

An Integrated Regional Rail Network for New England

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Acela / Intercity

Commuter Rail

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Executive Summary: An Integrated Regional Rail Network for New England

The Commonwealth owns one of the most extensive commuter rail networks in the United States, yet this system operates at a fraction of its potential because of a gap in its very heart--the one-mile gap between North Station and South Station in Boston. To appreciate the missing link, consider how our subway system would function if its major lines were severed in downtown Boston – if Red Line trains from Quincy turned back at Downtown Crossing and trains from Cambridge turned back at Park Street.

Eliminating this gap with a rail link between North and South Stations would transform our two disconnected rail systems into a regional rail network unparalleled in North America. Linking our separate rail systems would improve efficiency, mobility and capacity throughout Massachusetts, New England and the Northeast Corridor. The North/South Station Rail Link (NSRL) would give New England a major competitive advantage to sustain and expand the prosperity of our entire region in an era of rapidly increasing congestion and energy costs.

The economic case for the NSRL

The high cost of living in Massachusetts is a competitive disadvantage for the state. Recent U.S. Census data estimates that the state is losing significant population to neighboring states, as well as the Southeast and West. The state faces troubling long-term trends and there is no way for one town or region in the state to grow its own way out of the affordable housing crisis. In fact, the state has many cities and towns with affordable middle-class housing that are eager for new



Connectivity is vital in all living systems



investment and residents. Unfortunately, these regions are isolated from each other by choked highways and inadequate or nonexistent commuter rail service. The recent experience of cities as regionally diverse as Lowell, Brockton and Worcester shows that commuter rail service can make a huge difference in where people choose to live and work.

Massachusetts cannot 'unlock' its regional cities and improve its competitive position without a statewide strategy that takes into account the infrastructure investments needed to make real its potential for economic growth. The NSRL is a key piece of the puzzle because it creates, for the first time, a true regional rail network. The NSRL promises improved capacity for cities that need greater service, one-seat rides between suburban cities that can currently only be made by car, greater capacity to expand the rail system with improved efficiency, and the creation of a regional rail hub for Boston that connects Portland to Providence and New York and points south.

The need for action is urgent.

Integrating our northside and southside rail systems is becoming a necessity. Ridership has grown dramatically in recent years, and both North and South Stations, which are dead ends, are rapidly nearing their design capacity. In the last decade, the Old Colony service has reopened and service has also increased from the west. Once service starts on the new Greenbush line in 2007, it will be difficult for South Station to handle additional service, and that would jeopardize new commuter rail service to New Bedford, Fall River, Taunton and Cape Cod. The same situation will soon prevail at North Station as well, given the success of the Amtrak Downeaster service to/from Portland and the anticipated commuter rail extensions north to Nashua and Manchester, New Hampshire. Additionally, the new commuter rail line to Newburyport from North Station has increased northside service just in the last ten years.

Without additional capacity at its downtown terminals, our regional commuter rail system will be unable to meet increased ridership demand. This terminal capacity crunch will also cap Amtrak service to New York and points south and to Portland and points north at a time when the need for intercity rail service has never been greater. Our rail infrastructure should be an engine of regional growth, not a limiting factor. Adding surface platforms in a constrained urban setting is a nearly impossible task, and competes directly with other land uses. The North/South Rail Link, by allowing efficient run-through service, resolves the terminal bottlenecks at their source, making continued service improvements and expansions much more feasible.



The feasibility and benefits of the NSRL have been thoroughly examined and verified.

Extensive, objective analysis has repeatedly documented the need for the NSRL, as well as the costs and feasibility of the project.

A Few Highlights:

- The need for a North/South Rail Link was initially identified as a major public priority nearly 40 years ago, during the Boston Transportation Planning Review (BTPR).
- In 1993, the Central Artery Rail Link (CARL) Task Force, appointed by Governor Weld, issued a 70 page report that confirmed the continued feasibility of a North/South Rail Link (NSRL), estimated project costs, and reinforced the project's importance to the region's transportation system.
- From 1995 to 2003, Amtrak and the Massachusetts Executive Office of Transportation and Construction (EOTC) led an effort to develop the Major Investment Study (MIS) and related federal Draft Environmental Impact Statement (DEIS) and state Draft Environmental Impact Report (DEIR)

Why is the published cost of the NSRL so high?

