

2012

Belmont/Waltham Community Trail Alignment Study



January 10, 2012

Introduction

The Central Massachusetts Railroad once ran for 104 miles between North Cambridge and Northampton. The line opened in the 1880's and railroad operations continued through the 1930s. Since then the line was abandoned in Segments until the last train ran during the 1970s.



Figure 1 Mass Central Corridor in 1903

Since the late 1980s, separate efforts along the corridor have reclaimed the right-of-way to one day form a continuous rail trail between Northampton and Boston. About 25 miles of trail are now open. Individual Segments include the 9.5 mi Norwottuck Trail between Northampton and Belchertown 12 miles of the Wachusett Greenway north of Worcester.

In December 2010, the Department of Conservation and Recreation (DCR) and the MBTA signed a 99 year lease with the MBTA to allow development of a trail along the corridor between Berlin and the Waltham/Belmont town line. The Massachusetts Department of Transportation (MassDOT) is currently constructing a roughly one mile trail between Brighton St in Belmont and Alewife Station in Cambridge, to be completed in 2011. The terminus at Alewife Station provides direction connections to the Minuteman Trail, the Linear Path (to Boston), and a future connection to the Watertown Branch.

With trail development continuing to the east from Brighton St and to the west from Linden St, the gap in Belmont is one that now moves to the forefront to resolve. Two earlier studies, conducted in 1997, The Central Massachusetts Rail Trail Feasibility Study, and the Belmont Bikeway Preliminary Feasibility Analysis examined similar questions of trail alignment. This study includes relevant aspects of the earlier studies.

Process

The focus of this alignment study is to begin a public process to select an alignment for the trail through Waltham and Belmont. This study aims to identify all potential alignments for the trail between the identified limits, and provide an evaluation of each segment identifying both opportunities and constraints. The trail will be designed to encourage use from everyone in the community including pedestrians, cyclists, parents with baby strollers, children walking to school, and as a means of transport to Alewife Station or Belmont Center businesses.

The alternative alignment segments include locations where a separate shared use path (similar to the Minuteman Trail) can be provided as well as low volume streets where bicycle and pedestrian traffic can share the right-of-way with motor vehicles. Constraints such as property ownership, building location, and traffic barriers will be noted.

This is not an engineering study or cost estimate study. It's a first step at evaluating locations and building community consensus for a subsequent engineering design and cost study.

Once this study is complete by the MAPC, the Town of Belmont and City of Waltham will take the next steps to move forward with feasibility studies, and implementation.

The following pages describe, by trail segment, the proposed alignment alternatives along with known opportunities.

