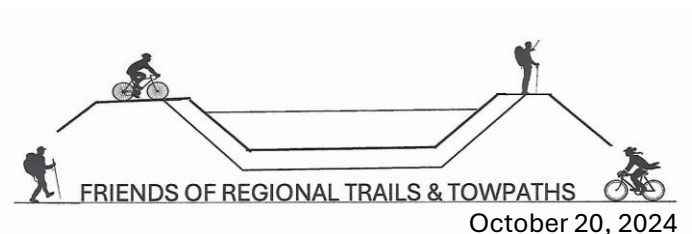


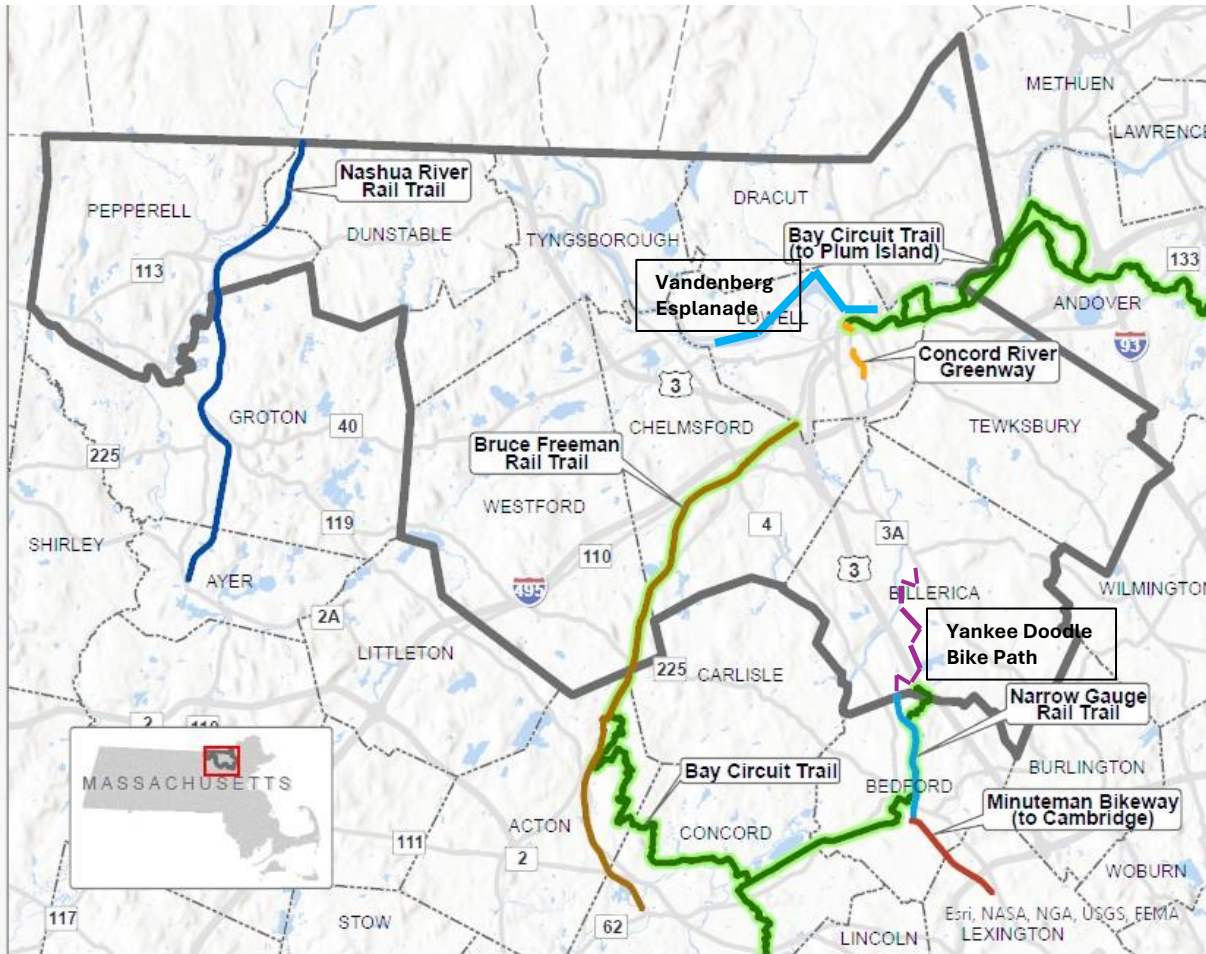
Henry David Thoreau Meets Yankee Doodle

A conceptual plan for a connected trail network in the
Northern Middlesex Region that preserves historic transportation
rights-of-way