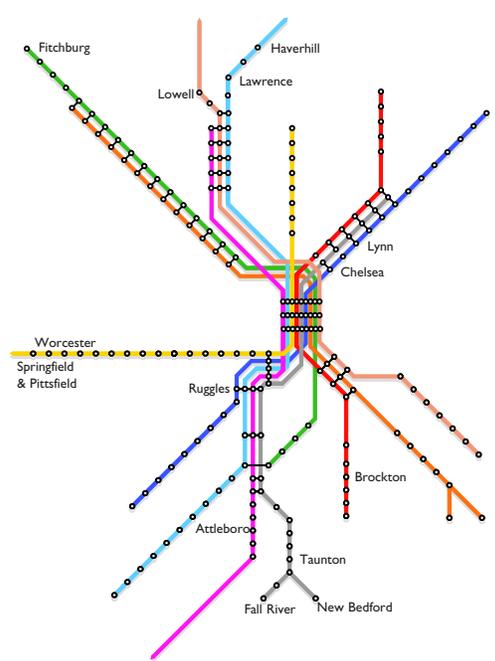
The Central Artery / Tunnel (CA/T) Project seems to have traumatized the engineering and construction communities, as well as the public, the media, and many of our public leaders. Because of abundant caution, public infrastructure projects are now burdened by cost estimates with unprecedented contingencies. As a direct result, during the past decade, officials have presented a bewildering array of apparently escalating NSRL cost estimates. From an original estimate of \$1.74B in 1993, we have now been told that the project could cost in excess of \$8.3B. The true cost of the NSRL is likely to be between \$3 and \$4 billion.

What are the true costs?

The CARL Task Force estimated the costs of construction of basic project infrastructure to be \$1.74B in 1993 dollars. That included the required tunnels, stations, tracks, signals, and portals, but did not include the cost of total system electrification, which was considered desirable, but not essential.



The North South Rail Link will dramatically improve service to many of Massachusetts' struggling older cities, encouraging investment and relieving pressure on other infrastructure.



The earlier figure was revised in the initial 1998 MIS/DEIS/DEIR project construction estimate. The initial MIS/DEIS/DEIR project construction estimate was \$2.74B in 1998 dollars, which included a 50% contingency to accommodate unexpected design and construction conditions. This figure was later inflated to 2002 dollars --\$3.1B for a full 2-tunnel/4-track/3-station configuration. Given the 50% contingency provision and inflation during intervening years, the \$3.1B VHB estimate was essentially in line with the \$1.74B CARL Task Force estimate.

In 1997, an independent group of experienced underground construction professionals conducted a peer review of the estimated project costs. The peer review verified that the estimates were both reasonable and conservative. They even suggested that newer mining techniques could likely reduce those estimates. The Peer Review panel recommended a NSRL project construction cost of \$2.4B.

The Final MIS/DEIS/DEIR estimate substantially escalated the cost estimate provided by VHB and verified through peer review. The higher costs were justified based on rationales of dubious merit and arguable relevance. These included:

- An additional, undefined \$500M to reflect the Central Artery experience.
- An additional \$820M to address possible project scope changes – pump stations, access shafts and building underpinning.
- Another \$950M to cover new locomotive and coach purchases, most of which would have been required of the MBTA regardless.
- A further \$1.3B (30%) for unspecified design, construction management and administrative costs – beyond the previous 50% contingency.
- Another \$1.82B for inflation to the presumed mid-point of construction – the first time such a standard was applied to a major infrastructure project.



Tunnel Boring technology is more predictable and efficient, and far less disruptive, than the Cut-and-Cover method used for the Central Artery Project.

Because of these late changes to the initial VHB costs estimates, the estimated NSRL cost increased by two and a half times the earlier estimate -- from \$3.1B to \$8.3B. Lost in the process was the fact that project construction costs had not increased -- and could probably be decreased, based on improvements in tunnel and station construction methodology.

The NSRL will lead to substantial cost savings.

Projected revenue increases and cost savings were not factored into the MIS/DEIS/DEIR financial analysis. As documented in the MIS/DEIS/DEIR related technical studies, these included

- Increases in annual operating revenues (\$120M+) from significantly increased rail ridership.
- Operating expense savings (\$70-90M annually) from major staff, equipment, and logistical efficiencies.
- Reductions in initial equipment purchases (\$75M) that would otherwise have been made by the MBTA, a significant, albeit non-recurring cost.

These revenue sources were carefully calculated in the initial phases of the MIS/DEIS/DEIR technical studies; and for the 4-track/3-station option, it was estimated they could total \$270M annually in 2010 dollars. These are the continuing operational benefits the NSRL would provide, along with the essential additional transportation capacity required to sustain our economic growth.

If the cost savings are taken into account, these recurring cash flows are sufficient to cover the annual bonding amortization costs of virtually all of the projected project capital costs based on initial VHB estimates – and almost half of even the most inflated estimates.

Conclusion

What this report attempts to underscore is that there is no other practical means to achieve the essential goal of additional regional transportation capacity and operational efficiency that the North/South Rail Link alone can provide and our regional rail system desperately needs. That is a fact that Governor Romney's recent long-range transportation plan confirms, even though that plan neither embraces the NSRL project nor offers any practical alternative to it.





Proposed Commuter Rail System with 9 Line Pairs