Stakeholder Meeting

Pioneer Valley Planning Commission

October 22, 2014

Northern New England Intercity Rail Initiative

BOSTON | SPRINGFIELD | NEW HAVEN | MONTREAL

massDOT Massachusetts Department of Transportation

VERMONT

Agenda

- Upcoming Public Meetings
- Overview of Initial Options
- Alternatives Definition
- Alternative Analysis
- Next Steps
- Questions & Answers

Project Partnership

- Massachusetts Department of Transportation
- Vermont Agency of Transportation

with support from

- Federal Railroad Administration

and in collaboration with

- Connecticut Department of Transportation
- New Hampshire Department of Transportation
- Ministère des Transports du Québec

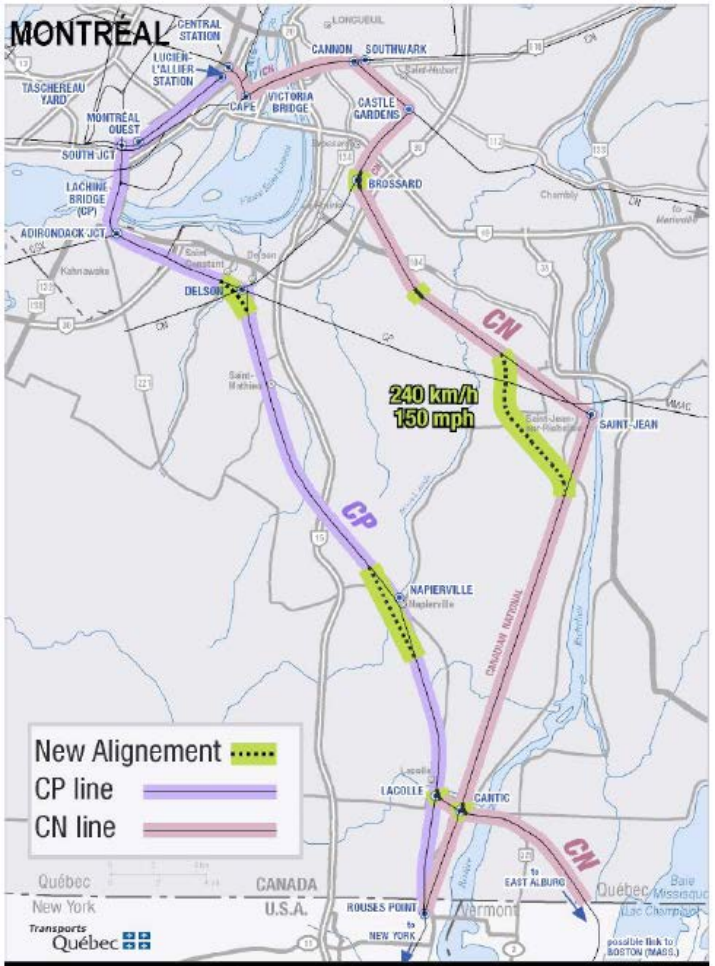
Project Background

470 Route Miles

- Boston to Springfield:
  99 Miles
- Boston to Montreal:
  408 Miles
- Boston to New Haven:
  162 Miles

Coordination Activities

- Canadian Operational Assumptions
  - MTQ HSR Study
    - CN Line Preferred Alternative
  - Montreal Customs Checkpoint
  - Impacts on Additional Service



MTQ Study Alignement Options

Coordination Activities

- NEC Future Assumptions
  - Upcoming Meetings
  - Potential Inland Route Inclusion

NEC FUTURE
A Rail Investment Plan for the Northeast Corridor

Upcoming Public Meetings

- November 17th – Hotel Coolidge, White River Junction, VT

- November 19th – Union Station, Worcester, MA

Overview of Initial Options Considered

- Top speeds of 79, 90, 110, 125 mph
- Tilt and non-tilt train equipment
- Track engineering specification modifications that include:
  - Super-elevation
  - Unbalance
- Use of more than one locomotive for each trainset

Overview of Initial Options Considered

- Train Performance Calculator
- Station Stopping Patterns
- Daily Frequencies
- Train Service Times
- Ridership
- Infrastructure

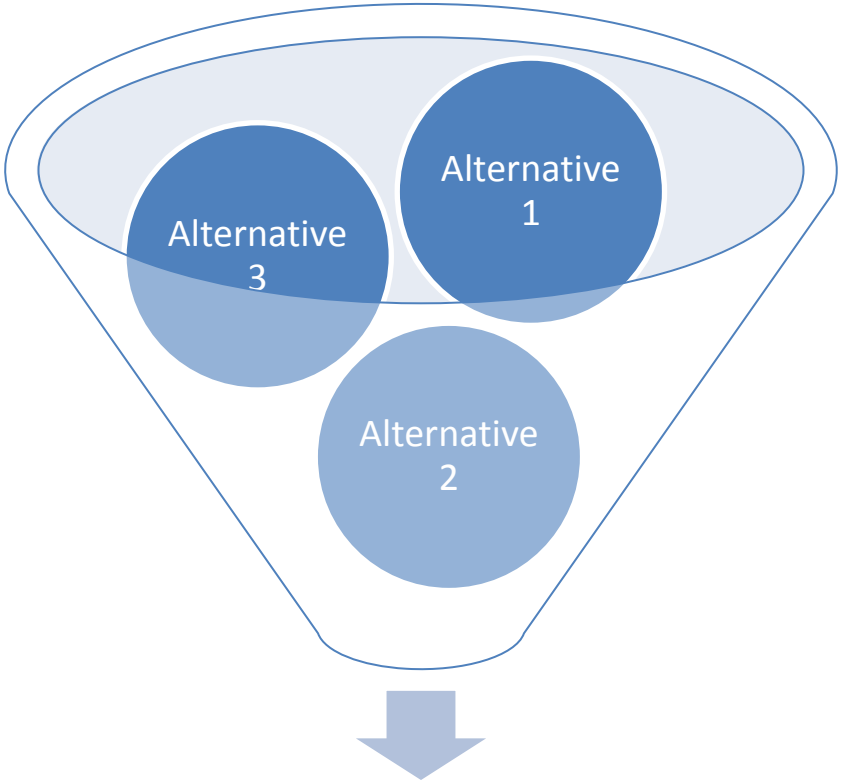
- 18 Scenarios Evaluated
  - Provided Input for Definition of Alternatives