Middlesex Canal along McLennon Way, Billerica





Major Trails

- Bay Circuit Trail
- Bruce Freeman Rail Trail
- Concord River Greenway
- Minuteman Bikeway
- Narrow Gauge Rail Trail
- Nashua River Rail Trail

- Bay Circuit Trail System
- Northern Middlesex Region Boundary
- Town Boundary



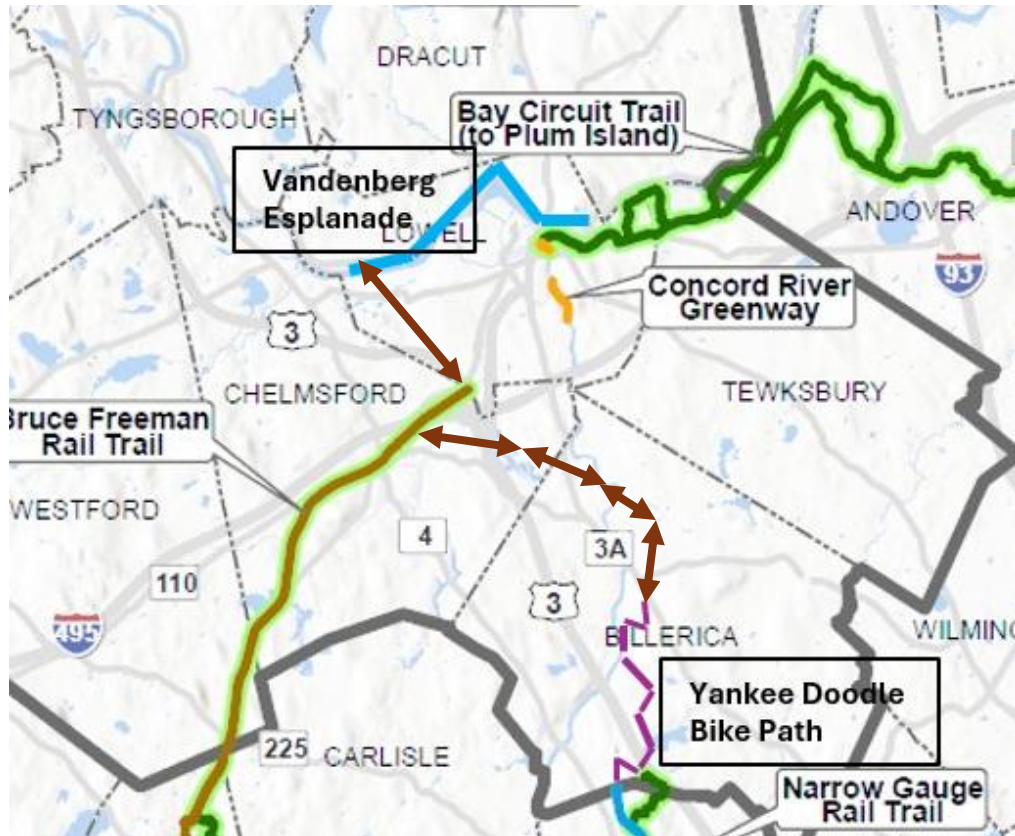
Sources: MassDOT (roads); MassGIS (trails, town boundaries, hydrography)
 Data provided on this map is not sufficient for either boundary determination or regulatory interpretation.
 Produced: 8/13/2024

Even with the completion of the Yankee Doodle Bike Path, trails in the Northern Middlesex Region will remain disconnected.