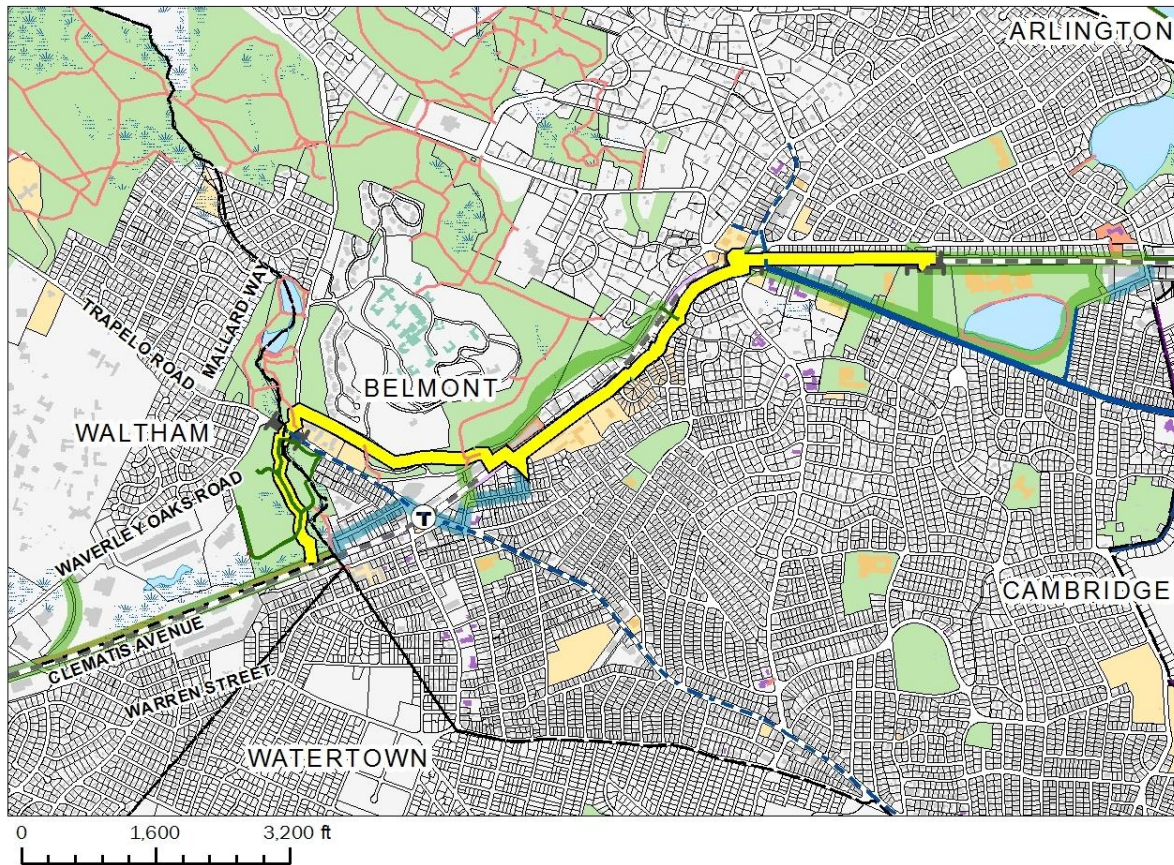
Alternatives

The corridor is divided into five segments between Beaver St and Brighton St. One or more alternatives have been identified for each segment. Issues and opportunities with each alignment are described. An overview map and map key (for the entire report) is provided on the next page.

Belmont/Waltham Trail Alignment Study



Mass Central Rail Trail Alignment Study



Trail Alternatives

Recommended Alignment

Shared-use Path

On-road
(bike lane/shared and sidewalk)

Bicycle facilities

Bicycle facilities (on-road)

Bike lane

Shared lane

Shared-use paths

Improved path

Unimproved path

Walking facilities

Walking path or trail

Parcels & Buildings

Town-owned Parcels

Town-owned Buildings

Owned by Belmont Housing Authority

Owned by MBTA

Churches, Synagogues and Temples

McLean Hospital Buildings

Open Space

Permanently Protected

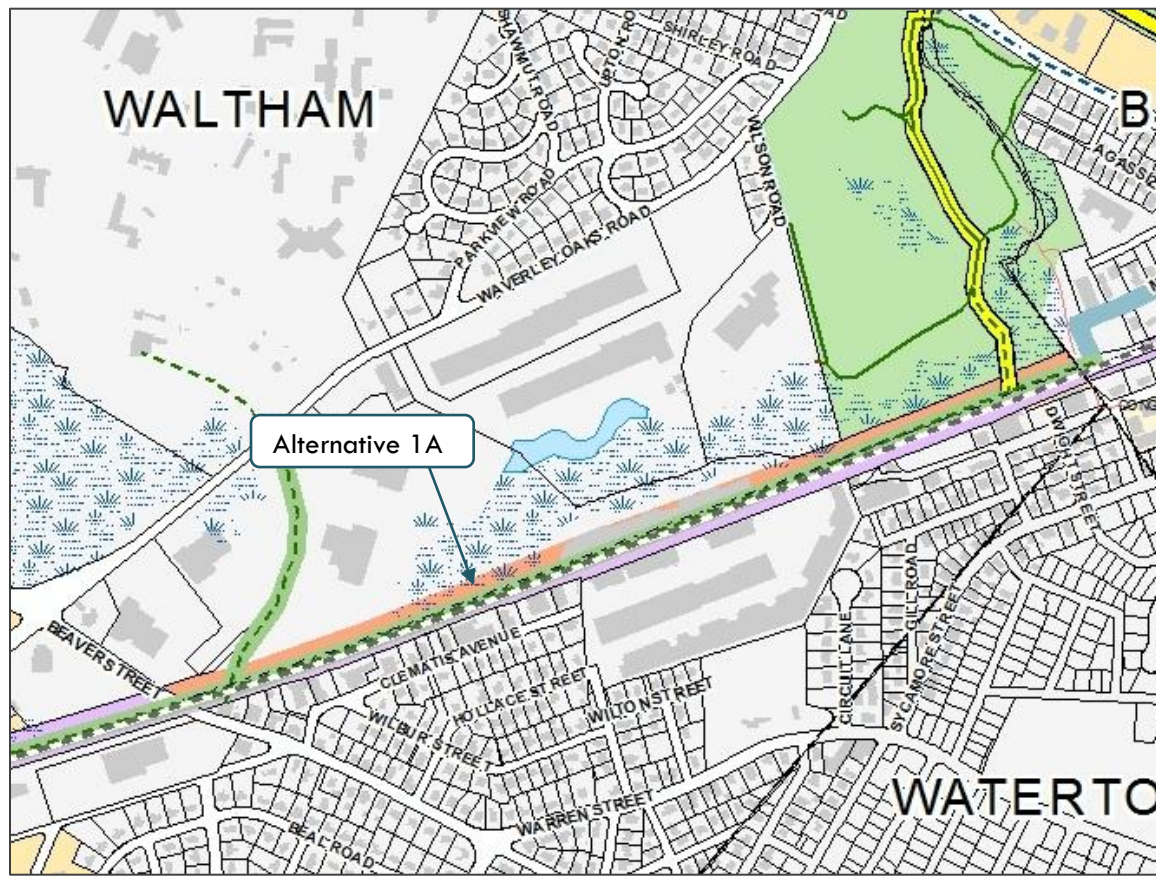
Marsh

Open Water

Source: Town of Belmont, City of Waltham,
Town of Watertown, City of Cambridge,
MassGIS, OpenStreetMap

Date: January 2012

Segment 1 - Waltham



Linden St to Beaver St

This trail segment runs between Linden St and Beaver St entirely along the Mass Central right-of-way. The ROW is approximately 80 wide. MBTA has leased this section to DCR for trail development. No identified ownership or topographic constraints.