Overview of Station Locations

Massachusetts	Vermont	Connecticut
Boston (Back Bay & South Station)	Brattleboro	Windsor Locks
Weston Tolls/Route 128	Bellows Falls	Windsor
Framingham	Windsor	Hartford
Worcester	White River Junction	Berlin
Palmer	Randolph	Meriden
Springfield	Montpelier	Wallingford
Holyoke	Waterbury	New Haven (Union Station)
Northampton	Burlington (Essex Junction)	
Greenfield	St. Albans	

New Hampshire	Claremont
Quebec	Montreal

Alternatives Evaluation



Recommended Alternative

Alternatives Definition

Alt NB — **No Build / Baseline Assumptions**

Alt 1 — **Corridor Service**

Alt 2 — **Corridor Service with Speed Improvements**

Alt 3 — **Corridor Service with Speed and Equipment Improvements**

Alt
NB

Overview

- Assumes no added NNEIRI service
- Benchmark for comparison of Alternatives
- Includes passenger rail services that currently operate on the Corridor including:
  - Commuter Rail Services
    - MBTA
    - AMT
    - Metro North
    - Shore Line East
  - AMTRAK Services
    - Lakeshore Limited Service
    - Vermonter Service
    - Shuttle and Northeast Regional Services
    - Adirondack Service

Alt
NB

Overview

Assumes known capacity, speed, and service upgrades, including:

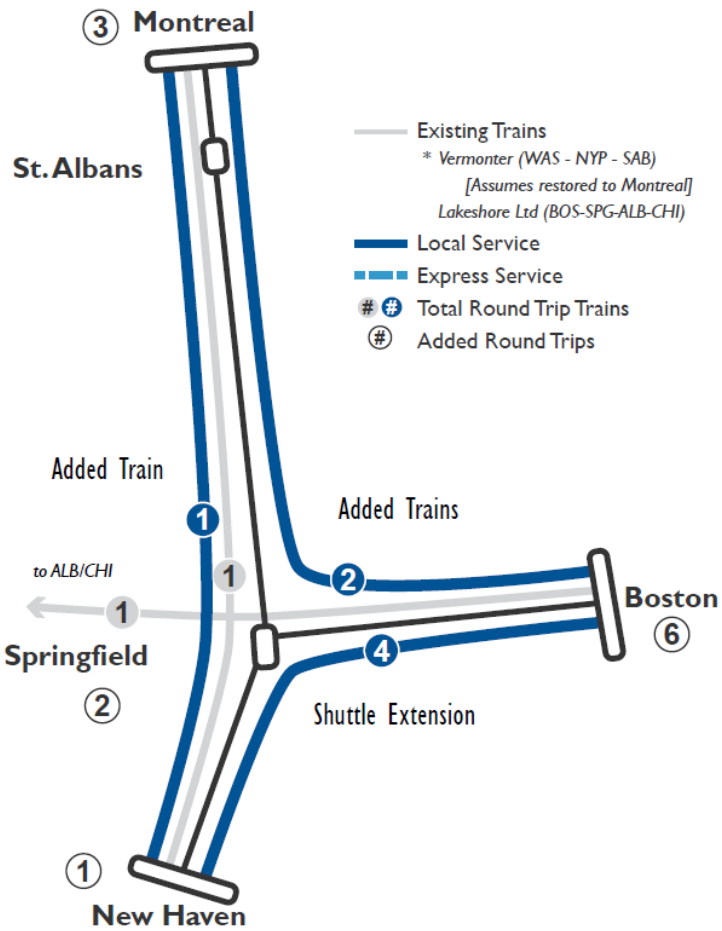
- CTDOT improvements on the New Haven to Springfield line and layover facility
- MassDOT Knowledge Corridor/Restore the Vermonter Project and Greenfield Shuttle
- MassDOT Springfield Union Station restoration and Layover Facility
- Montreal Central Station Customs Checkpoint and Layover Facility
- Improvements to infrastructure between the U.S. border and Montreal, Quebec and AMTRAK Vermonter extension
- South Station Expansion and Layover Facility