Significant value is added to the Commonwealth's trails when an inter-connected regional network is created.

- Disconnected trails tend to be primarily for a single purpose, e.g., recreation or commuting.
- Disconnected trails serve only the limited population that lives within easy access of each trail segment.
- Massachusetts' trail planning process does not encourage the planning of inter-connected regional trails, as it is municipality based.
- Most regional trails are created when a municipality creates a successful trail, and a neighboring municipality extends that trail.

This conceptual plan links major existing trails, utilizing and enhancing historic rights-of-way.

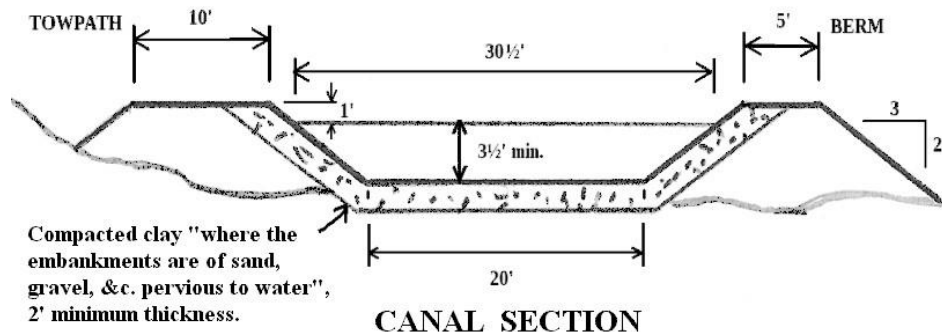


- The new trail would extend from a connection with the bike path over the new Rourke Bridge in Lowell to the Yankee Doodle Bike Path in Billerica
 - It will follow the right-of-way of the Middlesex Canal from the Merrimack River to Cross Point Towers in Lowell to the extent possible, go around the barrier created by the I-495 / Route 3 / Lowell Connector interchange using BFRT and a new trail to Riverneck Road and Canal Street, and again follow the Canal to the Canal's Summit Pond in North Billerica
 - From North Billerica to the Yankee Doodle Bike Path, it will roughly follow the right-of-way of the Billerica and Bedford Railroad

Arrows show general location of proposed trail. Specific locations will be developed during the planning process.

Following the Middlesex Canal and railroad rights-of-way where possible is deliberate

- Canal Towpaths and railroad rights-of-way have favorable characteristics for trails:
 - Level
 - Smooth
 - Already 'disturbed' surface
 - Wide
 - Limited interaction with vehicle traffic
 - They often have become natural greenways¹



Revised 2014, J.Breen. See p. 19, /The Middlesex Canal/ by Lewis Lawrence.

¹ Patrick Malone is his book *Waterpower in Lowell* notes on p. 165 "Lowell already had ... a well-developed system of canal greenways a decade before Olmsted designed his first park."

The planned trail will provide connectivity among major trails in the Commonwealth.

- At the north end, the bike lanes over the new Rourke Bridge will connect with the Vandenberg Esplanade which parallels the Merrimack River and links to a growing, low-stress bicycle and pedestrian network in the City of Lowell.
- In the middle, the Bruce Freeman Rail Trail [BFRT] is currently open south from Lowell to Concord and someday east to the Concord River Greenway.
 - Construction is underway to link the BFRT with the Mass Central Rail Trail in Sudbury.
 - The Mass Central Rail Trail is gradually filling in gaps to link Boston with Northampton.
- At the south end with the Yankee Doodle Bike Path.
 - The Town of Billerica is currently working on securing the right of way and amendments to environmental permitting. The first phase of the project is currently slated to bid in FFY 2025.
 - The Yankee Doodle Bike Path will connect with Bedford's Narrow-Gauge Rail Trail at the Billerica / Bedford town line.
 - The Narrow-Gauge Rail Trail in turn connects with the Minuteman Bikeway to Alewife Station in Cambridge. At Alewife, further trails connect to all the trails in the Boston area, including the Mystic Reservation, and the recently completed Somerville Community Path.

