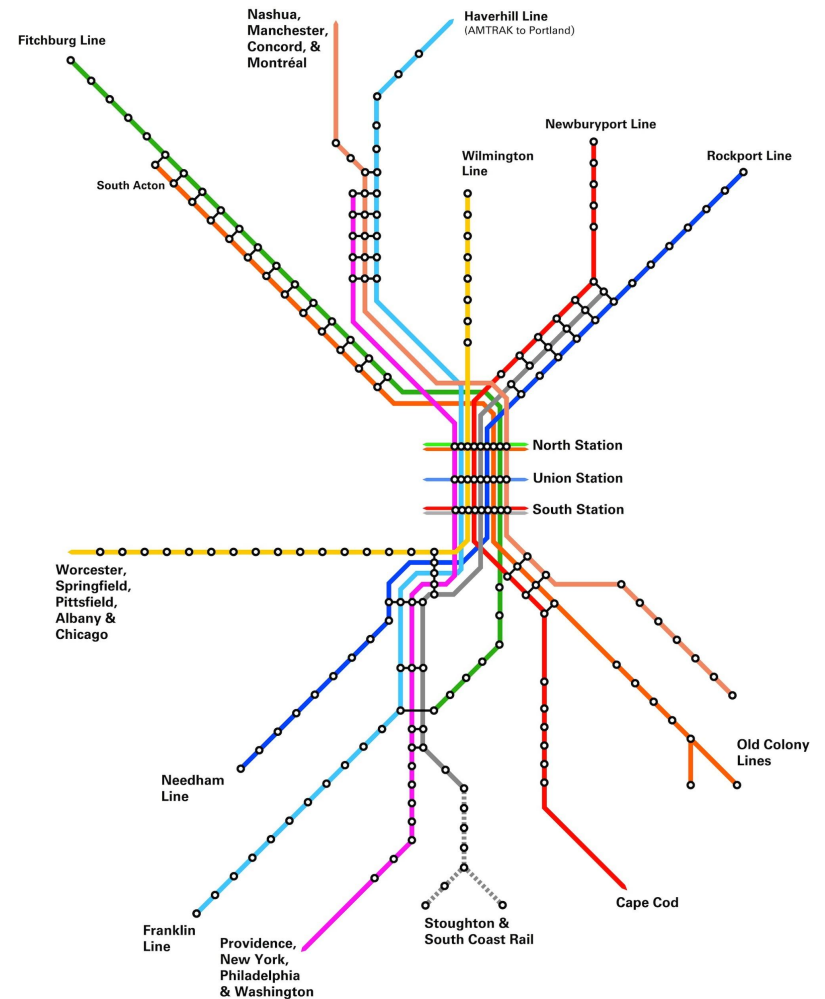


North South Rail Link

A 21st Century Transportation Solution for New England



The Current System is Broken

Our region is served by two separate systems with 14 commuter rail lines, 138 stations, 388 miles of track...

... divided by a one-mile gap

North Side

No direct access to Red, Silver, or Blue lines

Poor access to Northeast Corridor, Logan Airport & Seaport

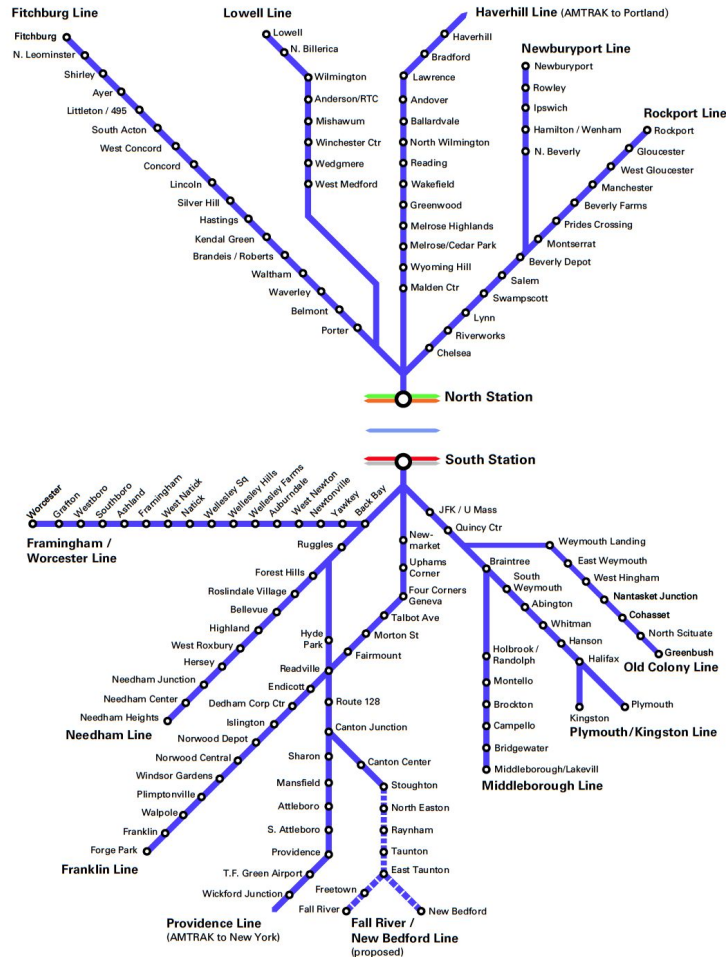
10 tracks at North Station, **nearing capacity**