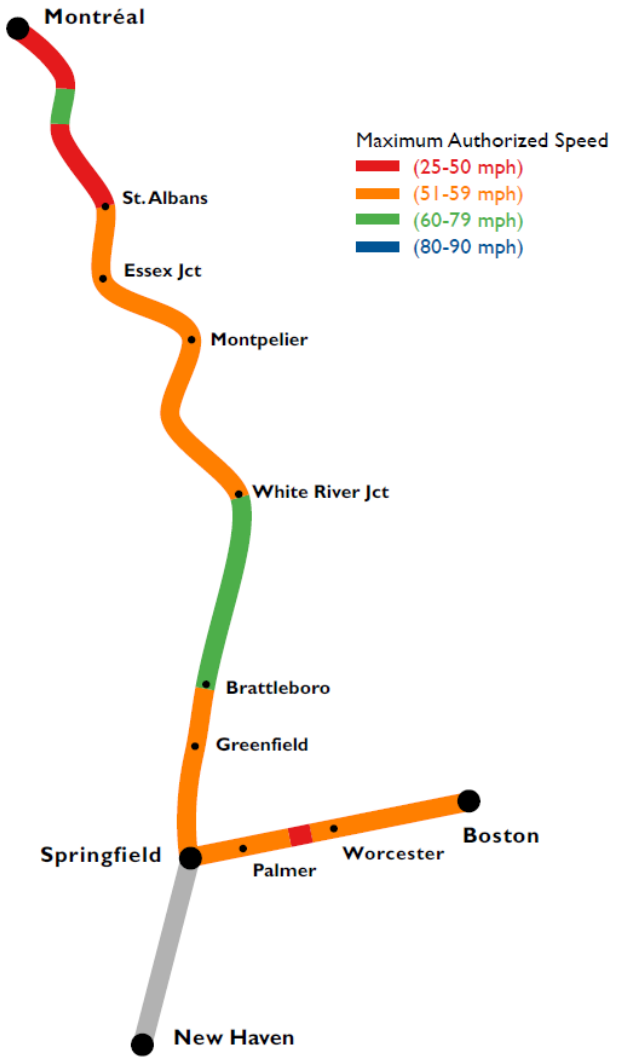
Alt 1

Overview

Alternative I

Proposed Service & Maximum Speed





Alt 1

Overview

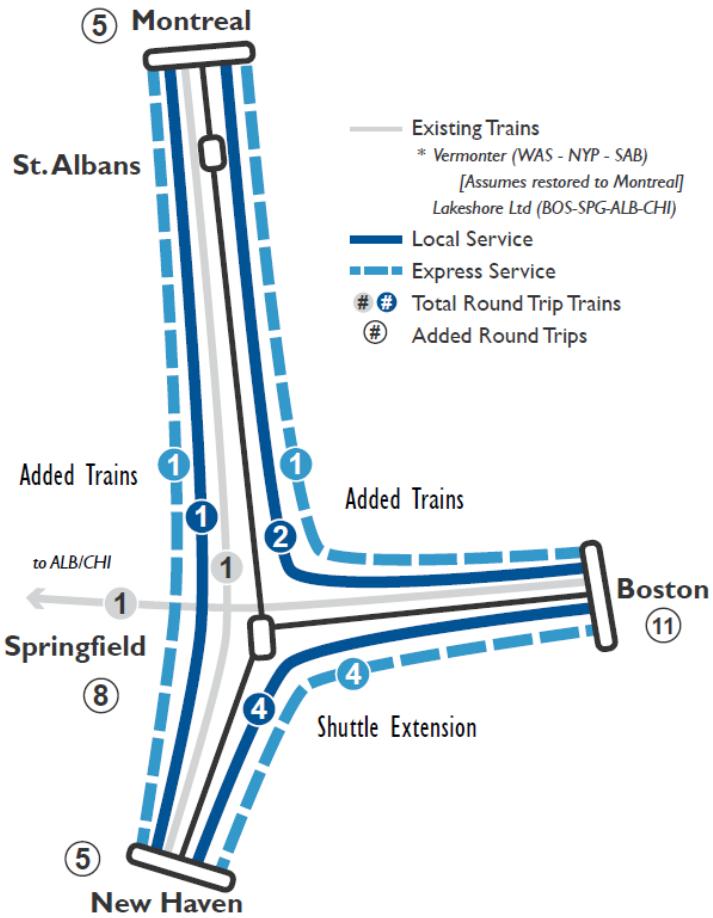
- All Local Services between Boston, Montreal, and New Haven
- Provides for State of Good Repair Infrastructure Improvements
- Upgrade Infrastructure to Accommodate at least 59 MPH Operations or Class 3 Operating
- Addition of Sidings and Double Track in key locations between Springfield and Worcester and in Vermont
- Considers new stations in Palmer, MA and Weston, MA but does not determine location