The historical importance of both the Middlesex Canal and the Billerica and Bedford Railroad are often overlooked.

- Lowell, MA is often cited as “The birthplace of America’s Industrial Revolution”. The waterpower available at Pawtucket Falls is given as the reason that the mills were located there. But the mills were constructed a decade before railroads arrived in New England. Without the low-cost transportation that the **Middlesex Canal** provided, the America Industrial Revolution would not have begun in Lowell.
- The Billerica and Bedford Railroad was the first 2-foot narrow gauge railroad built in North America. Although short-lived, the railroad industry turned its attention to that railroad because of the many innovations it pioneered. The Billerica and Bedford proved that 2-foot gauge railroads were practical. A number were built in Maine and for many industrial applications.¹
- Both the Middlesex Canal and the Billerica and Bedford Railroad are early examples of the “innovation economy” incubated in this region. A trail along those rights-of-way can become a physical reminder of how this region continues to foster innovation today.

¹ The Boston and Lowell Railroad purchased much of the right-of-way of the Billerica and Bedford and converted it to a standard gauge line which operated until the early 1960’s when the segment Between River Street in Billerica and Bedford was abandoned. Portions of this right-of-way survive as the Narrow Gauge Rail Trail other portions will be incorporated into the Yankee Doodle Bike Path, in addition to portions to be used in this proposal.

The Northern Middlesex Region has a lot of anniversaries to celebrate in upcoming years.

Opening more infrastructure that improves public health, provides low-cost transportation options, and reminds us of our history is a great way of memorializing those anniversaries.

- 2026 – the 200th of the founding of Lowell
- 2026 – the 250th of the Declaration of Independence
- 2027 – the 150th of the opening of the Billerica & Bedford Railway
- 2028 – the 225th of the opening of the Middlesex Canal
- 2029 – the 100th of the initial vision for the Bay Circuit Trail and Greenway
- 2030 – the 375th of the incorporation of Billerica and Chelmsford

FORTT is developing a pre-feasibility study.

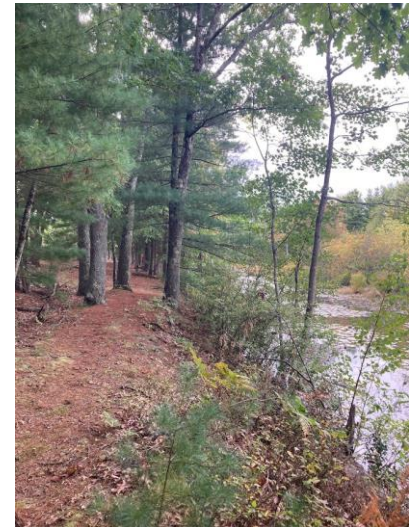
- At the northern end, along the Middlesex Canal, we have identified four study sections that we call “The Thoreau Towpath”
 - **Developed Highlands** from the Rourke Bridge to the Mt. Pleasant Golf Club
 - **Highlands Wetlands** from the Developed Highlands to the BFRT
 - **Around the Barrier** from the Bruce Freeman Rail Trail tunnel to Canal Street
 - **Along the Canal** from Around the Barrier to the Summit Pond in North Billerica
- At the southern end, along the old railroad in Billerica, we have identified two study sections that we call “The Billerica Branch” (*named for flag stops on the Billerica and Bedford RR*)
 - **Nasons** from the Summit Pond to Rogers Street
 - **Salem Road** from Rogers Street to the Yankee Doodle

Thank you for your attention.

FORTT appreciates your input and suggestions.

