# TRANSIT STUDIES IN LYNN

MassINC Transformative Transit-Oriented Development
June 19, 2019

Two Concurrent Efforts Evaluating Transit Improvements in Lynn

- Lynn Transit Action Plan
- Rail Vision

Purpose of the Lynn Transit Action Plan

- **Holistically assess transit demand and needs** in Lynn across four modes – bus, commuter rail, ferry, and rapid transit

- Identify strategies to make transit services in and around Lynn **faster, more reliable, and better matched to where people need to go** – including employment hubs and resources in the Lynn, Boston, and across the North Shore

- Consider how transit improvements can **leverage Lynn's location near Boston** to better position the City **to fully participate in the region's economic growth**
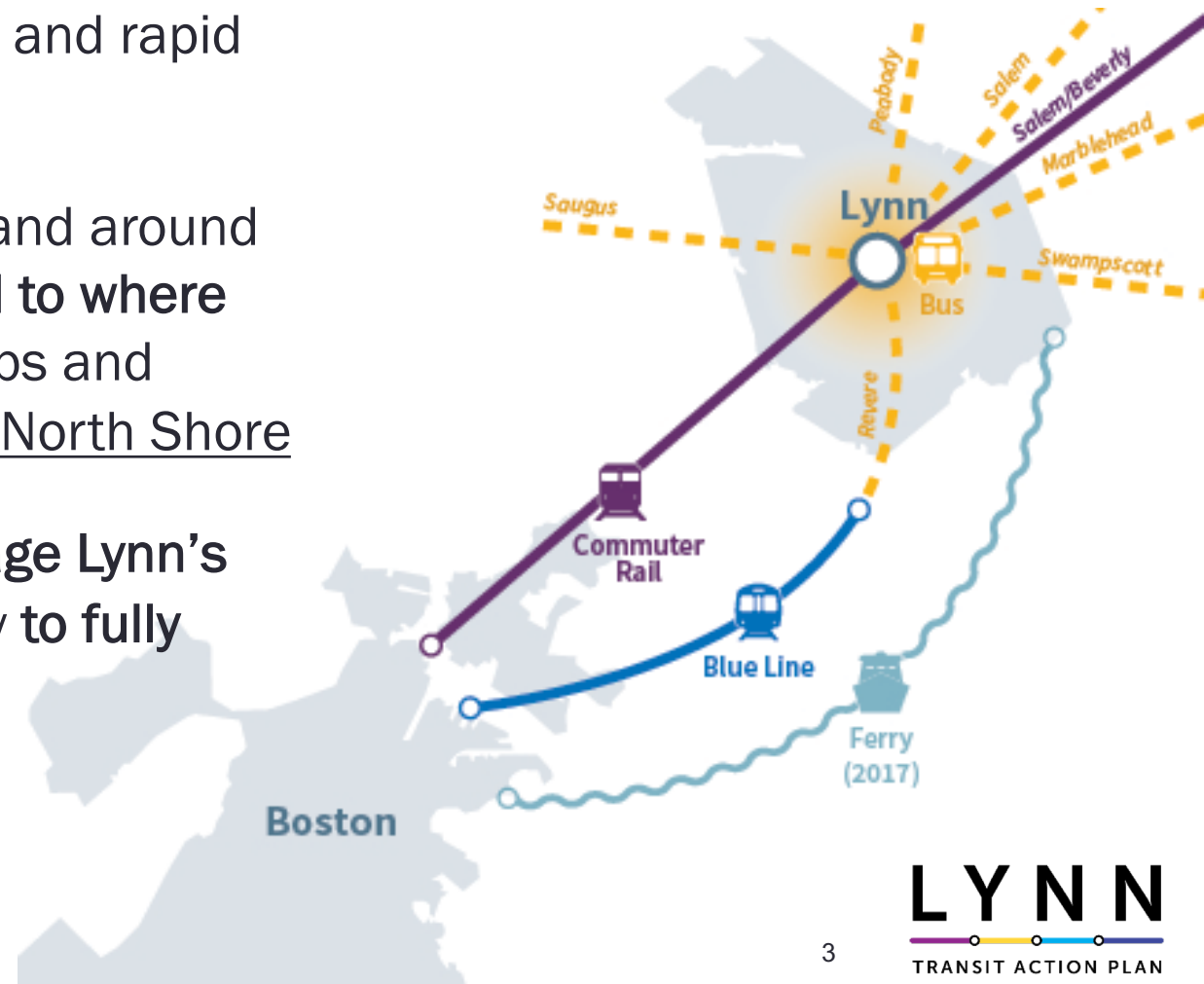
Gaps in Transit Service in the MBTA Region

Lynn lies **outside the core MBTA service area**, but features similar levels of **density**, mixes of **land use**, and **disadvantaged and transit dependent populations** as other areas with higher frequency service.