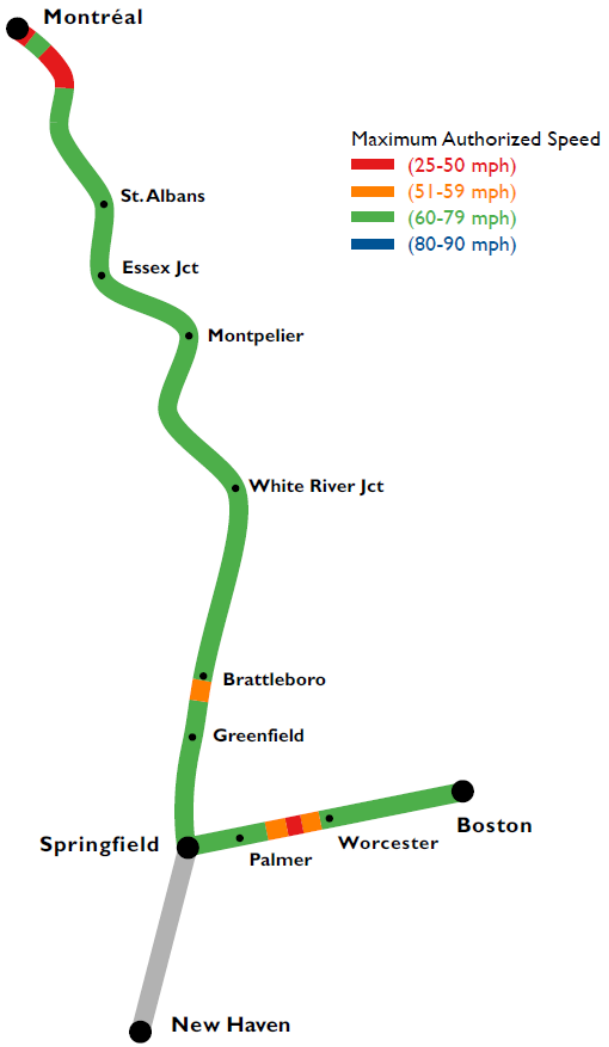
Alt 2

Overview

Alternative 2

Proposed Service & Maximum Speed





Alt 2

Overview

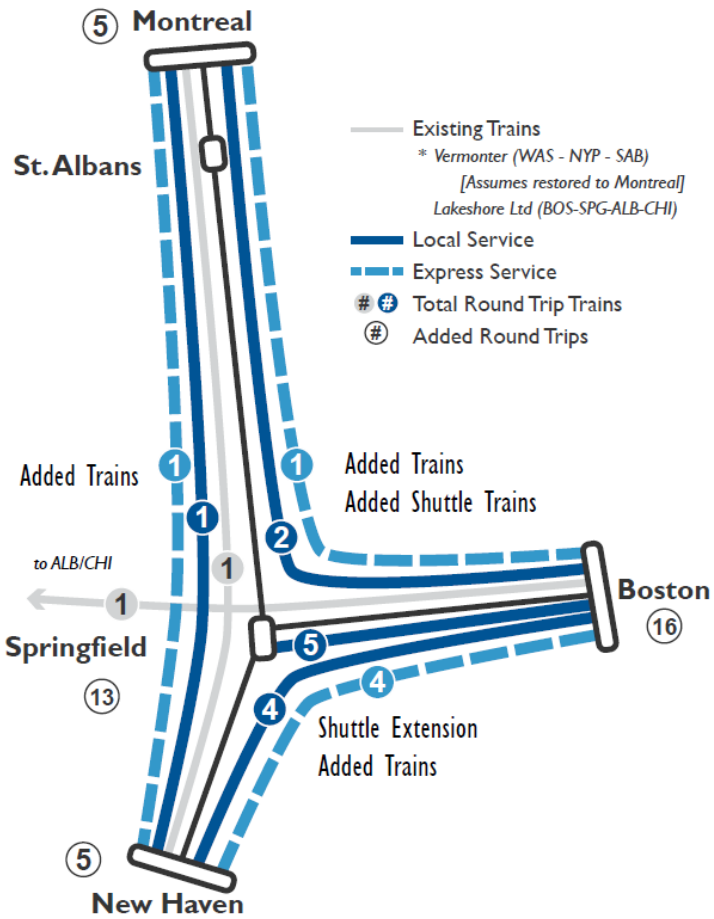
- Local and Express Services between Boston, Montreal, and New Haven
- Provides for State of Good Repair Infrastructure Improvements
- Upgrade Infrastructure to Accommodate a maximum of 79 MPH Operations or Class 4 Operating
- Complete Double Tracking Between Worcester and Springfield and double tracking and key sidings in Vermont
- Considers new stations in Palmer, MA and Weston, MA but does not determine location

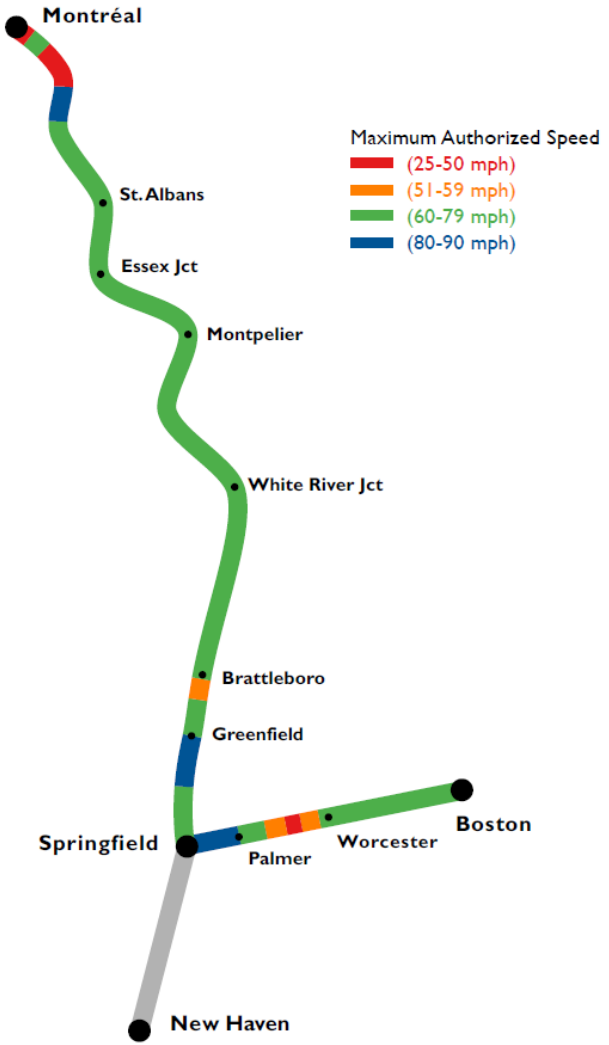
Alt 3

Overview

Alternative 3

Proposed Service & Maximum Speed





Alt 3

Overview

- Local and Express Services between Boston, Montreal, and New Haven
- Provides for State of Good Repair Infrastructure Improvements
- Upgrade Infrastructure to Accommodate a maximum of 90 MPH Operations or Class 5 Operating
- Utilization of Tilt Equipment
- Complete Double Tracking Between Worcester and Springfield and double tracking and key sidings in Vermont
- Considers new stations in Palmer, MA and Weston, MA but does not determine location