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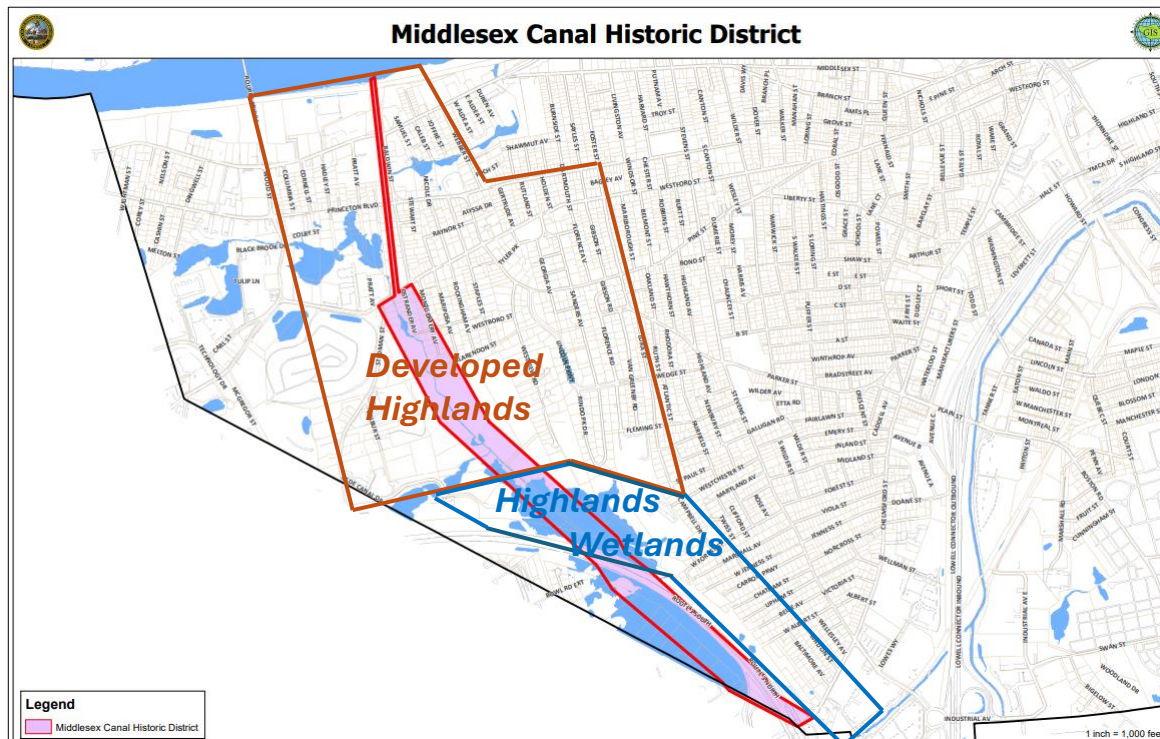


Middlesex Canal towpath between Pond and Canal St., Billerica

Appendix 1

Maps of Study Sections

Developed Highlands and ***Highlands Wetlands*** study areas, segments of the Thoreau Towpath



- Boundaries of the study areas are approximate and may change as the study proceeds.
- To connect with the active transportation routes north of the Merrimack River, it is necessary to link to the shared use path that will cross the new Rourke Bridge.
- Much of the Highlands Wetlands is either public land, power company rights of way, or a major parcel owned by Eastern Salt Company.

Map source: https://www.lowellma.gov/DocumentCenter/View/14673/MiddlesexCanalHistoricDistrict_b

Around the Barrier study area, a segment of the Thoreau Towpath

The study area is within the black shape



○ Intersection of Riverneck Road and Canal Street
— Approximate Location of Middlesex Canal

— Bruce Freeman Rail Trail (Including Lowell Connector Trail)

Base Map Source Google Earth Retrieved 5/26/2024

- The construction of the I-495, Route 3, and Lowell Connector interchange not only destroyed the evidence of the Middlesex Canal in this area, but also produced a 1.75 mile barrier to pedestrians and cyclists.
- The major development in the area subsequent to the opening of these highways, such as Cross Point Towers, increased the impact of the barrier as now it blocks access to more trips that could be made by cycling or walking.
- The yellow line for BFRT extends east to Plain St, on its future way to the Concord Greenway. Construction bids have been issued for the extension to Plain Street
- Routes 3 and 495 will be crossed by either using the BFRT tunnels, then a new trail section will be built on mostly public land to Canal St., or using streets and the Boston Road overpass over I-495