Legend

Transit

— MBTA Blue Line
— MBTA Green Line
— MBTA Orange Line
— MBTA Red Line
— MBTA Silver Line
— MBTA Key Bus Routes
Half-Mile Transit Catchment
Lynn City Boundary

Population per Acre
- 0 - 7
- 8 - 20
- 30 - 40
- 50 - 70
- 80 - 200

0   2.5   5   7.5   10
Miles

N

4

Goals and Objectives

Pursue changes and improvements to the transit system that support the 3E's:

Equity

Economic Development

Environment

What do these goals mean for Lynn?

How do the 3E's map to the characteristics of successful transit services?

Methodology for Existing Conditions Analysis

- **Develop route profiles** – delay, reliability, ridership patterns, crowding, infrastructure conditions

- **Analyze travel patterns** – high-use travel corridors, high-frequented destinations (Boston, North Shore), patterns across time periods

- **Assess transit competitiveness** – gaps in transit service, areas where other modes provide better services than existing transit despite high levels of demand
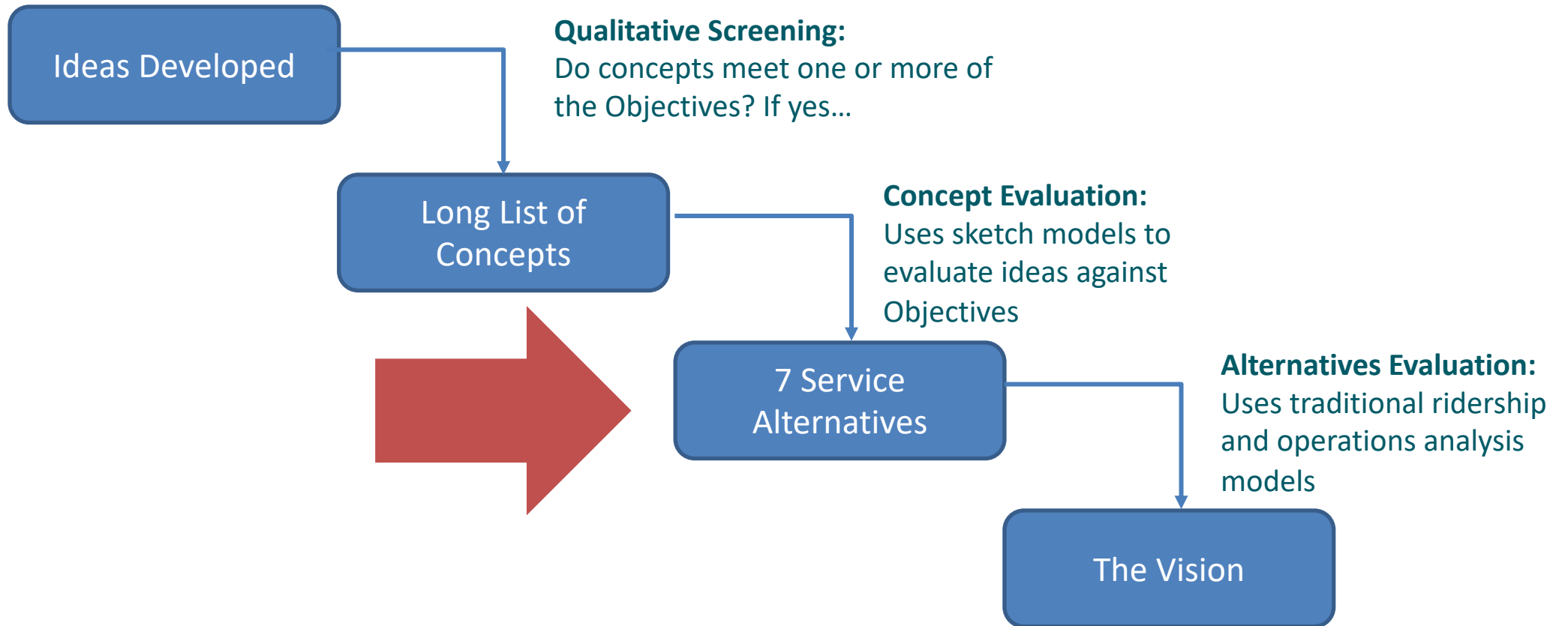
Rail Vision Goal