Alt 1 | Alt 2 | Alt 3

Service Assumptions

- Considers Connections to the Northeast Corridor in New Haven
- Provides for minimum two hour train turn times in Boston, New Haven, and Montreal
- Incorporates existing Amtrak Shuttle Services in Connecticut
- Provides for existing Amtrak Vermonter, Lake Shore Limited, and Northeast Corridor Services in the Service Area
- Assumes Station Stops at all Existing Corridor Intercity Station Stops
- Considers Local and Express Configurations in Alternatives 2 and 3
- Considers Infrastructure Constraints

Alt 1 | Alt 2 | Alt 3

Service Assumptions

Alternative*	Maximum Speed	Service Type	BOS to SPG Service		BOS to NHV Service		SPG to MTL Service	
			Round Trips	Run Time	Round Trips	Run Time	Round Trips	Run Time
Alt. 1	60 MPH**	Local	6	2:12	4	3:52	3	7:08
Alt. 2	79 MPH	Local	5	2:01	4	3:41	3	6:35
		Express	5	1:52	4	3:32	2	6:17
Alt. 3	90 MPH	Local	11	1:51	4	3:31	3	6:04
		Express	5	1:41	4	3:21	2	5:44

*Fare structure is consistent among alternatives

**Maximum speed will vary where existing operating speeds are higher

Alt 1 | Alt 2 | Alt 3

Preliminary Capital Cost Inputs

- All Numbers in 2014 Dollars
- Includes 35% Engineering/Management Costs in Fees Baseline Capital Costs
- Range of Costs Established Due to Current Level of Design (30-60% Contingency)
- Vehicle and Locomotive Assume PRIIA Fleet Design
- Required Station Improvements are not Identified or Included in Capital Costs

Alt 1

Preliminary Capital Costs

Infrastructure

Track: $220-270 Million

Bridge: $5-10 Million

Signal and Communication: $95-125 Million

Total Infrastructure: $320-405 Million

Train Set and Equipment: $295-380 Million

(11 Trainsets at $27 Million Per Set)

Total Capital Costs: $615-785 Million

Alt
2

Preliminary Capital Costs

Infrastructure

Track: $410-505 Million

Bridge: $25-30 Million

Signal and Communication: $175-225 Million

Total Infrastructure: $610-760 Million

Train Set and Equipment: $455-590 Million

(17 Trainsets at $27 Million Per Set)

Total Capital Costs: $1,065 – 1,350 Million

Alt 3

Preliminary Capital Costs

Infrastructure

Track: $440-540 Million

Bridge: $25-30 Million

Signal and Communication: $210-270 Million

Total Infrastructure: $675-840 Million

Train Set and Equipment: $580-750 Million

(18 Tilting Trainsets at $32 Million Per Set)

Total Capital Costs: $1,255-1,590 Million

Alt 1 | Alt 2 | Alt 3

Ridership Inputs

- Rail schedules for the NNEIRI services
- Developed geographic zone system for the entire study area
- Highway network connecting all the zones, all the rail stations, and all the airports in the study area
- Socio-economic data for the zone system
- Ridership information for the existing Massachusetts, Connecticut, and Vermont State services
- Travel characteristics for auto, air, and rail within the model area