Beaver St to the Belmont Line

Two alternatives have been identified for Segment 1, 1A and 1B described below.

Alternative 1A – Fitchburg Line ROW to Beaver Brook Reservation.

This Alternative runs along the north side and within the Fitchburg line MBTA ROW abutting the Duffy property (shown in orange). Beginning at Beaver St, the trail would be located between a driveway off Beaver St and the Fitchburg Line. There is enough ROW provide proper separation between the tracks (minimum 11 ft from the nearest rail line). A single power line runs down this Segment of the ROW and will likely have to be shifted to one side or the other to accommodate a

trail. The power line may ultimately conflict with the ability to place a trail in this Segment if there is no option to relocate.

East of the Duffy warehouse, the former Mass Central Line is undeveloped and could provide an ideal location for the trail. From the warehouse heading northeast, the former ROW is below grade parallel to the Fitchburg Line, then transitions above grade toward the Belmont Line. This Segment is owned by Duffy Brothers.

Approaching the Belmont line, two alternatives exist (Segment 2), one into Beaver Brook Reservation, and the second connecting with Moraine Ave to Trapelo Rd.



Figure 2 Warehouse along the Fitchburg Line (L), Former Mass Central ROW (R)

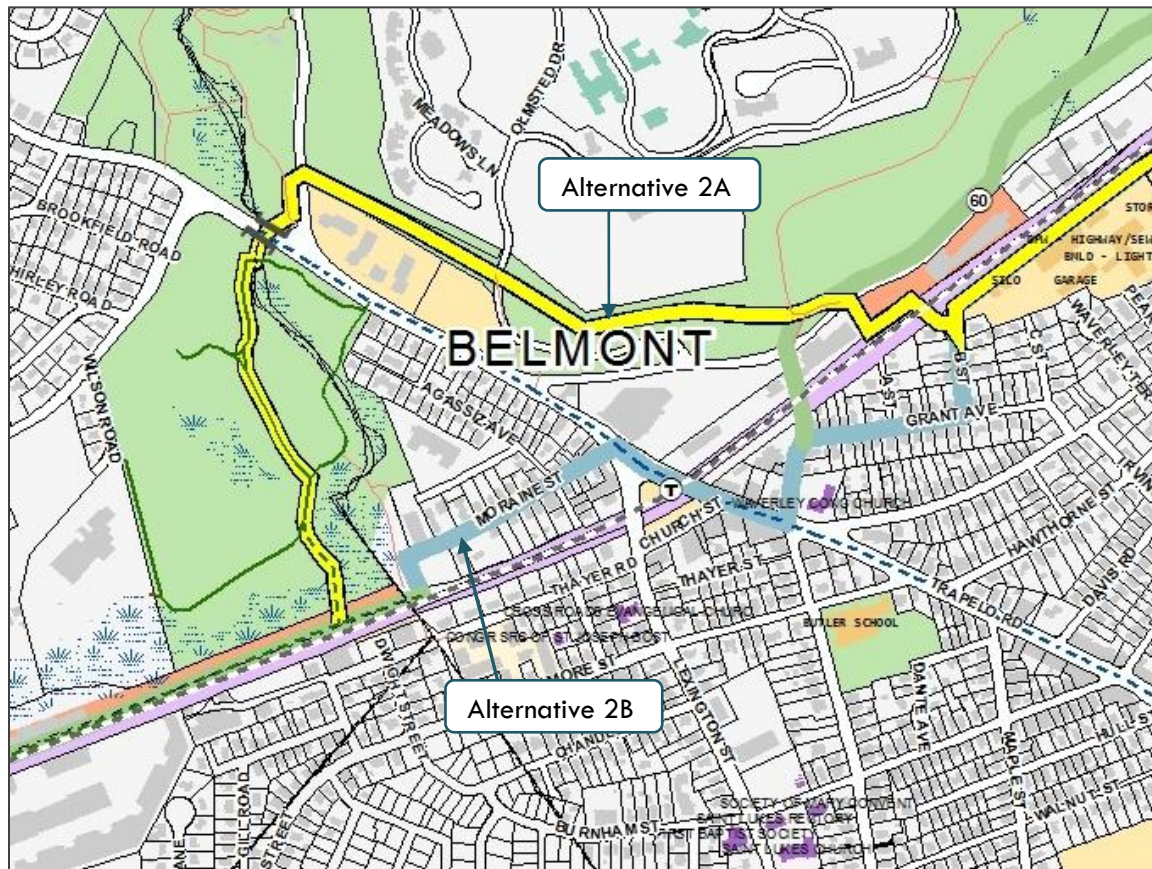
Alternative 1B – Entirely on Duffy Bros. property between Beaver St and Beaver Brook Reservation

If further investigation shows that the power line and trail can not co-exist in the same location, the other trail alternative runs through the Duffy Brothers property, adjacent to the wetlands and north of the long warehouse that is adjacent to the Fitchburg ROW. This alternative is not mapped. Consideration of this alternative should be included as mitigation for any future redevelopment of any portion of the Duffy properties, which consists of most of the land between Waverley Oaks Rd and the Fitchburg ROW. Alternative shared use of the warehouse driveway should be considered.