South Side

No direct access to Orange, Green, or Blue lines

Poor access to MGH, TD Garden & key maintenance facility

13 tracks at South Station, **at capacity**



The Impact on Our Quality of Life



Common Problem, Common Solution

35 major international link projects
0 stub-end terminal projects

London Crossrail

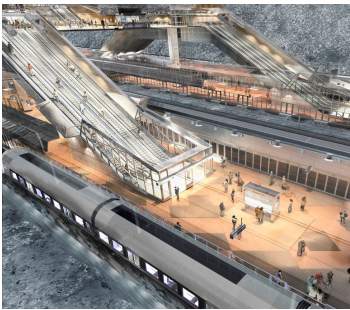
76 mi, 13 mi in tunnel
40 stations (10 new)
2 tracks
Virtually no surface impact
On Time & On Budget



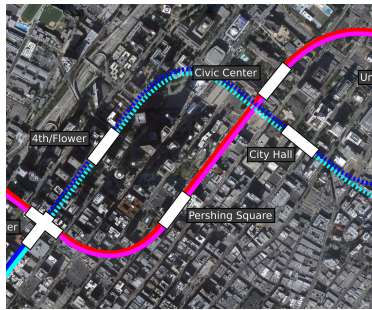
Malmö



Zürich



Stockholm



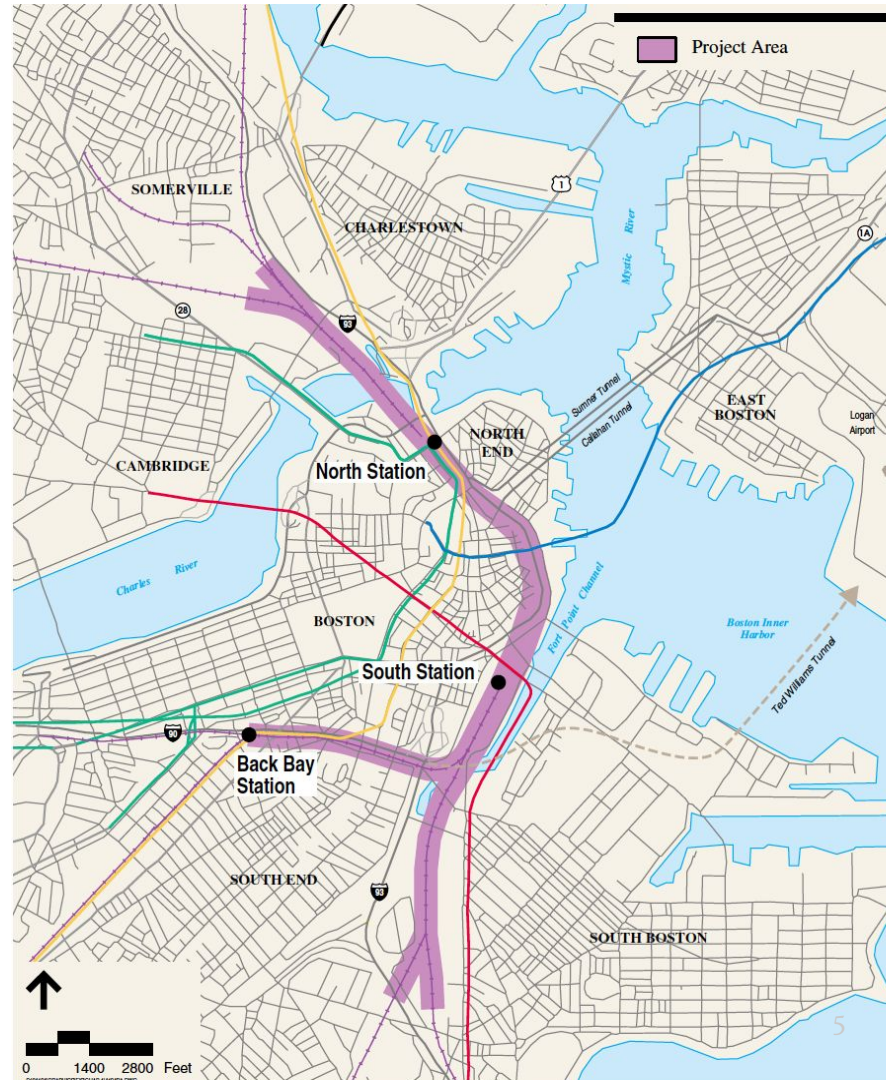
Los Angeles

The North-South Rail Link

NSRL is a 2.8 mile tunnel, built with proven tunnel boring technology, which will provide full interconnection of the commuter rail and transit systems with through-running service.

Components of NSRL

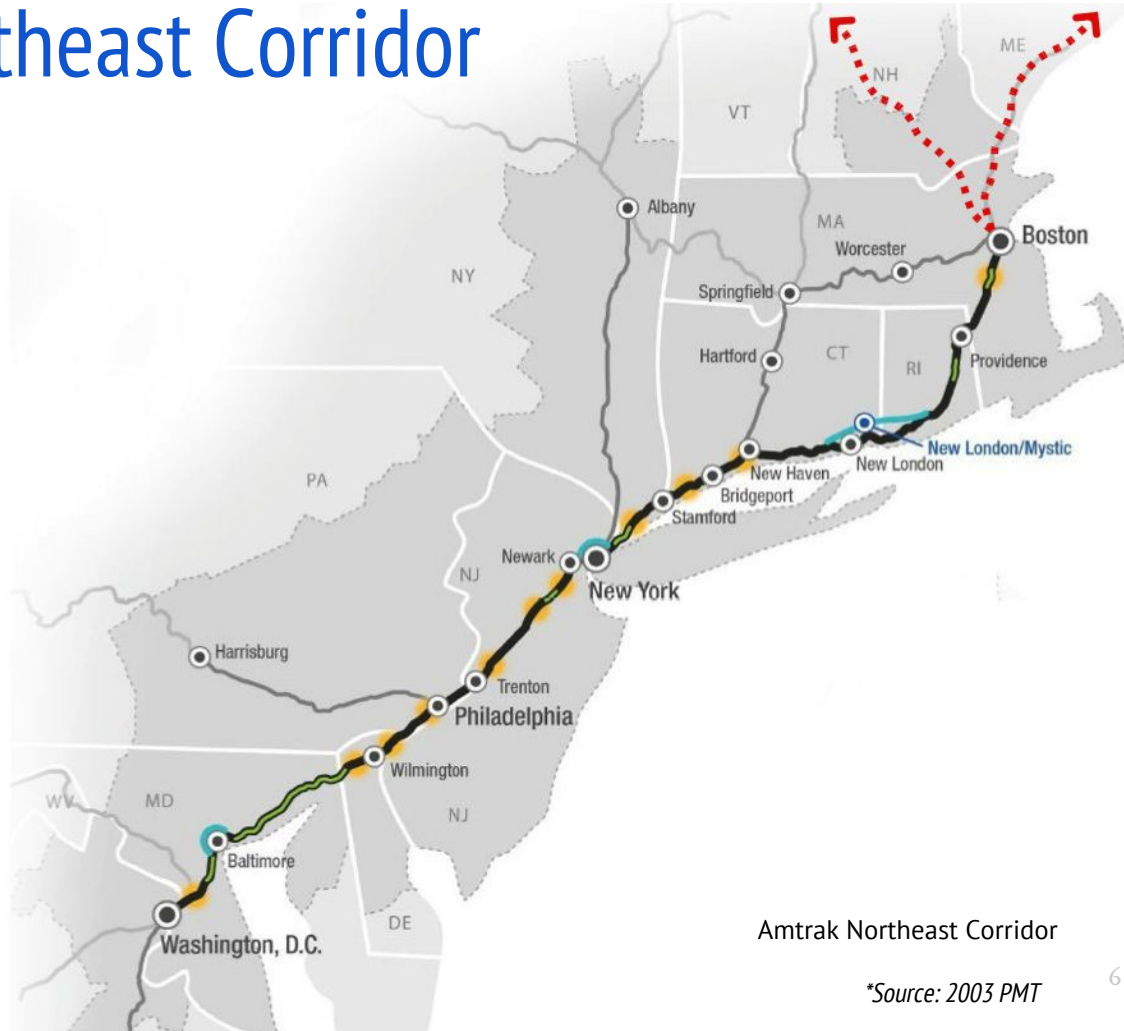
- 1.2 miles between North & South Station
- 2.8 miles end-to-end
- 2 tracks, 3 stations
- Depths comparable to Porter Square
- Located largely below Central Artery