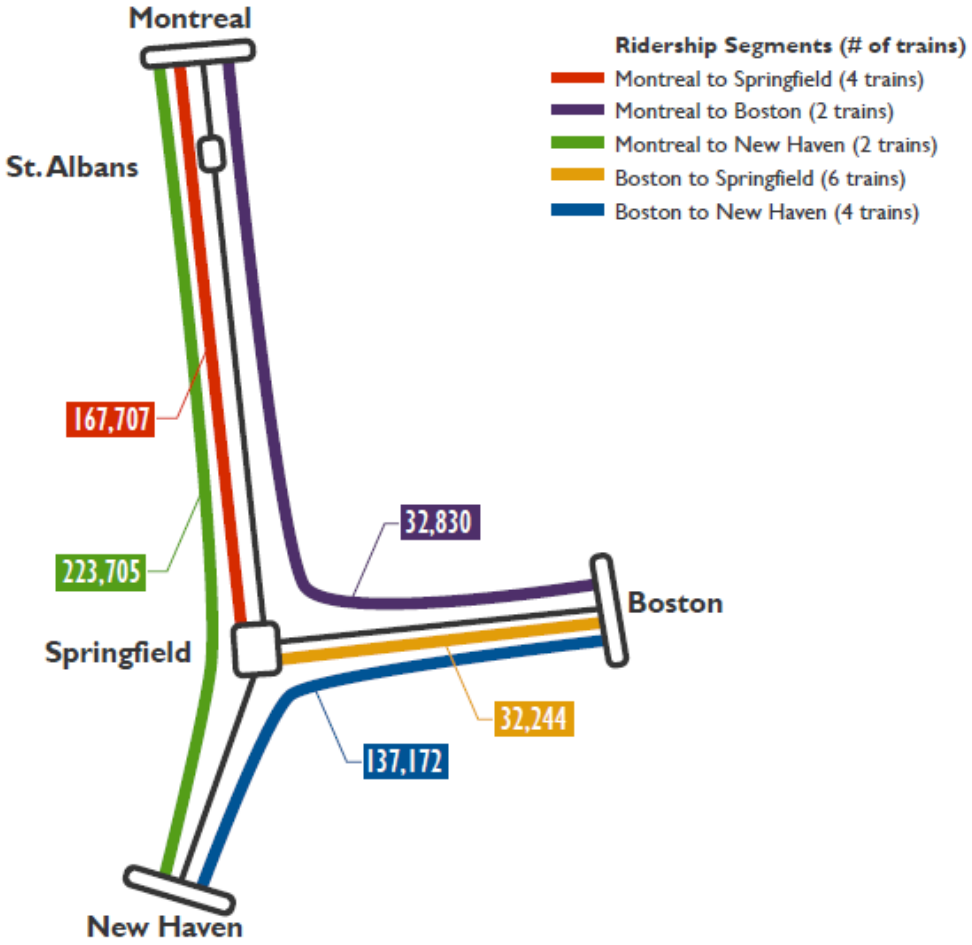
Alt 1

Ridership

Alternative I

2020 Annual Ridership Forecasts by Segment

Total Annual Ridership:
597,900



Alt 1

Ridership

Segment Pair	Total Ridership
Boston to Springfield	32,244
Springfield to Montreal	167,707
BOS/SPG to SPG/MTL Segments	32,830
BOS/SPG to SPG/NHV-NEC Segments	137,172
MTL/SPG to SPG/NHV-NEC Segments	223,705
Total Ridership	597,900

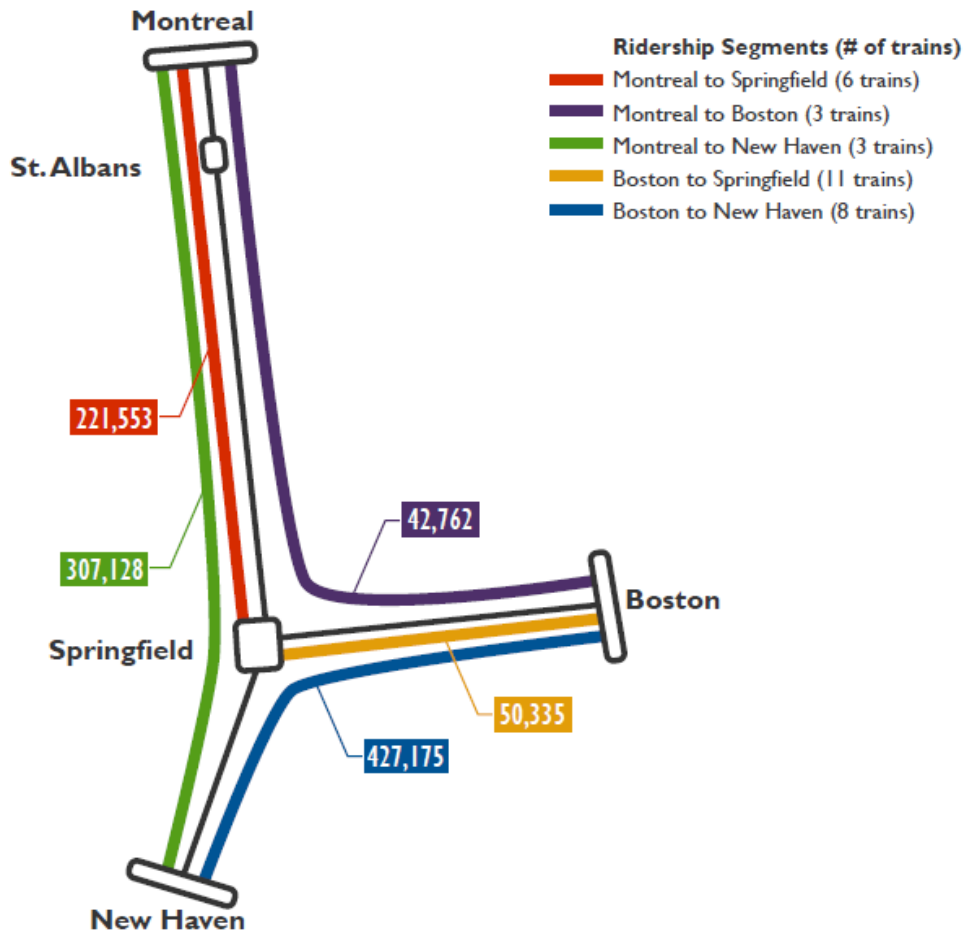
Alt 2

Ridership

Alternative 2

2020 Annual Ridership Forecasts by Segment

Total Annual Ridership:
1,052,500



Alt 2

Ridership

Segment Pair	Total Ridership
Boston to Springfield	50,335
Springfield to Montreal	221,553
BOS/SPG to SPG/MTL Segments	42,762
BOS/SPG to SPG/NHV-NEC Segments	427,175
MTL/SPG to SPG/NHV-NEC Segments	307,131
Total Ridership	1,052,500