Recommendation

Likely complexities of the existing power line and resulting tight clearance between the warehouse and Fitchburg Line necessitate looking at trail options on private property, beyond the scope of this study. The City of Waltham should work with property owners to this end.

Segment 2 – Waverley Square



Two alternatives have been identified for Segment 2, 2A and 2B described below. Two options for new trail bridges over the Fitchburg Line are proposed. The recommended alignment is outlined in yellow in the map above.

Alternative 2A – Beaver Brook

This alternative connects into Beaver Brook Reservation trail system across an existing footbridge and meeting with the existing shared use path that runs through the park. The trail would divert from this path, crossing under Trapelo Rd through a new culvert to Mill St. The trail would use an existing pedestrian crosswalk at Mill St, then running through McLean Hospital conservation land eventually connecting to an old road just prior to the junction with Pleasant St/Rt 60.

The Beaver Brook culvert can not handle significant rain storms, and often overflows onto Trapelo Rd. A larger diversion culvert parallel to the existing one has been proposed to provide additional flow capacity, as well as raising Trapelo Rd a few feet. The backup culvert should be designed to a height and width to accommodate the trail undercrossing of Trapelo Rd.

Not only would an underpass provide safe crossing of the trail, but would also connect two sections of the Beaver Brook Reservation that are divided by Trapelo Rd.



Figure 3 Existing Trapelo Rd culvert (L) Old road approaching Rt 60 (R)

Alternative 2B – Trapelo Rd and Side Streets

This alternative connects with the end of Moraine St, right on Trapelo Rd, left on Grant Ave, then left onto B St to the Public Works yard. Bicyclists would share the road with vehicles on the side streets and via bike lanes on Trapelo Rd. Pedestrians would use the adjacent sidewalks. The trail would be marked with way finding signs or pavement markings as is done with the adjacent Waverley Trail.



Figure 4 Moraine St

New Bridge Options

Alternatives 2A and 2B end on opposite sides of the tracks east of Trapelo Rd. Alternatives 3A and 3B continue toward Belmont center. There are two potential options to provide bicycle pedestrian bridges across the Fitchburg Line in this area, of which could link the two Segments. The first option is on the White St ROW. This town owned parcel could provide a connection over the tracks between Rt 60 to the north and Grant Ave to the south.

A second bridge option is located further east connecting the old road from McLean conservation area, crossing Rt 60 and connecting across the tracks to the terminus of B St. A portion of this alignment between Rt 60 and the tracks is on currently vacant private property. Redevelopment of this property could allow potential for a trail to traverse the edge to the railroad crossing. Between the terminus of B Street and the tracks is town land that is part of the Dept of Public Works yard.



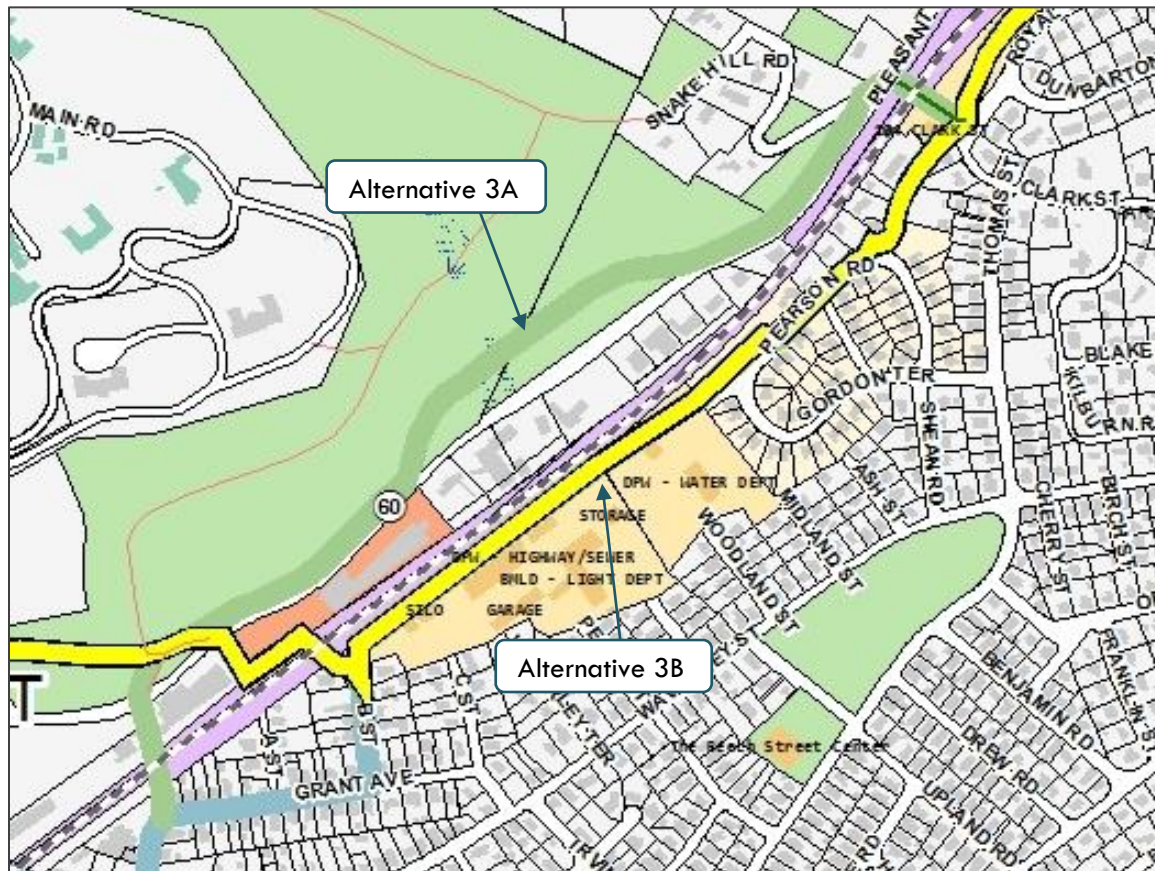
Figure 5 Terminus of B St looking at DPW land toward the tracks

