

appendix A

Cost Estimates



Cost Estimates

ALTERNATE #1

Segment	Project Type	Length (ft)	Unit	Unit Cost	Total Cost
School Street	At-grade crossing	50	LF	200	\$10,000
Segment 1	Bottom of embankment, access road	720	LF	500	\$360,000
Medford Street	At-grade crossing	130	LF	200	\$26,000
Segment 2	Along embankment	450	LF	2000	\$900,000
Walnut Street	At-grade crossing	50	LF	200	\$10,000
Segment 3	Along embankment, transition down	900	LF	2000	\$1,800,000
McGrath Highway	At-grade crossing	150	LF	100	\$15,000
Segment 4	Transition up, top of embankment	500	LF	2000	\$1,000,000
Cross Street	At-grade crossing	200	LF	200	\$40,000
Segment 5	Sidewalk/path combination	700	LF	100	\$70,000
Washington Street	At-grade crossing	110	LF	200	\$22,000
Segment 6	Use railbed	2850	LF	100	\$285,000
Fitchburg Line	New bridge over R.R.	135	LF	1500	\$202,500
Segment 7	Use railbed	470	LF	100	\$47,000
Total		7415			\$4,787,500

ALTERNATE #2

Segment	Project Type	Length (ft)	Unit	Unit Cost	Total Cost
School Street	At-grade crossing	50	LF	200	\$10,000
Segment 1	Along embankment	720	LF	2000	\$1,440,000
Medford Street	New Box Culvert	130	LF	6000	\$780,000
Segment 2	Along embankment	450	LF	2000	\$900,000
Walnut Street	At-grade crossing	50	LF	200	\$10,000
Segment 3	Along embankment, transition down	900	LF	2000	\$1,800,000
McGrath Highway	Underpass	150	LF	200	\$30,000
Segment 4	Transition up, top of embankment	500	LF	2000	\$1,000,000
Cross Street	At-grade crossing	60	LF	200	\$12,000
Segment 5	Elevated structure	820	LF	4000	\$3,280,000
Washington Street	Elevated structure	80	LF	4000	\$320,000
Segment 6	Use railbed	2480	LF	100	\$248,000
Fitchburg Line	New bridge over R.R.	135	LF	1500	\$202,500
Segment 7	Use railbed	470	LF	100	\$47,000
Total		6995			\$10,079,500

Somerville Community Path Feasibility Study

School Street to Cambridge Line



ALTERNATE #3

Segment	Project Type	Length (ft)	Unit	Unit Cost	Total Cost
School Street	At-grade crossing	50	LF	200	\$10,000
Segment 1	Along embankment	720	LF	2000	\$1,440,000
Medford Street	New Box Culvert	130	LF	6000	\$780,000
Segment 2	Along embankment	450	LF	2000	\$900,000
Walnut Street	New Box Culvert	50	LF	6000	\$300,000
Segment 3	Transition out into railbed	900	LF	750	\$675,000
McGrath Highway	Relocate freight, use railbed	150	LF	550	\$82,500
Segment 4	Relocate freight, use railbed	500	LF	550	\$275,000
Cross Street	Relocate freight, use railbed	60	LF	550	\$33,000
Segment 5	Relocate freight, use railbed	820	LF	550	\$451,000
Washington Street	Use rail bridge	80	LF	400	\$32,000
Segment 6	Use railbed	2480	LF	100	\$248,000
Fitchburg Line	New bridge over R.R.	135	LF	1500	\$202,500
Segment 7	Use railbed	470	LF	100	\$47,000
Total		6995			\$5,476,000

ALTERNATE #3-Modified

Segment	Project Type	Length (ft)	Unit	Unit Cost	Total Cost
School Street	At-grade crossing	50	LF	200	\$10,000
Segment 1	Along Gillman Station (shared cost*)	720	LF	1000	\$720,000
Medford Street	New Bridge (shared cost*)	130	LF	6000	\$780,000
Segment 2	Along embankment	450	LF	2000	\$900,000
Walnut Street	New Bridge (shared cost*)	50	LF	6000	\$300,000
Segment 3	Use railbed*	900	LF	200	\$180,000
McGrath Highway	Use railbed*	150	LF	200	\$30,000
Segment 4	Use railbed*	500	LF	200	\$100,000
Cross Street	Use railbed*	60	LF	200	\$12,000
Segment 5	Use railbed*	820	LF	200	\$164,000
Washington Street	Use rail bridge	80	LF	400	\$32,000
Segment 6	Use railbed	2480	LF	100	\$248,000
Fitchburg Line	New bridge over R.R.	135	LF	1500	\$202,500
Segment 7	Use railbed	470	LF	100	\$47,000
Total		6995			\$3,725,500

*New Gillman Square Station, Medford St. / Walnut St. bridge replacements and freight track relocation completed as part of Green line extension to Medford.