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

Rail Vision 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

Ideas Developed

Qualitative Screening:
Do concepts meet one or more of the Objectives? If yes…

Long List of Concepts

Concept Evaluation:
Uses sketch models to evaluate ideas against Objectives

7 Service Alternatives

Alternatives Evaluation:
Uses traditional ridership and operations analysis models

The Vision

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

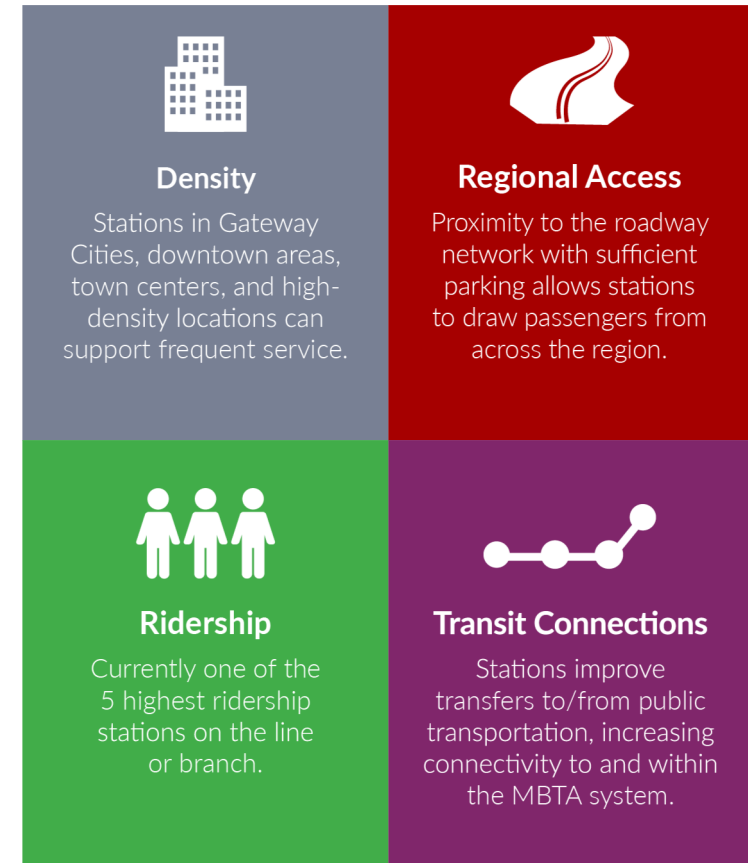Alternatives to consider mix of service and investment elements:

- 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

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

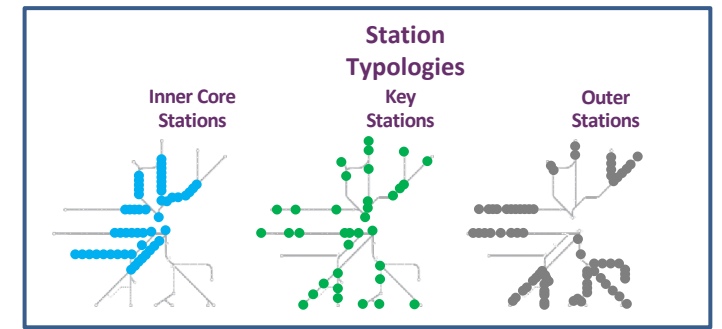# Terminal Capacity and System Expansions

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

- Alternative 1: Optimize Existing System

- Alternative 2: Urban Rail (Diesel)

- Alternative 3: Urban Rail (Electric)

- Alternative 4: Regional Rail to Key Stations (Diesel)

- Alternative 5: Regional Rail to Key Stations (Electric)

- Alternative 6: Full Transformation

- Alternative 7: Hybrid System

Comparing Alternatives

Station Typologies
Inner Core Stations | Key Stations | Outer Stations

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.

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

	1	2	3	4	5	6	7
Key Stations		✓	✓	-	-	✓	✓
Inner Core	Existing or Programmed Upgrades Only	-	-	✓	✓	✓	✓
Outer Stations		-	-	-	-	✓	-

Electrification

Major Expansions

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.

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

Thank You!

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