Alt 2

Ridership

Segment Pair	Local Services	Express Services	Express Percent
Boston to Springfield	31,298	19,037	38% Ridership 45% Service
Springfield to Montreal	174,625	46,928	21% Ridership 33% Service
BOS/SPG to SPG/MTL Segments	37,711	5,051	12% Ridership 33% Service
BOS/SPG to SPG/NHV-NEC Segments	280,677	146,498	34% Ridership 50% Service
MTL/SPG to SPG/NHV-NEC Segments	230,245	76,886	25% Ridership 33% Service
Total Ridership	754,556	294,400	

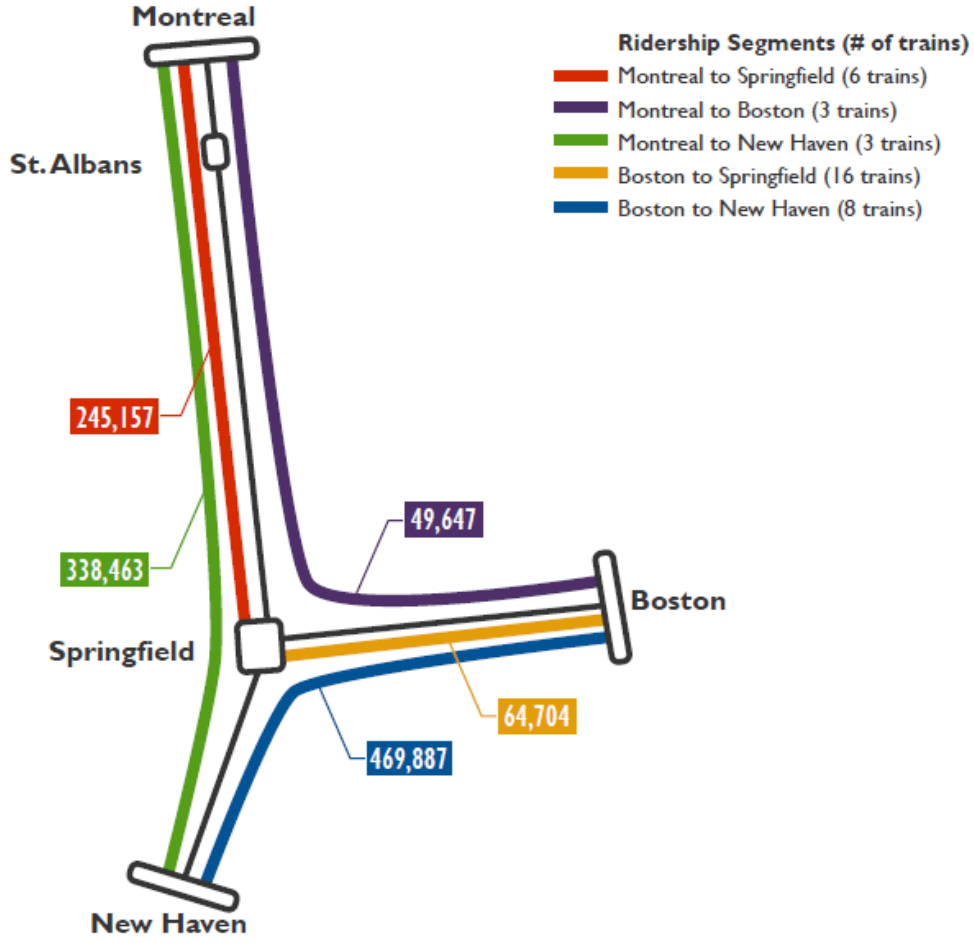
Alt 3

Ridership

Alternative 3

2020 Annual Ridership Forecasts by Segment

Total Annual Ridership:
1,170,700



Alt 3

Ridership

Segment Pair	Total Ridership
Boston to Springfield	64,704
Springfield to Montreal	245,157
BOS/SPG to SPG/MTL Segments	49,647
BOS/SPG to SPG/NHV-NEC Segments	469,887
MTL/SPG to SPG/NHV-NEC Segments	338,463
Total Ridership	1,170,700

Alt 3

Ridership

Segment Pair	Local Services	Express Services	Express Percent
Boston to Springfield	45,764	18,940	29% Ridership 31% Service
Springfield to Montreal	195,076	50,081	20% Ridership 33% Service
BOS/SPG to SPG/MTL Segments	43,141	6,506	13% Ridership 33% Service
BOS/SPG to SPG/NHV-NEC Segments	300,605	169,282	36% Ridership 50% Service
MTL/SPG to SPG/NHV-NEC Segments	228,711	109,752	32% Ridership 33% Service
Total Ridership	813,297	354,561	