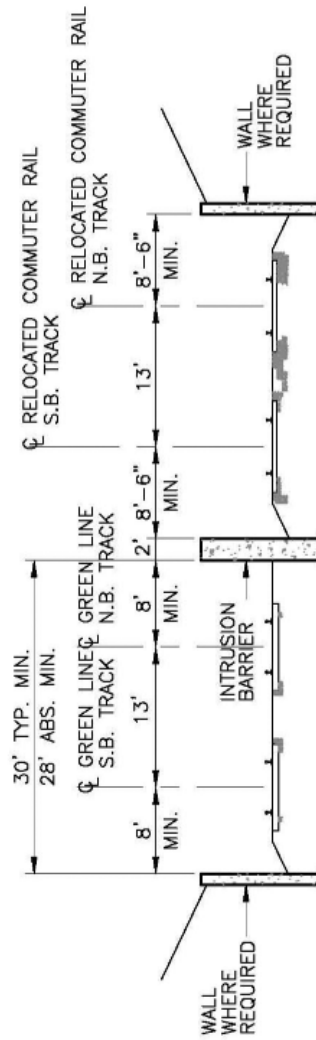
appendix B

Typical Light Rail Station



Vanasse Hangen Brustlin, Inc.

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Beyond Lechmere Northwest Corridor Study

Figure 5-2

Typical Section: Proposed LRT with
 Commuter Rail



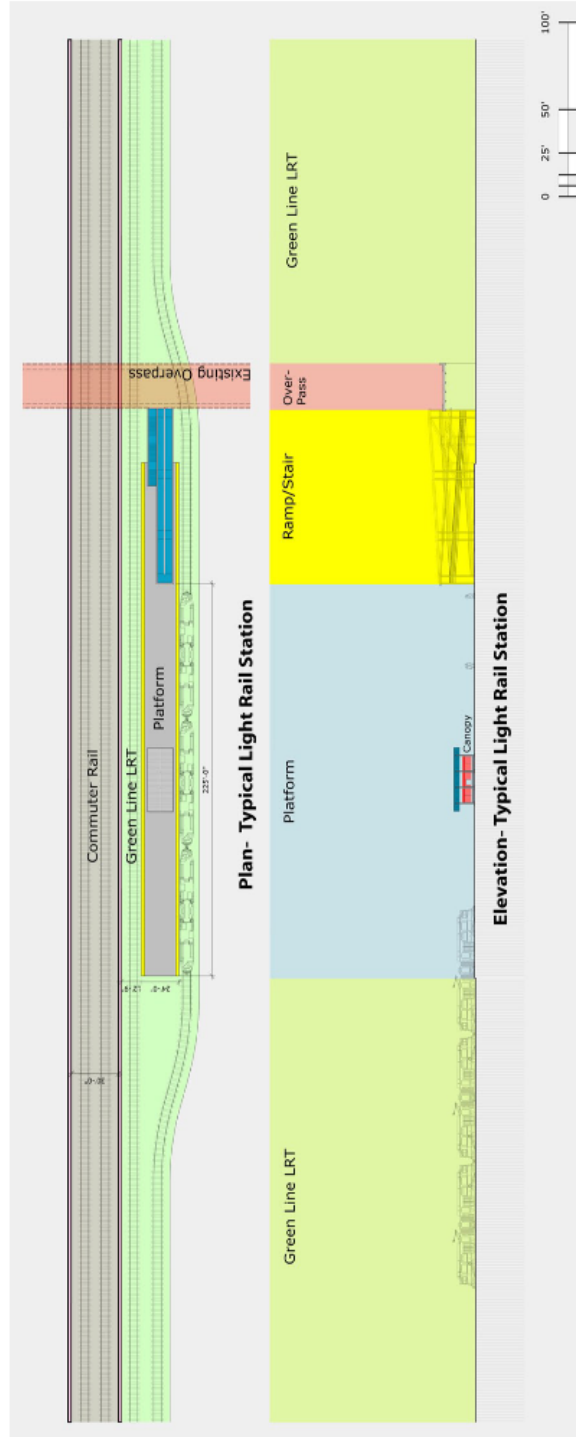
Massachusetts
 Bay
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 Authority

Source: Vanasse Hangen Brustlin, Inc., Beyond Lechmere - Northwest Corridor Study, August 2005.