NSRL Unites the Northeast Corridor

Provides uninterrupted passenger rail service from DC & NY to Maine

Makes the the Northeast more competitive for federal transportation funds



Amtrak Northeast Corridor

**Source: 2003 PMT*

NSRL Connects People, Jobs, & Housing

A 2015 Harvard study on poverty identified commute time as the single most important factor to upward mobility. Lack of efficient and effective public transit options limits the ability of residents to commute from housing they can afford to jobs they desire.

NSRL will:

Drastically change the way we commute across the commonwealth

Provides more frequent and reliable service

Takes 55 thousand cars off the road, reducing congestion

Connect the fastest growing regions of the state with the available workforce and housing stock



NSRL Unlocks \$10 Billion in Downtown Development

Development of USPS and Widett Circle will create a bridge connecting Boston's downtown and the Fairmount Corridor

Potential Value of USPS Site: \$2.4B



Fan Pier
21 acres
\$3.43 Billion

.75 X Fan Pier

*Estimated value based on relative acreage of comparable sites.

Potential Value of Widett Circle: \$8B



Boston 2024
83 Acres
\$8 Billion

*Estimated value based on Boston 2024 proposal.



South Station Expansion Threatens Development...

The Commonwealth of Massachusetts removed the analysis of the overbuild option of the USPS site as a requirement in its most recent scope of study for South Station Expansion

“Real Estate staff met with representatives of MassDOT’s South Station Expansion (SSX) consultant team...The consultant team provided information which indicated that the cost of including joint development infrastructure (foundations, underground parking, access ramps, etc.) would leave little if any revenue from development to assist with the costs associated with the SSX project.”

The Hudson Yards project in New York City was initiated 30 years after it was originally planned, due to the added complexity and cost of overbuild



-MBTA General Manager's Report, January 2015

...and is Costly and Unnecessary

The benefits are clear...

	<u>NSRL</u>	<u>SSX</u>
Supports South Coast Rail	✓	✓
Fully integrates all rail and subway lines	✓	✗
Drastically reduces commute times	✓	✗
Enables development and increases tax base	✓	✗
Connects workforce and housing stock	✓	✗
Unites the Northeast Corridor	✓	✗

Cost Comparison

	<u>SSX</u>	<u>NSRL</u>
Construction Cost:	\$2B	\$3-5B
Opportunity Cost:	\$10B	\$0
Overall Cost:	\$12B	\$3-5B

A single NSRL track has the capacity of eight SSX tracks



NSRL



SSX



North South Rail Link Coalition

Members as of October 17, 2016

Governors

Michael Dukakis
William Weld

U.S. Representatives

Seth Moulton (MA-06)
Niki Tsongas (MA-03)
Martin Meehan (Former Congressman, current
President, University of Massachusetts)

State Senators

Eileen Donoghue
Martha Fuller Clark (NH)
Jamie Eldridge
Eric Lesser
Jason Lewis
Tom McGee (Joint Transportation Committee Chair)
Marc Pacheco (President Pro Tempore)
Bruce Tarr (Minority Leader)
Dan Wolf

State Representatives

Robert DeLeo (Speaker)
Brian Dempsey (Ways & Means Chair)
Sean Garballey
Carmine Gentile
Jay Livingstone
Jerry Parisella
Frank Smizik
Chris Walsh

Mayors

Michael Cahill, Beverly
Joe Curtatone, Somerville
Stephen DiNatale, Fitchburg
Kim Driscoll, Salem
James Fiorentini, Haverhill
Judith Flanagan-Kennedy, Lynn
Bob Hedlund, Weymouth
Tom Koch, Quincy
Dan Rivera, Lawrence
Setti Warren, Newton