Recommendation

Alternative 2A provides the opportunity for a shared use path completely separate from motor vehicles. A grade separated crossing under Trapelo Rd is possible as part of the proposed culvert reconstruction. Alternative 2B provides direct access to the Waverley MBTA commuter rail and trolley bus stations, as well as a number of restaurants and shops. However, maneuvering across Trapelo Rd including signalization, crosswalks and other traffic control will need to be evaluated as part of conceptual design. Alternative 2A avoids traffic except at the Mill St crossing.

MAPC recommends Alternative 2A as it provides a completely off road path including the existing network in Beaver Brook reservation, plus minimal traffic conflicts.

Segment 3 – Rt 60 Corridor



Two alternatives have been identified for Segment 3, 3A and 3B described below.

Alternative 3A – Route 60

This alternative follows the NW side of Rt 60 in McLean Hospital conservation land immediately behind the retention pond. The entire segment is along wooded, sloped land. The slope increases closer to Snake Hill Rd and meets the retaining wall adjacent to the road. The suggested location for the trail here is at the top level of the existing retaining wall, cut into the hillside to obtain the desired width. A second retaining wall will likely be required to accommodate the width of the path.

Where the trail would meet Snake Hill Rd, there is a short steep descent to Rt 60, and currently unmarked crossing to the existing Royal Rd footbridge.



Figure 6 West end of retention pond (L), Rt 60 at Snake Hill Rd (R)

Alternative 3B – Public Works/Belmont Housing

This alternative crosses Rt 60 at the existing gate entrance to McLean conservation land. A proposed easement would provide access through private property (or a land swap with the town owned White St right-of-way) to the railroad tracks. A new pedestrian/bicycle bridge would connect across the tracks to the Public Works yard and B Street terminus. The trail continue along the northern portion of the Public Works yard land connecting with the with the Belmont Housing Authority complex on Pearson Rd. A portion of the parking lot would be converted to a trail connecting to Pearson Rd. The alignment follows Pearson Rd (shared roadway) to a new short path segment to Clark Lane and finally to Royal Rd. Clark Lane would remain a shared use low speed roadway.



Figure 7 Rt 60 crossing (L), B Street terminus (R)