Vanasse Hangen Brustlin, Inc.

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Beyond Lechmere Northwest Corridor Study

Figure 5-3

Typical LRT Station Plan and Elevation



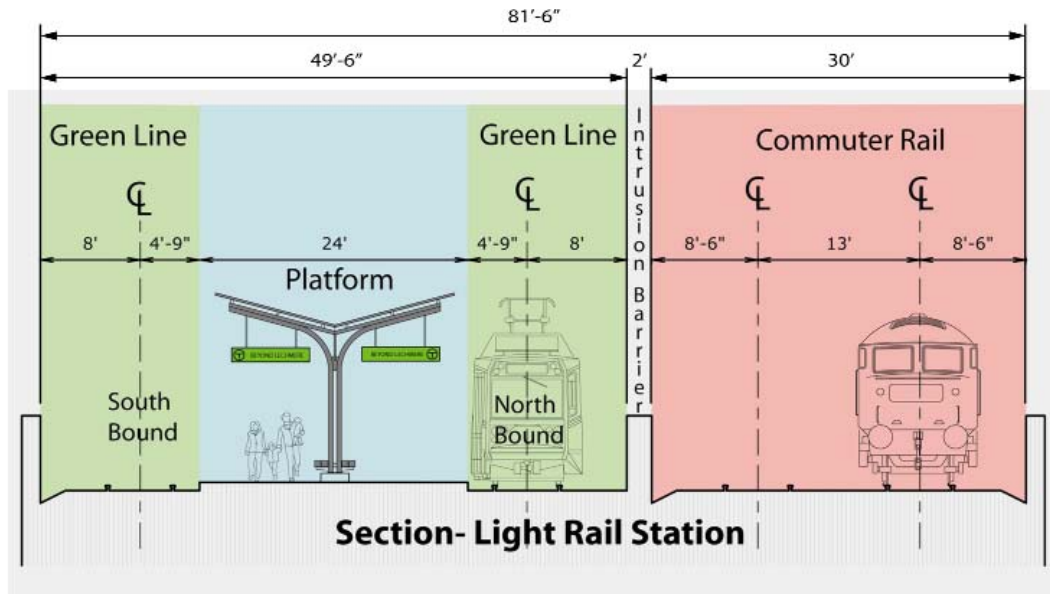
Massachusetts
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Source: Vanasse Hangen Brustlin, Inc., Beyond Lechmere - Northwest Corridor Study, August 2005.



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Vanasse Hangen Brustlin, Inc.



Beyond Lechmere Northwest Corridor Study



Figure 5-4
 Typical LRT Station Section

Source: Vanasse Hangen Brustlin, Inc., Beyond Lechmere - Northwest Corridor Study, August 2005.

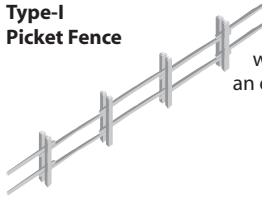
appendix C

Typical Fencing Styles



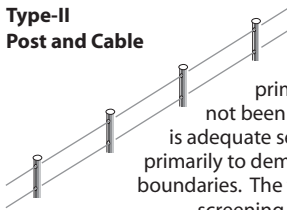
Typical Fencing Styles

**Type-I
Picket Fence**



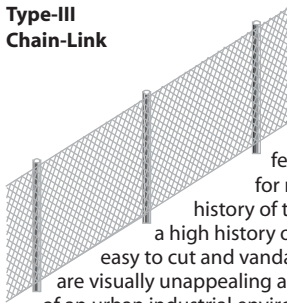
Where trespassing is not as much of a problem, a low wood rail fence can still serve as an effective reminder to trail users to stay off the tracks.