Business Leaders & Developers

Robert Beal - Related Beal
David Begelfer - NAIOP - MA
Robert Bradford - North Shore Chamber of Commerce
Andrea Burns - Age Friendly Boston
John Fish - Suffolk Construction Company
Pat Moscaritolo - Greater Boston Convention &
Visitors Bureau
Ed Mueller - Mueller Coggins Group
Tom O'Brien - The HYM Investment Group LLC

Labor

Frank Calabro - Laborers Local 88 Tunnel Workers
Frank Callahan - MA Building Trades Council
John Dumas - Local 103 of IBEW
Tony Pini - MA Laborers District Council
Steven Tolman - MA AFL-CIO

Boston City Councilors

Michelle Wu, Council President
Annisssa Essaibi, At Large
Michael Flaherty, At Large
Ayanna Pressley, At Large
Frank Baker, District 3
Matt O'Malley, District 6
Tito Jackson, District 7
Josh Zakim, District 8

Issue Area Experts

Joe Aiello - East Cambridge Redevelopment
Rick Arena - Association of Public Transportation; US High Speed Rail
Brad Bellows - Architect, NSRL Citizens Advisory Committee
Fred Breimyer - FDIC, NEEP
John Businger - Former MA State Representative
Frank DeMasi - Association for Public Transportation
Jim DiTullio - Office of MA Senate President Stanley Rosenberg
Louis Elisa - Port Development to the Seaport Advisory Council
Norm Gorin - Instinct Health Science
Sam Liao - Transit and Rail WSP
Bob O'Brien - Citizens Advisory Committee
Steve Olanoff - Regional Transportation Advocacy Council
Tracie Rankin - Rankinfile Inc.
Jim Repass - National Corridors Initiative
Cranston Rogers - Engineer
Karen Cord Taylor - Journalist & Writer
Peter Ubertaccio - Institute for Law and Society at Stonehill College
Parwez Wahid - Massachusetts Democratic State Committee
Peter Zuk - London Underground Limited

Contact Information

Congressman Seth Moulton

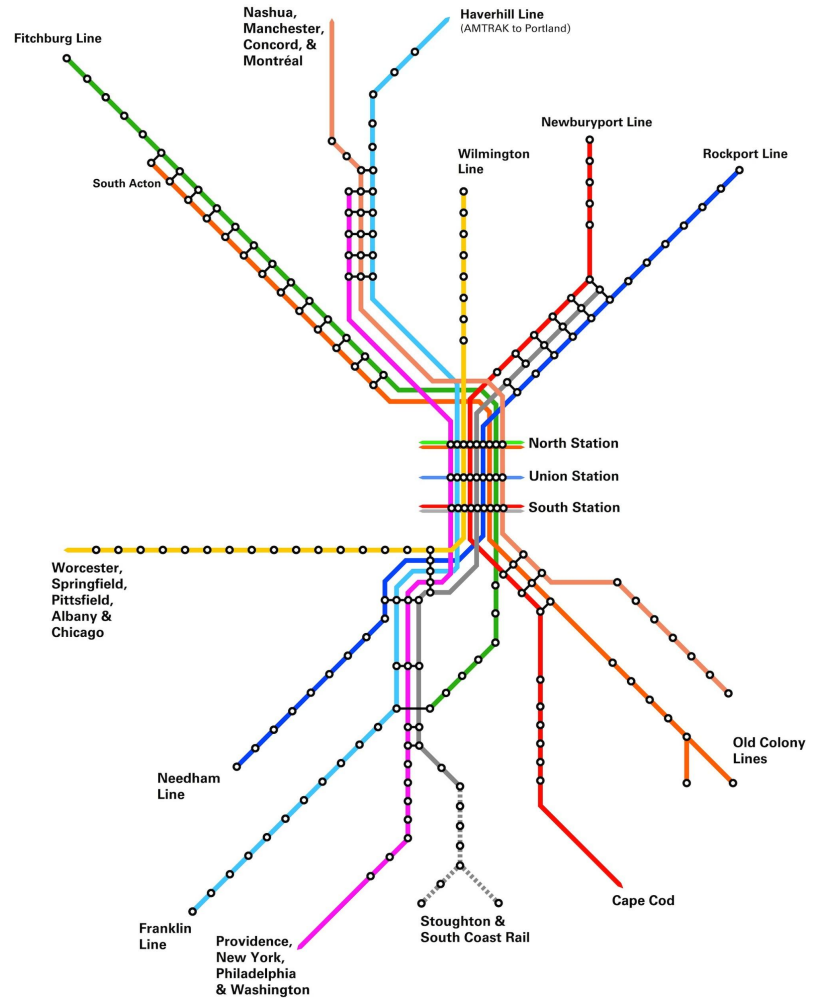
21 Front ST
Salem, MA 01970
978-259-3249
Attn: Lucas Santos