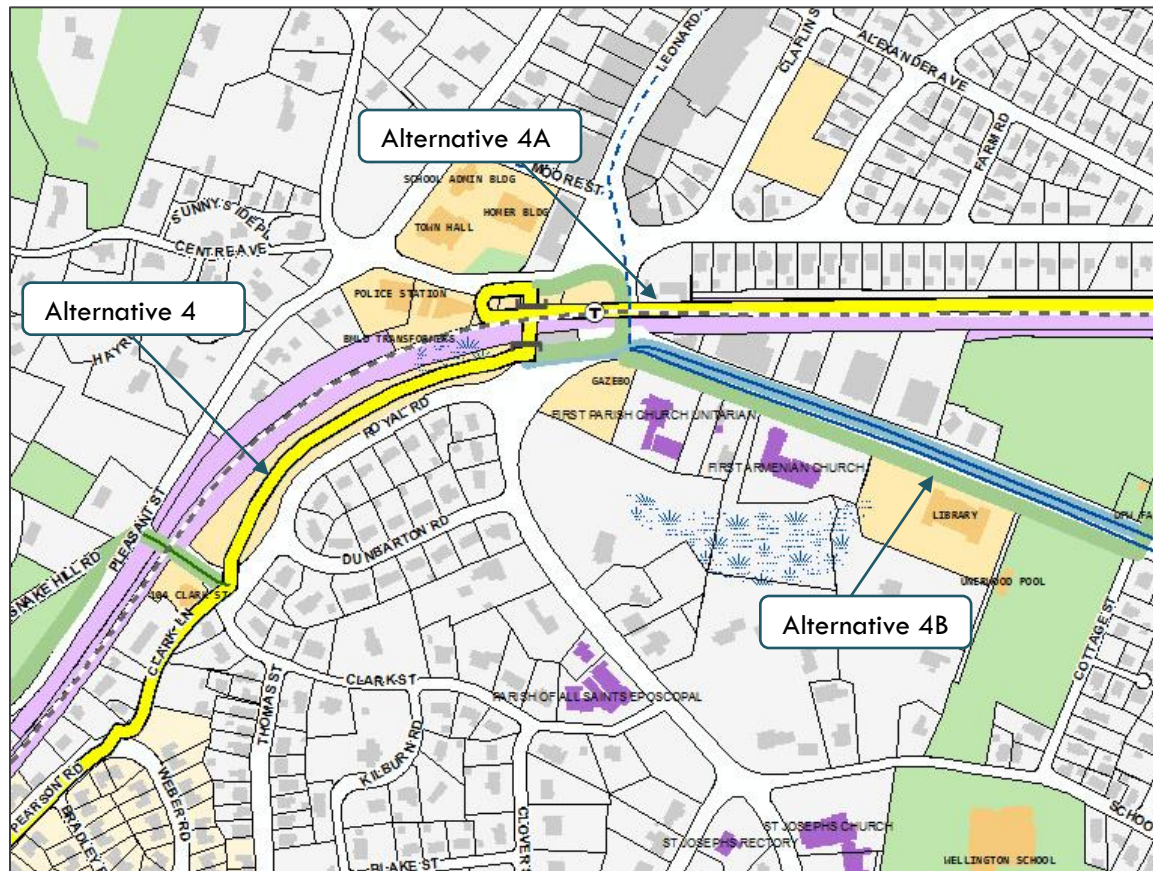
Figure 8 Belmont Housing Authority parking lot (L), End of Clark Ln (R)

Recommendation

Both alternatives provide options for substantially separated paths. Topography is of concern along Rt 60 (Alternative 3A) for a path, both in terms of cost of excavation and slope stabilization, as well as impacts to the tree cover and aesthetics. The option through the public works property requires relocation of existing stockpiles of organic and construction materials, and removal of some parking (though rarely fully occupied) in the public housing lot.

MAPC recommends Alternative 3B as it minimizes topography constraints and provides direct access to the neighborhoods. A full engineering design study of the two options will better frame the opportunities and constraints of each option.

Segment 4 – Belmont Center



Alternative 4 – Royal Road Parcel

Between the Clark St footbridge and Belmont Station, one clear option exists, through the town owned land located between the railroad tracks and Royal Rd. This parcel of land is designated as a passive recreation site in Belmont's 2008 Open Space and Recreation Plan. This parcel of land is wooded and would provide a nice forested section to pass through.

Closer to Belmont Station, the area is wet and will likely require boardwalks or similar structures, to be established on full assessment of wetlands. A sewer line runs through the center of this parcel. A trail in this location would provide improved maintenance access to the sewer line.

From Belmont Station eastbound, two alternatives have been identified for the remainder of Segment 4.



Figure 9 Royal Rd parcel as viewed from Clark St (L), Royal Rd parcel views with the manholes and railroad tracks (R)

Alternative 4A – Shared Use Path over Concord Ave

This alternative provides a connection to the old Mass Central line ROW between the Fitchburg Line and Channing Rd. At Belmont Station, the trail would either pass through the existing tunnel under the tracks, or continue along a new widened sidewalk/trail through the Concord Ave underpass, then circling around to the west and climbing up to the platform level to the old Mass Central Line ROW.

East of the platform, the trail would continue along the approximately 70 ft wide old Mass Central right of way, now owned by the Belmont Citizens Forum (northern 30ft) and the MBTA (southern 40 ft).



Figure 10 Trail alignment out of the tunnel to the platform level (L), Alignment over Leonard St (R)

Currently access to the Belmont Station platform for maintenance and plowing is provided via a dirt road along the Mass Central ROW. The images below show the section that is plowed regularly in the winter. The plow section also indicates where a potential trail could be located. Should the MBTA prefer a separate trail alignment, there is ample width to align the trail just north of the access road to Alexander Ave.