**Type-II
Post and Cable**



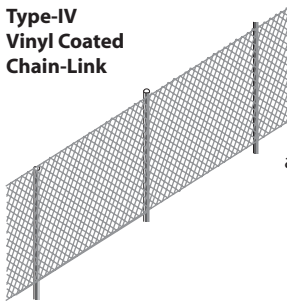
This inexpensive fence is occasionally requested by a railroad or used on a RWT primarily where trespassing has not been an historical problem, there is adequate setback, and the fence serves primarily to demarcate the railroad property boundaries. The fence does not provide any screening or anti-trespassing features.

**Type-III
Chain-Link**



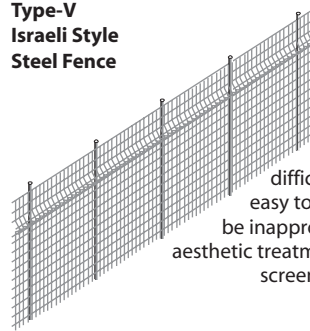
Chain-link fences are popular due to their effectiveness in keeping trail users off the tracks, relative low cost, and ease of maintenance. Chain-link fence may not be appropriate for rural areas where there is no history of trespassing, or for areas with a high history of trespassing, since it is very easy to cut and vandalize. Most chain-link fences are visually unappealing and tend to project an image of an urban industrial environment. For this reason, trail designers should explore using other, more appealing types of fences whenever possible.

**Type-IV
Vinyl Coated
Chain-Link**



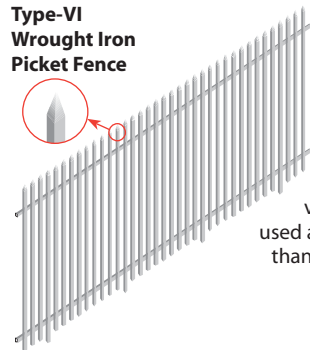
Similar to Type II, but with either a plastic woven fabric or wood battens in the chain-link material providing a solid-type barrier to help catch debris and provide wind and visual buffering.

**Type-V
Israeli Style
Steel Fence**



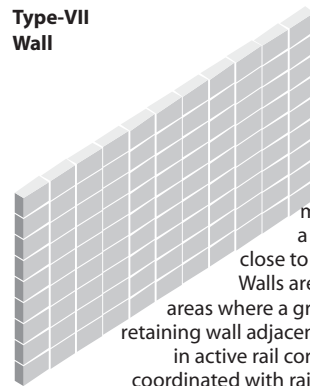
Sometimes referred to as "Israeli-style" fencing for its use in Israel to protect kibbutz, this product is more expensive than chain link, difficult to vandalize, difficult to scale, and relatively easy to repair if it is cut. It would be inappropriate for areas requiring aesthetic treatment, and provides limited screening or buffering benefits.

**Type-VI
Wrought Iron
Picket Fence**



This is the ultimate in vandal resistant fencing, and is used in locations that have a history of trespassing. It is virtually impossible to cut and difficult to scale. Because of its cost and visual impact, it is typically used at specific locations rather than along the entire corridor.

**Type-VII
Wall**



Very rarely used due to its cost and visual impact, solid concrete block walls are virtually indestructible and offer complete buffering and screening from rail debris or trains. A wall may be appropriate where a RWT must be placed very close to tracks for short distances. Walls are most commonly used in areas where a grade separation requires a retaining wall adjacent to the trail. Wall design in active rail corridors should be carefully coordinated with rail engineers, because they can have an effect on the structural integrity of the rail bed, alter drainage patterns in the rail corridor, and, in some circumstances, impede railroad access by railroad maintenance equipment.

Source: U.S. Department of Transportation, *Rails-with-Trails: Lessons Learned*, August 2002.

appendix D

Articles Related to Green Line Extension



Articles Related to Green Line Extension

Curtatone Hails State's Historic Green Line Decision

Mayor Says Extension Will Revitalize Union Square, East Somerville, Give Residents the Transit Service They Deserve

SOMERVILLE - Mayor Joe Curtatone lauded the state's decision to extend the Green Line into Somerville, saying the move was long overdue for Somerville residents and predicting dramatic economic growth for the entire East Somerville/East Cambridge region.