Gov. Michael Dukakis

Northeastern University
921 Renaissance Park
360 Huntington Avenue
Boston, MA 02115
617-373-4396
m.dukakis@neu.edu

For additional information, see: northsouthraillink.org

Appendix



Construction Methods

Tunnels

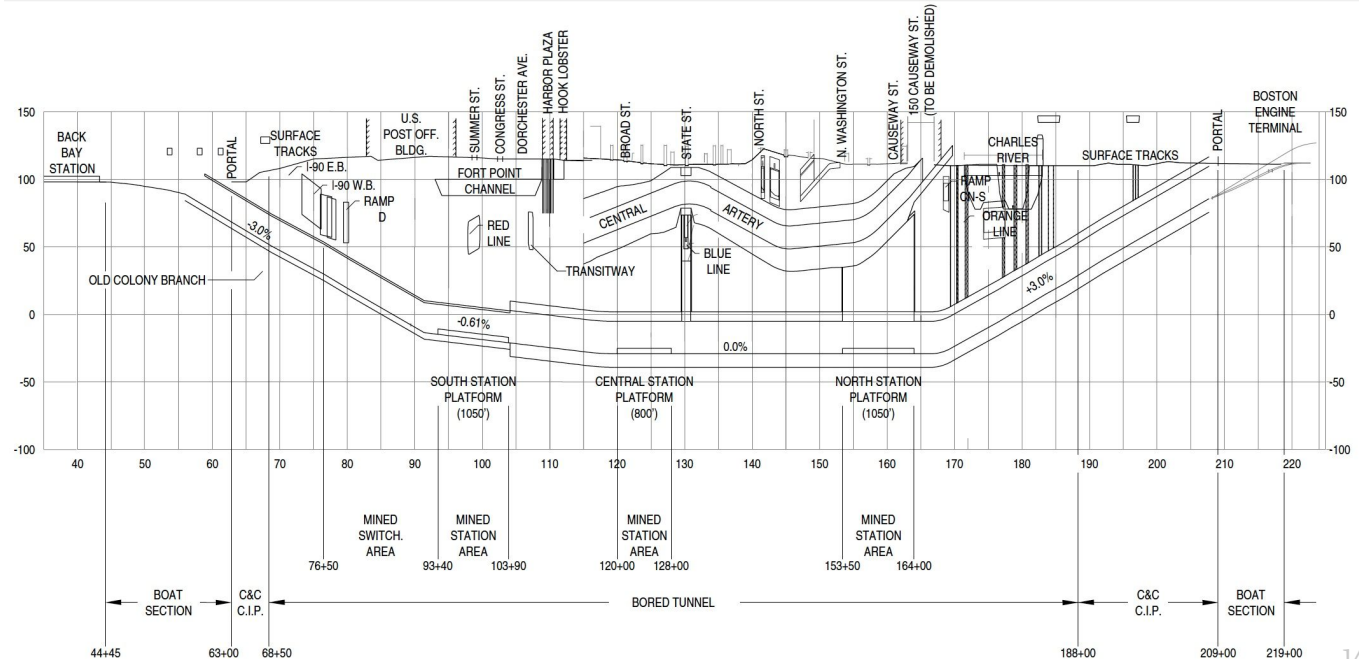
Unlike the Cut-and-Cover method used for the Big Dig, the NSRL tunnels will be built with well-proven Tunnel Boring Machines, descending to about the depth of Porter Square Station in Cambridge.

Stations

A new South Station can be built top-down along Fort Point Channel. One or two smaller stations will be mined below the Artery tunnel box, linking to the Orange, Green & Blue subway lines.