Figure 11 Mass Central ROW near Belmont Center (L), and closer to Alexander Ave(R)

Alternative 4B – Concord Ave

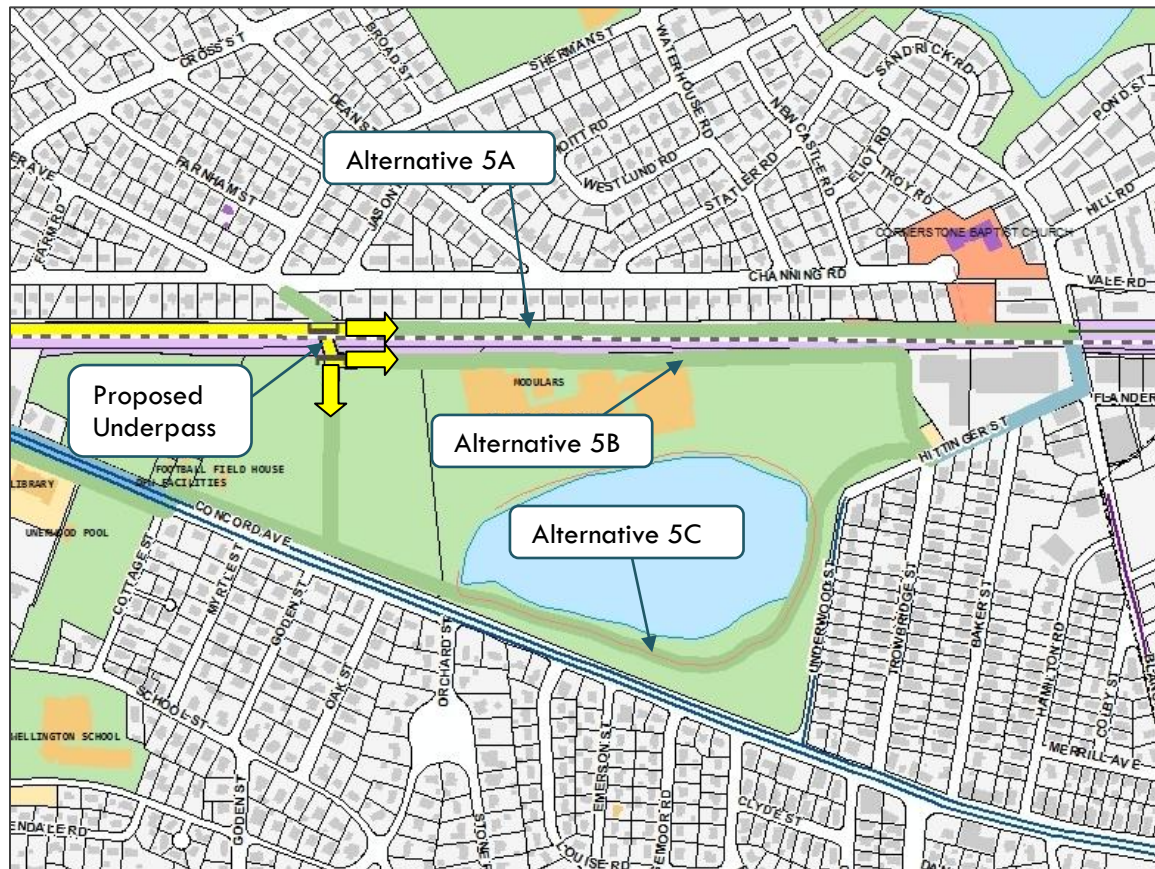
At Belmont Station, this option would continue eastbound on existing sidewalks and bike lanes on Concord Ave. A possible shared use path could be provided on the south side of Concord Ave to a point where it would cross over into high school property. A shared use path however, would require significant widening of the sidewalk impacting parking, the bike lane, or landscaped median.

Recommendation

Alternative 4A over the underpass provides the best option to avoid the complex traffic movements under and on both sides of the underpass. If a shared use path can be provided on the south side of Concord Ave, this also has potential. However a safe crossing of Common St in the vicinity of Royal Rd would need to be identified.

MAPC recommends Alternative 4 through the Royal Rd parcel to Alternative 4A. Alternative 4A avoids all traffic conflicts in Belmont Center and provides direct access to the high school (via the proposed tunnel at Alexander St).

Segment 5 – Channing Rd/High School



Three alternatives are identified on this segment to Brighton St. An underpass under the Fitchburg Line at Alexander Ave is proposed for all of the alternatives.

Alternative 5A – Mass Central Railroad Alignment

This alternative extends from Alexander Ave along the old Mass Central Railroad alignment to Brighton St. Much of this portion of the ROW is owned by the Belmont Citizens Forum and the MBTA except for the property on the west side of Brighton St that abuts the Fitchburg Line. DCR has secured an easement for a future trail from the property owner for the parcel connecting to Brighton St.

In design terms this segment is typically called a “rail with trail” project, where the trail follows adjacent to active rail lines. Massachusetts trail design standards call for the edge of the trail pavement to be at least 11 feet from the closest rail, typically separated via a barrier such as a fence. There are currently 17 MBTA trains per day in the outbound direction. Of the 17 trains, 13 stop at Belmont Center, and are therefore decelerating on this stretch of track.

A barrier fence has been installed the Alewife path just east of Brighton St. as shown in the image below and indicates the type of fencing that would be installed further west if a trail were to be constructed behind Channing Rd.