"This is a truly historic day for the city of Somerville," said Curtatone. "Most of us are Red Sox fans so we're used to waiting. Like Red Sox fans, we've waited decades for a return to past glory, in this case the streetcar days of Union Square. And like Red Sox fans, we can't quite believe we've finally won."

Curtatone made his remarks at a press conference held in Union Square by state officials to announce the state had decided to move forward with the Green Line extension and several other transit projects. Lt. Governor Kerry Healy, Commonwealth Development Secretary Douglas Foy, and State Transportation Secretary John Cogliano attended the event. State Senator Jarret Barrios, Representative Tim Toomey, Representative Patricia Jehlen, and several members of the Somerville Board of Aldermen also attended, as did Medford Mayor Michael McGlynn and members of the Medford City Council. Congressman Michael Capuano could not attend due to votes in Washington but sent comments read by Curtatone.

"More than half a century after the state tore up our streetcar tracks and built highways through our neighborhoods, we're getting back the rail service we deserve," said Curtatone. "Union Square can again become the bustling commercial area it once was and East Somerville can become an engine of economic growth for the Metro Boston region."

Four different sets of train tracks carrying eight different rail lines slice through Somerville neighborhoods but the city has only one stop - the Red Line station in Davis Square. The state agreed to extend the Green Line to Somerville and Medford as part of a Big Dig-related agreement made with environmentalists in the 1980's. Recently, state officials, citing cost considerations, re-assessed each of the remaining projects to ascertain which were cost-efficient and which would yield the clean air benefits necessary under the agreements and under federal law. It also took into consideration the economic development potential of each project.

A report released earlier this month by the MBTA's own consultants revealed that the Green Line extension would yield 30,000 more transit trips per day and would cut vehicle miles by 64,000 per day. It also showed the extension, which would begin at Lechmere station and would run along only about four miles of existing lines to West Medford, would have extremely low costs per mile.

Somerville Community Path Feasibility Study

School Street to Cambridge Line



"The MBTA's report showed this project delivered a lot of bang for very little buck," said Curtatone. "Add to that the tremendous economic potential of the underutilized industrial land in this area, and you have a real win-win for the state and the city."

The Somerville Chamber of Commerce has estimated the Green Line extension would create three billion dollars in economic activity.

Curtatone singled out Healy and Foy for being particularly helpful throughout the process.

"We in Somerville want to thank Governor Romney for his support and we want to particularly show our appreciation to Lt. Governor Healy, who has helped us on this and on a wide array of projects this year," Curtatone said. "We've also been pleased to work with Doug Foy on pursuing smart growth initiatives in Assembly Square, North Point, and now Union Square and the Brickbottom-InnerBelt area."

Source: Somerville Journal. Curtatone Hails State's Historic Green Line Decision, May 18, 2005.



Green Line project may be postponed until 2014

BOSTON State and local leaders lashed out yesterday at the Executive Office of Transportation's proposal to postpone the completion of the Green Line extension to Somerville and Medford until 2014, and scrap the Red-Blue Line connector.

"The communities of Somerville, Cambridge and Medford have waited too long for the Green Line extension to become reality," said state Sen. Jarrett T. Barrios, D-Cambridge, who attend-

ed a hearing in downtown Boston yesterday called by the state Department of Environmental Protection.

The state Executive Office of Transportation (EOT), which is required by law to satisfy several commitments to offset the environmental impacts of the Central Artery Project, has submitted a revised list of commitments to the DEP for approval. The DEP held two public hearings yesterday for comment on the list and will make

its decision after Jan. 17. The revisions include an extension of the Green Line project completion deadline to 2014 and if needed a further extension to 2017.

It also calls for scrapping the Red-Blue Line connector (a rail link between the lines) and the restoration of the Arborway trolley service in Jamaica Plain. The state instead wants to improve service on the Fairmount commuter rail line and add 1,000 additional parking spaces at commuter rail stations.

Some believe these substitutions are not up to snuff.

"The Red-Blue Connector is essential to decongest the core of our transit system, and to meet the needs of East Boston and near North Shore communities," said Phil Warburg, president of the Conservation Law Foundation, which filed a federal lawsuit against the state demanding officials deliver on their original promises.

CHRISTINA WALLACE
cwallace@metro-boston.com

Source: Metro. Green Line Project may be postponed until 2014, December 22, 2005.