Along the Canal study area, a segment of the Thoreau Towpath



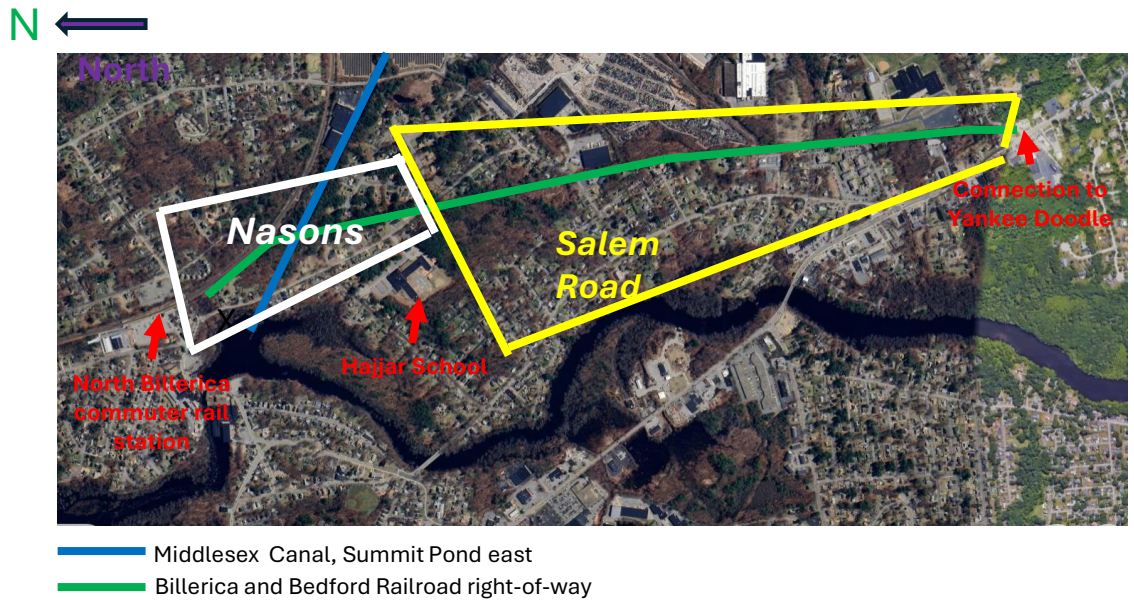
○ Intersection of Riverneck Road and Canal Street
— Approximate route of the Middlesex Canal

- This study area provides a long stretch of trail on or adjacent to the Canal and its towpath.
- For almost all of this study area, the Canal has been undisturbed except by nature.
- This segment has the potential of becoming an outdoor recreation attraction due to its proximity to population yet having a natural setting.
- Of course, the reason for the lack of development are the wetlands and well fields in this this study area. This will make trail building of this key segment in the Massachusetts trail network relatively expensive.

At the **Summit Pond** study area, FORTT defers trail alternatives for crossing the Concord River to the historical mitigation as part of permitting the proposed partial removal of the Talbot dam.

- The owner of the dam has requested removal of the dam which will lower the water level and replace the pond with fast moving water over rapids.
- Mitigation may be required which could include finally progressing the development of a park with trails around the to be eliminated pond.
- Once a decision is made on removal and the mitigations, FORTT will review alternatives.

Map of *Nasons* and *Salem Road* study areas, segments of the Billerica Branch.