TBM during construction of Leipzig City Tunnel



Profile of the North South Rail Link, VHB 2003

Cost & Risk: “The Big Dig Hangover”



Entirely Different Construction Methods Exist Today

Big Dig: Old “cut and cover” methodology is obsolete

NSRL: Will use proven, automated tunnel boring machines that are the gold standard for safety and efficiency

NSRL: Building Information Modeling (BIM) for digital designs and rendering before construction

No Operating Requirements Exist During Construction

Unlike the Big Dig, minimal disruption to existing infrastructure

All activity below ground level with little or no disruption at city street level

Comparable Projects

Average cost per mile: \$680 Million ±

Malmo Citytunneln



Completed 2010
\$1.13 Billion

3.7 mi (32% longer)
2 tracks
3 stations, 2 below grade

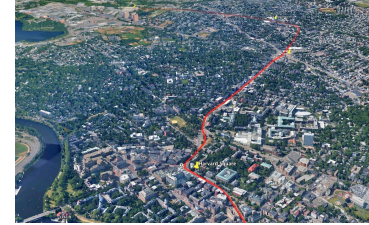
Zurich Durchmesserlinie



Completed 2015
\$2.1 Billion

6 mi, 2.8 mi in tunnel (same)
2 tracks
1 station below grade

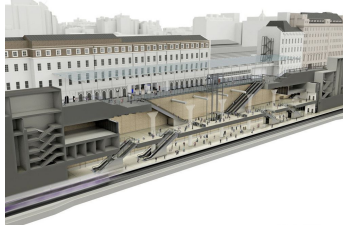
Cambridge Red Line Extension



Completed 1985
\$1.6 Billion

3.2 mi (14% longer)
2 tracks
4 stations, 3 below grade

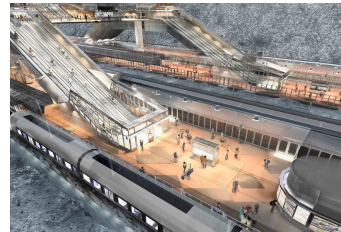
London Crossrail



Completion in 2019
\$22.4 Billion

76 mi, 13 mi in tunnel
2 tracks
40 stations (10 new + 30 renovated)

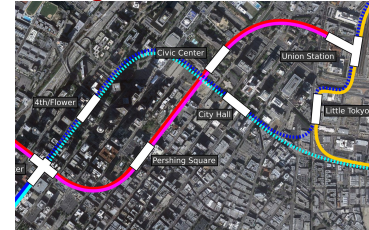
Stockholm Citybanan



Completion in 2017
\$1.97 Billion

3.7 mi (32% longer)
2 tracks
2 new stations below grade

LA Regional Connector



Completion in 2021
\$1.55 Billion

1.9 mi (32% shorter)
2 tracks
3 stations below grade

Note: All cost figures are in 2016 dollars

Financing opportunities

Federal

The Federal Railroad Administration (FRA) provides direct, low-interest loans, loan guarantees, and standby lines of credit to finance the development of railroad infrastructure. These programs include:

- **RRIF** (Railroad Rehabilitation and Improvement Financing) offers direct loans; more than \$30B available at <3%
- **TIFIA** (Transportation Infrastructure Finance & Innovation Act). The current TIFIA interest rate is 2.55%
- **GARVEE** (Grant Anticipation Revenue Vehicle)

As an intercity rail / Northeast Corridor project, the NSRL need not compete for funding with other local transit projects.

State

Real Estate Value Capture, Tax-free Bonds.

Private

Public-Private Partnerships for construction, operations, and maintenance.

Regional

Contributions from other New England states (RI, NH, ME) that would directly benefit from a unified Northeast Corridor. Carbon credits, which currently fund CAHSR, could also be a promising source for the NSRL as these markets grow.

Congestion Impacts Health, Wealth, & Quality of Life

Poor Access to Jobs and Housing Drives Inequality

- A 2015 Harvard study on poverty has found that commute time is the single most important factor to upward mobility
- Lack of public transit options limits the ability of residents to commute from housing they can afford to jobs they desire
- Communities in the Fairmount corridor have commutes over an hour to get to health care and other jobs north of the city
- NSRL will produce the largest travel time savings and largest ridership increase of any MA rail project - 96,000 new rail riders

Pollution, Climate Change Affect Residents' Health

- In Boston's Chinatown near I-93, Tufts research has linked highway pollution to cardiac disease, asthma, Type 2 diabetes, cancer and autism
- Under SSX, Widett Circle to become a rail yard for diesel locomotives, resulting in increased GHG emissions in the neighborhood
- NSRL will reduce highway congestion, among the worst in the nation, by taking 55K daily cars off the road

