presentation of initial six systemwide alternatives
- Team is still developing additional alternatives that include line by line optimization based on Tier 1 analysis
- Feedback from Advisory Committee and FMCB (meeting on 12/17) will be incorporated into an updated set of alternatives, which will be presented at January's Advisory Committee and FMCB meetings



Development of Tier 2 Alternatives

The proposed service alternatives for Tier 2 are informed by

- What we learned from the Tier 1 analysis
- What we heard from the Advisory Committee

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Elements Common to All Alternative Elements

- ✓ More frequent, bi-directional service
- ✓ Infrastructure necessary to support service alternative will be in place
- ✓ Signal upgrades will support service plans (including Positive Train Control system-wide)
- ✓ West Station
- ✓ Haverhill/Lowell Interlining
- ✓ Franklin/Fairmount Interlining



Variable Elements in Alternatives

- > Service Focus (Key Stations, Inner Core)
- > Frequency (15, 30, 60 minutes)
- Electrification (Full, Partial, None)
- Rolling Stock (Electric, Diesel, Multiple Units)
- Terminal Capacity (North-South Rail Link (NSRL), South Station Expansion (SSX), Existing)
- System Expansions (South Coast Rail (SCR) Phase 1, SCR Full Build, Grand Junction, Foxboro)
- > Additional Interlining
- Station Accessibility



The System of Today is...

Today's system is largely local service geared towards serving work trips into downtown Boston. Some Express and Zonal Express service operates on longer lines.

What Exists Todayor in the	e Very Near Future
Typical Frequency	20/60 peak direction
Electrification:	None (Amtrak only)
Rolling Stock	Diesel locomotives (Continual investments)
Terminals:	Existing (North Station, South Station), with North Station capacity upgrades
System Expansions:	N/A
Committed New or Upgraded Stations:	Blue Hill Ave. (Fairmount) Pawtucket (Providence) SCR Phase 1 stations Other station upgrades
Interlining	Haverhill/Lowell (2 trips/day)
Station Accessibility	Mixed



How the Alternatives Address...Station Typologies



Potential Tier 2 Service Alternatives

Low

Investment Level

High

- 1. Modernize Existing System
- 2. Regional Rail to Key Stations
- 3. DMU Urban Rail
- 4. EMU Urban Rail
- 5. EMU Urban Rail + Regional Rail to Key Stations
- 6. Electrified/Integrated



How the Alternatives Address...**Frequency**



How the Alternatives Address...Electrification









How the Alternatives Address...**Terminal Capacity**



How the Alternatives Address...System Expansion



How the Alternatives Address...**Interlining**



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How the Alternatives Address...Station Accessibility



Service Alternative #1: Modernize Existing System

Maximizes functionality of existing system with bi-directional, predictable, consistent pulse service and Regional Rail on longer lines

Key Features	
Typical Frequency	Key Stations: 30/60 bi-directional Inner Core: 30/60 bi-directional Other Stations: 30/60 bi-directional
Electrification	None
Rolling Stock	Diesel Locomotive
Terminals	Existing
System Expansions	SCR Phase 1
Interlining	Haverhill/Lowell Franklin/Fairmount
Station Accessibility	Existing or Programmed



Service Alternative **#2: Regional Rail to Key Stations**

Maximizes functionality of existing system with bi-directional, predictable, consistent pulse service and Regional Rail on longer lines and capacity to support added frequency

Key Features	
Typical Frequency	Key Stations: 15/15 bi-directional Inner Core: 30/60 bi-directional Other Stations: 30/60 bi-directional
Electrification	None
Rolling Stock	Diesel Locomotive
Terminals	Existing
System Expansions	SCR Phase 1 Foxboro
Interlining	Haverhill/Lowell Franklin/Fairmount Greenbush/Kingston Fitchburg/Newburyport-Rockport
Station Accessibility	Key Stations



Service Alternative #3: DMU Urban Rail

All-day frequent service to inner core stations served by DMU trains, supported by frequent peak and hourly off-peak service to outer stations, with South Station Expansion

Key Features		
Typical Frequency	Key Stations Inner Core: Other Static	s: 30/60 bi-directional 15/15 bi-directional ons: 30/60 bi-directional
Electrification	None	
Rolling Stock	DMUs Diesel Loco	motive
Terminals	South Static	on Expansion
System Expansions	SCR Phase	1
Interlining	Haverhill/Lo Franklin/Fai	owell rmount
Station Accessibility	Inner Core	