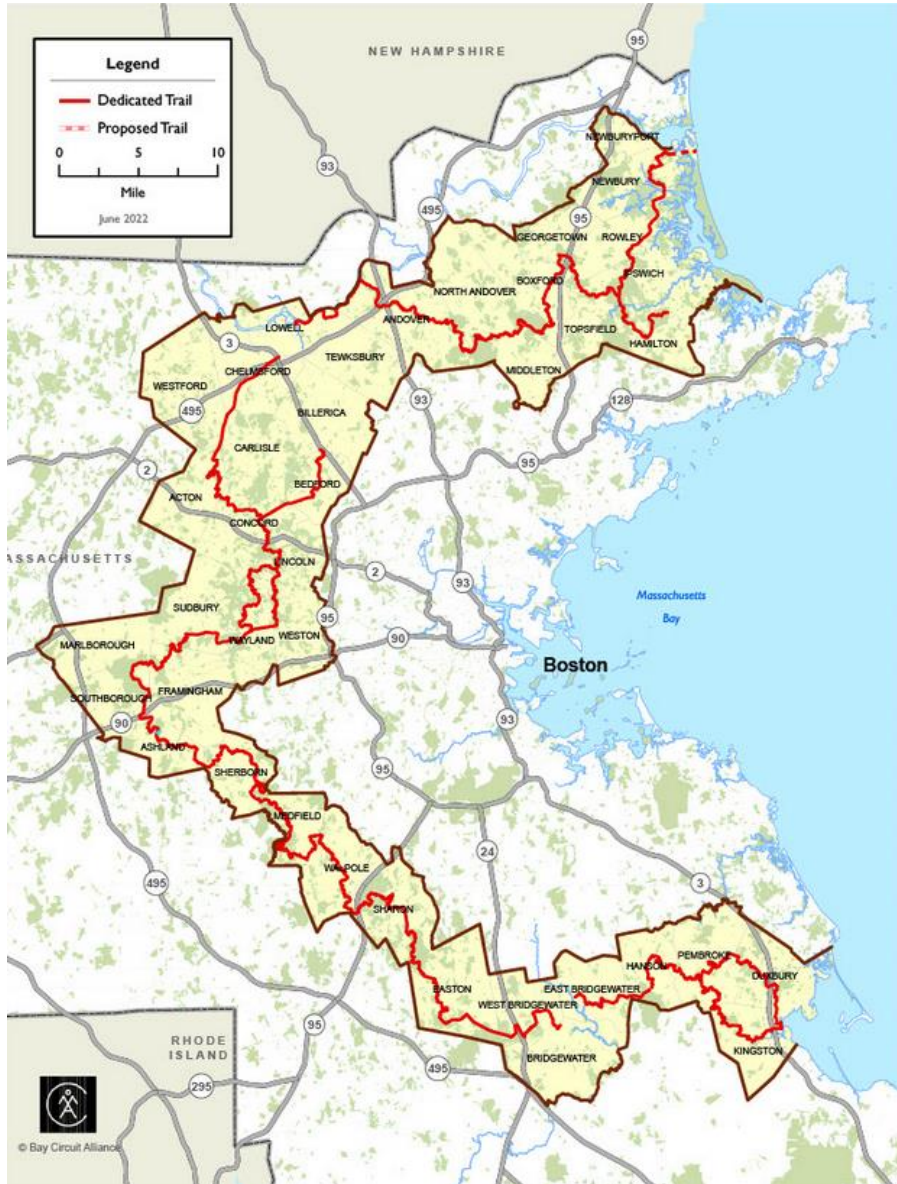


- The Billerica Branch right-of-way contains an active, but little used rail line. FORTT does not suggest removal of the line but designing a rail-with-trail path.
- Use of this RR ROW to connect with the Yankee Doodle Bike Path is attractive as the street network between North Billerica and the end of the Yankee Doodle Bike Path is not conducive to low-stress cycling or walking.
- Two major traffic generators in or near the Nasons study area need to be considered in the design of this section, 1) the North Billerica commuter rail station, and 2) Hajjar School.
- Two other major transportation capital needs should be integrated into the plan in the Nasons area: 1) the need to eliminate the low clearance bridge restriction on Mt. Pleasant St., and 2) the need for high level platforms at the commuter rail station.

Appendix 2

Northern Middlesex Gap in Bay Circuit Trail

The “Northern Gap” in The Bay Circuit Trail



- The Bay Circuit Trail & Greenway (BCT) was a 1929 brainchild of the Trustees, and it is now a 230+-mile “Outer Emerald Necklace” foot trail with a mountain bike option.
 - It links the Boston North and South Shore.
 - As of 2024, gaps exist. The Appalachian Mountain Club (AMC) coordinates completion, maintenance and publicity of the BCT.
 - The Bruce Freeman, Mass Central and Yankee Doodle Rail Trails form local sections of the BCT.