Alt 1

Operations + Revenue

Annual Operating and Maintenance Costs: **$42 Million**

Annual Revenue: **$18 Million**

Annual Required Operating Funding: **$24 Million**

Alt 2

Operations + Revenue

Annual Operating and Maintenance Costs: **$73 Million**

Annual Revenue: **$34 Million**

Annual Required Operating Funding: **$39 Million**

Alt 3

Operations + Revenue

Annual Operating and Maintenance Costs: **$86 Million**

Annual Revenue: **$38 Million**

Annual Required Operating Funding: **$48 Million**

Alt 1 | Alt 2 | Alt 3

Operations + Revenue Comparison

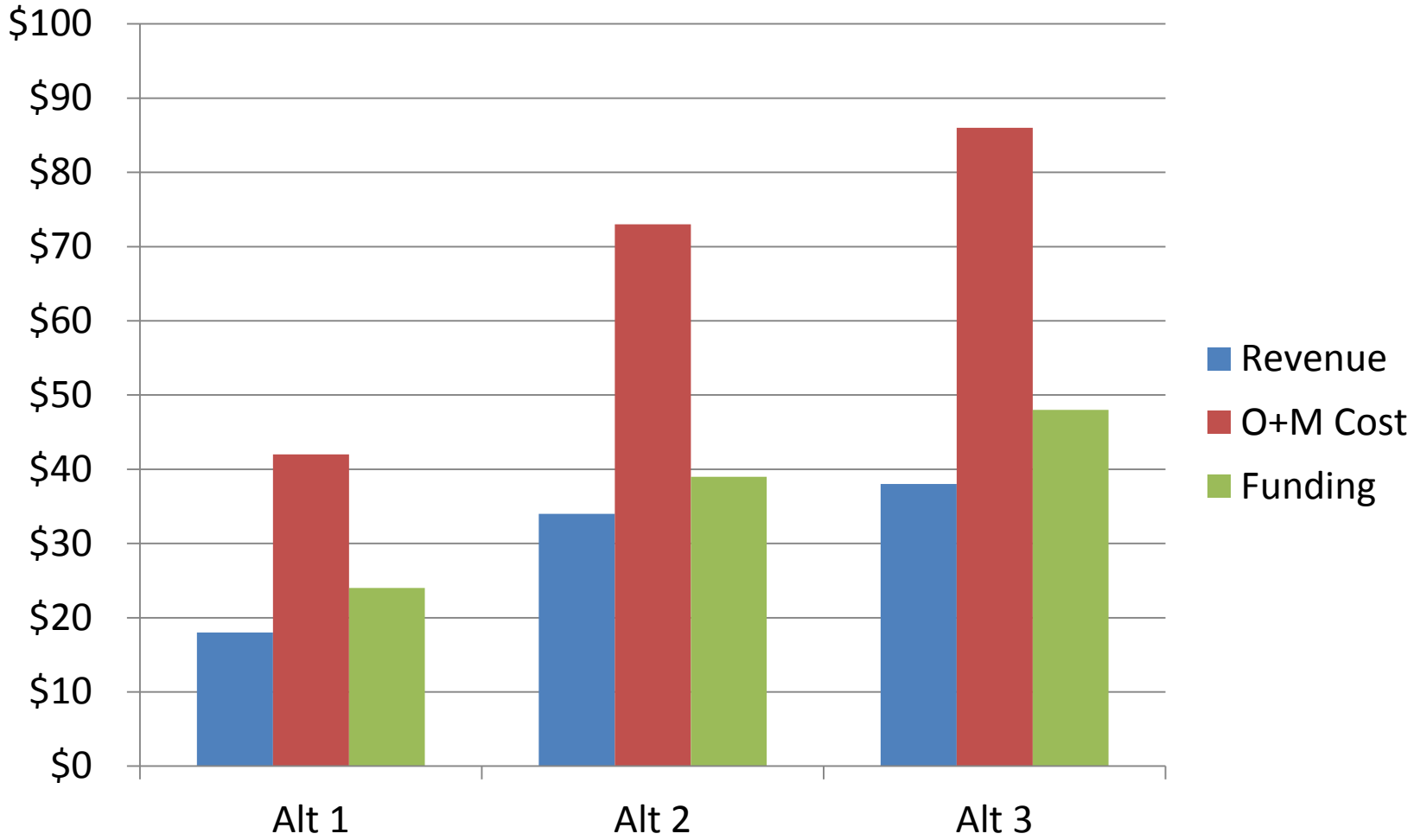


Chart in Millions of Dollars

Alt 1 | Alt 2 | Alt 3

Environmental Screening

- Alternatives Evaluation Process
  - Three Build Alternatives screened and compared to No Build Alternative
- Alternative screening conducted to determine Tier 1 EIS or EA.
- Major environmental issues analyzed

Alt 1 | Alt 2 | Alt 3

Environmental Screening

- Analysis Included:
  - Natural Resources
  - Human Environment
  - Land Use
  - Construction Impacts
  - Historical Implications
- Analysis Found Overall Minor and Moderate Impacts on the Corridor Overall and in Specific Locations

Summary Results

Alt 1

Corridor Service

$615-785 Million Capital Costs	$24 Million Operating Funding	597,000 Annual Riders

Alt 2

Corridor Service with Speed Improvements

$1,065–1,350 Million Capital Costs	$39 Million Operating Funding	1,052,500 Annual Riders

Alt 3

Corridor Service with Speed and Equipment Improvements

$1,255-1,590 Million Capital Costs	$48 Million Operating Funding	1,170,700 Annual Riders

Alt 1 | Alt 2 | Alt 3

Next Steps

- November Public Meetings
- Alternative Analysis Conclusion and Review
- Determination of Locally Preferred Alternative (Early 2015)
- Stakeholder and Public Meetings (Early 2015)
- Complete Tier 1 NEPA Analysis (September 2015)
- Final Service Development Plan (September 2015)

Thank You

Follow-up Meeting Comments to:

scott.bascom@state.vt.us
ammie.rogers@state.ma.us

www.mass.gov/massdot/northernnewenglandrail

Thank You

Follow-up Meeting Comments to:

scott.bascom@state.vt.us
ammie.rogers@state.ma.us

www.mass.gov/massdot/northernnewenglandrail