Service Alternative #4: EMU Urban Rail

All-day frequent service to inner core stations served by EMU trains, supported by frequent peak and hourly off-peak service to outer stations, with South Station Expansion

Key Features	
Typical Frequency	Key Stations: 30/60 bi-directional Inner Core: 15/15 bi-directional Other Stations: 30/60 bi-directional
Electrification	Urban Rail Providence Line SCR Full Build
Rolling Stock	EMUs Diesel Locomotive
Terminals	South Station Expansion
System Expansions	SCR Full Build Grand Junction
Interlining	Haverhill/Lowell Franklin/Fairmount
Station Accessibility	Inner Core





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Service Alternative #6: Electrified/Integrated

Full system electrification, with a combination of Urban Rail in the inner core communities and Regional Rail for longer lines.

Key Features		
Typical Frequency	Key Stations Inner Core: Other Static	s: 15/15 bi-directional 15/15 bi-directional ons: 15/30 bi-directional
Electrification	Full System	
Rolling Stock	EMUs	
Terminals	North-Sout	h Rail Link
System Expansions	SCR Full Bui Grand Junct Foxboro	ld tion
Interlining	Haverhill/Lc Franklin/Fai Urban Rail/I	owell rmount Jrban Rail
Station Accessibility	All Stations	Served



Summary of Proposed Service Alternatives for Tier 2

	Non-Electrified Alternatives			Electrified Alternatives		
Alternative	1. Modernize Existing System	2. Regional Rail to Key Stations	3. DMU Urban Rail	4. EMU Urban Rail	5. EMU Urban Rail + Regional Rail to Key Stations	6. Electrified/ Integrated
Investment Level	Lowest				·	Highest
Typical Frequency (peak/off-peak)	30/60 Key Stations 30/60 Inner Core 30/60 Other	15/15 Key Stations 30/60 Inner Core 30/60 Other	30/60 Key Stations 15/15 Inner Core 30/60 Other	30/60 Key Stations 15/15 Inner Core 30/60 Other	15/15 Key Stations 15/15 Inner Core 30/60 Other	15/15 Key Stations 15/15 Inner Core 15/30 Other
Electrification	None	None	None	Partial System - Urban Rail - Providence Line - SCR Full Build	Full System	Full System
Rolling Stock	Diesel Locomotive	Diesel Locomotive	DMUs Diesel Locomotive	EMUs Diesel Locomotive	EMUs	EMUs
Terminals	Existing	Existing	SSX	SSX	SSX	NSRL
System Expansion	SCR Phase 1	SCR Phase 1 Foxboro	SCR Phase 1	SCR Full Build Grand Junction	SCR Full Build Grand Junction Foxboro	SCR Full Build Grand Junction Foxboro
Interlining	Haverhill/Lowell Franklin/Fairmount	Haverhill/Lowell Franklin/Fairmount Greenbush/Kingston Fitchburg/ Newburyport-Rockport	Haverhill/Lowell Franklin/Fairmount	Haverhill/Lowell Franklin/Fairmount	Haverhill/Lowell Franklin/Fairmount Greenbush/Kingston Fitchburg/ Newburyport-Rockport	Haverhill/Lowell Franklin/Fairmount Urban Rail/Urban Rail
Station Accessibility	Existing or Programmed	Key Stations	Inner Core	Inner Core	Key Stations Inner Core	All Stations

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Glossary of Terms

Term	What We Learned
Bi-Directional	 Services serve both inbound to Boston and outbound to regions in a similar pattern (could be useful to support reverse commute opportunities).
Electrification	 Converting track sections and upgrading the train fleet so that service is powered by electricity, and not by diesel locomotive. This can be done systemwide, for individual rail lines, or for a portion of a rail line.
Inner Core Station	 Stations in densely populated areas around Boston (typically within Route 128) that are prioritized under Urban Rail alternatives.
Interlining	• Lines or track sections that are shared by more than one rail line or branch, to increase capacity by rerouting away from downtown terminals or create new connections between lines.
Key Station	 Station which, for reasons of demand, current ridership, connections, or other reasons, is expected to receive higher levels of service than other stations in the system.
Pulse	 Frequent, predictable service (such as bi-hourly, quarterly), with trains moving in both directions at equal frequency. This would present a more set schedule and, in some cases, a substantial increase in frequency.
Terminal	• The end point of a rail line. In the context of this presentation, "terminal" refers to the shared end points of all rail lines in downtown Boston.