RAIL VISION

May 15, 2017
FMCB

Rail Vision Purpose and Need

- Commuter rail represents significant share of MBTA infrastructure and assets

- 9% of MBTA passenger trips are on commuter rail

- Current service limits potential to

    - grow ridership at off-peak times

    - encourage reverse commuting

    - provide frequent connections between Gateway Cities and Boston

- In some cases infrastructure is a barrier to more or different service

➔ MBTA needs to better understand the future of commuter rail infrastructure and service to inform:
- Capital investments including fleet
- Direction to take in next procurement for an operating contract

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Key Questions

What is the long-term market?

What type of fleet would be necessary to optimize the existing network or deliver new types of service?

What upgrades to signals, station platforms, other infrastructure would be required for new service?

What portions of the network, if any, should be electrified?

What types of service make sense under various market conditions and different assumptions about infrastructure?

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PROPOSED SCOPE

Feedback from Joint Board on April 10

- Study should identify improvements that would meet future needs assuming:

    - Today's level of capital investment and revenue

    - Higher levels of investment in the future

- Study should include a comprehensive systems simulation analysis

- Schedule should ensure that work can be complete in time to inform a new operating contract

Proposed Scope

Task 1: Review previous studies and data collection

Task 2: Future market analysis

Task 3: Peer market comparison (US and international)

Task 4: Identify potential service alternatives

Task 5: Simulation of service scenarios using existing and new infrastructure

Task 6: Ridership and operating cost implications

Task 7: Capital investment necessary to support alternatives

Task 8: Public conversation

Task 9: Develop business case/implementation plan

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Peer Market Comparison

- North America (NYC, Chicago, Philadelphia, Toronto)

- Europe (London, Paris, Berlin)

- Collect information on urban population, rapid transit and regional rail networks and service models, station area population and employment, ridership, driving and mobility trends

Identify Potential Service Alternatives, such as

- Urban Rail (DMUs/EMUs)

- Commuter

- Forced transfer/hybrid model

- Suburban/Gateway City express

- Regional Rail

System Simulation Analysis

A full system simulation model will allow us understand how the overall system would perform under varying operating scenarios.

- The MBTA developed a full system simulation for the 2016 schedule changes

- Several firms have developed their own simulation models (most would require significant expansion or major updates)

- A full southside model for proposed 2030 service levels (increased frequency from an expanded South Station and introduction of South Coast Rail) was built for the SSX project

- These models were built using various software modeling programs

- An entirely new simulation model informed by international best practices could be developed

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System Simulation Analysis

The scope envisions two distinct simulation efforts:

- Simulation of existing network to determine if service alternatives that do not require major capital investments are feasible and their impact on performance proceed early in the study

- Simulation featuring major infrastructure changes (electrification, terminal changes beyond SSX, double tracking, new signal systems, line extensions and infill stations) to test the delivery of new services

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Proposed Duration and Cost

- 2 – 2.5 year study at a cost of approximately $2 million

- Assumes eight service scenarios modeled

- Led by OTP, supported by Railroad Ops

Element	Q3 17	Q4 17	Q1 18	Q2 18	Q3 18	Q4 18	Q1 19	Q2 19	Q3 19	Q4 19
Mkt Analysis/Develop Scenarios	▉	▉								
Ridership/Cost Estimates			▉	▉	▉	▉	▉			
Model Using Existing Infrastructure			▉	▉	▉					
Model Using New Infrastructure					▉	▉	▉			
Public Conversation						▉	▉	▉		
Develop Business Case/Implementation Plan								▉	▉	▉