Figure 12 New fencing on the Alewife Path

Alternative 5B – Concord Ave/High School Property

This alternative connects through high school property along the west side of the ice rink to the rear of the property. It then follows along the fire access road behind the high school and eventually connects to Hittinger Rd. The access road would be a shared use roadway with vehicles, cyclists and pedestrians. Bicycles share with motor vehicles on Hittinger Rd to Brighton St, and pedestrians on the sidewalk.

If Belmont Light were to follow through with their proposed purchase of the industrial property at the corner of Hittinger Rd and Brighton St, this could open up opportunities for a trail alignment on this parcel to the railroad crossing.



Figure 13 Fire access rd behind the high school (L), Hittinger St (R)

Alternative 5C – Claypit Pond

A soft surface path currently runs along the south side of Claypit Pond. This path could be upgraded to a paved trail as an alternative to running behind the high school.

Alexander Ave Underpass

One mile separates the distance between Belmont Center and Brighton St. Between these points, there are now opportunities to cross the tracks. A high demand desire line exists between the neighborhood on the north and the high school, library, pool, and recreational facilities. As a result, an informal cut in the fence at Alexander Ave serves as access for high school students and others to cross the tracks. As noted in the photo below, a well defined path in the snow exists between the cut in the fence and the high school front entrance.

Whatever option is ultimately chosen, an underpass at Alexander Ave is an important connection that needs to be constructed to provide safe access between two split sides of town.



Figure 14 Location of a proposed underpass on the high school side (L), Alexander Ave location ®

Alewife Trail at Brighton St

The new trail to Alewife currently terminates at Brighton St immediately north and adjacent to the Fitchburg Line. Brighton St was reconstructed on either side of the railroad crossing within the past five years with new sidewalks, curb and gutter. There is currently no additional room for striped bike lanes. Likewise the sidewalks abut at the edge or close to the edge of the ROW in this Segment. The MBTA has expressed concerns about the existing crosswalk location adjacent to an unprotected railroad crossing. The crossing is only protected on the side of approaching vehicles.



Figure 15 Alewife Path terminus at Brighton St (L), Brighton St Crosswalk looking north (R)

Recommendation

MAPC does not recommend a specific alignment for this section. We recommend that the town consider the advantages and opportunities of each proposal.

The MBTA supports physical separation of the trail and Fitchburg line, including bridges or underpasses as appropriate. Appropriate fencing would be required between the tracks and trail if the trail were to run along the Channing Rd segment.

A bicycle and pedestrian underpass at Alexander Ave should be a high priority no matter which trail alignment option is chosen. Fences do not deter the desire to avoid a one mile detour to provide direct and safe access between both sides of the tracks.

Alternative 5A along the old Mass Central Line ROW provides the most direct access between Belmont Center and Brighton St. It allows for a direct connection to the MBTA station and Belmont center while avoiding the traffic congested area around the Concord Ave underpass. Likewise at Brighton St, it offers the safest crossing of Brighton St, using the existing crosswalk and crossing directly to the new Alewife path. The other alternatives require a diversion onto Brighton St for short segments introducing traffic conflicts, as well as the railroad crossing.

Channing Rd abutters have expressed strong concern about security and privacy, particularly with much of the alignment of the trail higher in elevation than the ground floor of the abutting houses. Adequate screening must be considered in design of a trail in this segment.

Alternatives 5B and 5C through Belmont High School property and Claypit Pond parkland provides an excellent opportunity for direct access to the school, library, swimming pool, and other town recreational facilities. Primary weak points with this alignment include the westbound access past the Concord Ave underpass, and the Hittinger to Brighton St connections.

Implementation

In August 2011, the Belmont Board of Selectmen voted to appoint a Rail trail Committee to lead implementation of the trail. MAPC recommends that the committee focus on implementation of the trail in phases, beginning with low cost interim trail establishment on town owned land, while hiring a consultant to prepare a feasibility study for full corridor. MAPC suggests the following phasing, all of which may evolve concurrently.

Phase 1 – Establish an interim soft surface trail on the two town owned parcels; 1) McLean Hospital Conservation Land between Mills St and Rt 60 and 2) Royal Rd parcel between Clark Lane and Belmont Station. Interim trail development can be initiated largely with volunteer effort and donations through coordination with town officials.

Phase 2 – Work with the Belmont Housing Authority and Department of Public Works to site a trail through their respective properties. Consider development of an interim trail re Phase 1 above.

Phase 3 – Commission a feasibility study with a design firm for the entire trail corridor, reviewing all options presented. The study will identify engineering opportunities and challenges, and cost estimates. Information obtained through the feasibility study process will guide selection of the alignment. Three proposed grade separated crossings will be evaluated; 1) Trapelo Rd undercrossing, 2) Fitchburg Line elevated crossing at B St, 3) Alexander Ave tunnel.

Contact

The full report and map may be downloaded here.

<http://www.mapc.org/smart-growth/transportation/bike-ped-projects>

For further information on this project please contact MAPC.

David Loutzenheiser
Transportation Planner
dloutzenheiser@mapc.org
617-451-2770 x2061

