

# Hingham Comprehensive Trails Plan

## Fall 2015



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# Introduction

Trails are more than routes that connect places or paths through natural landscapes. Trails create recreational experiences for users that trigger the use of all senses and develop into memories. By connecting people with the natural and cultural world around us, trails become a key component in the development of environmental stewardship and resource protection.

The Town of Hingham understands the benefits of trails and envisions this Comprehensive Trails Plan as a way to protect and value the town's natural, cultural and scenic resources, and as a way of connecting people and places with a more complete unified system of trails for human and wildlife use. This Comprehensive Trails Plan includes an inventory of existing trails on public land and identifies opportunities for trail links. These links include feasible routes and priority paths for a trail network that will connect open space parcels and facilities including schools, public transit, local businesses, historic areas and resources in adjacent towns, as well as evaluating opportunities for regional linkages and coordination. This Plan also provides recommendations to acquire, link, and further protect water resources. This Plan should be used as a prioritized guide to coordinate open space acquisition projects, identify and prioritize important trail linkages, identify existing trail improvement needs, aid in the implementation of an American with Disabilities Act Transition Plan, and develop a guide for the implementation of the recreational and resource protection goals noted in the Town of Hingham's 2009-2016 Open Space and Recreation Plan, and the Town of Hingham's Master Plan Update dated March, 2014.

## **Connecting Trails to the Community**

Walking, biking, snow shoeing, cross country skiing, horseback riding, and off highway vehicles riding along natural surface trails (and ADA accessible and structural filled trails) are major recreational activities for communities throughout the country. Trails are a recreational, commuting, educational, experiential, and open space resource. We experience and interact with the natural and cultural environment around us through trails. The full benefit of these trails can be maximized by providing easy, frequent and convenient access from abutting neighborhoods, public transportation and education facilities, other open spaces and commercial districts to the trail.

## **Community Benefits**

A number of economic impact studies indicate that connected recreation facilities offer a significant return on investment through increased property value, tourism, business investment, alternative transportation benefits, and health benefits.

Trails provide close to home recreational areas, community meeting places, historic preservation, educational experiences, natural landscapes, wildlife corridors, links between open spaces, and beautification. They help make communities a more attractive and friendly place to live where children can safely walk or bike to a park, school, or to a neighbor's home. Trails help connect neighbors and communities with each other and with nature.

Recent studies have shown that nature walks lower depression, stress and enhance mental health, and well-being. Hiking is also a cardio workout that may lower risk of heart disease, improve blood pressure, as well as improve balance.

Finally, trails encourage communities, leaders and municipalities to build partnerships. They provide a framework and "pathway" for future regional initiatives and encourage community members to act locally while thinking regionally.

## Overview

As stated in the Town's Open Space and Recreation Plan, the Town of Hingham is concerned about its growing population and development of underdeveloped open space via the subdivision of parcels that now serve as animal habitat, informal play areas, neighborhood wild lands, and water protection areas. The Town is responding proactively by investigating alternatives for protecting open space such as increased public access/stewardship efforts, conservation restrictions and land purchases. In addition, the Town is coordinating with abutting cities and towns to create contiguous protected open space areas through greenways.

## Project Elements

This Comprehensive Trails Plan project integrates many elements.

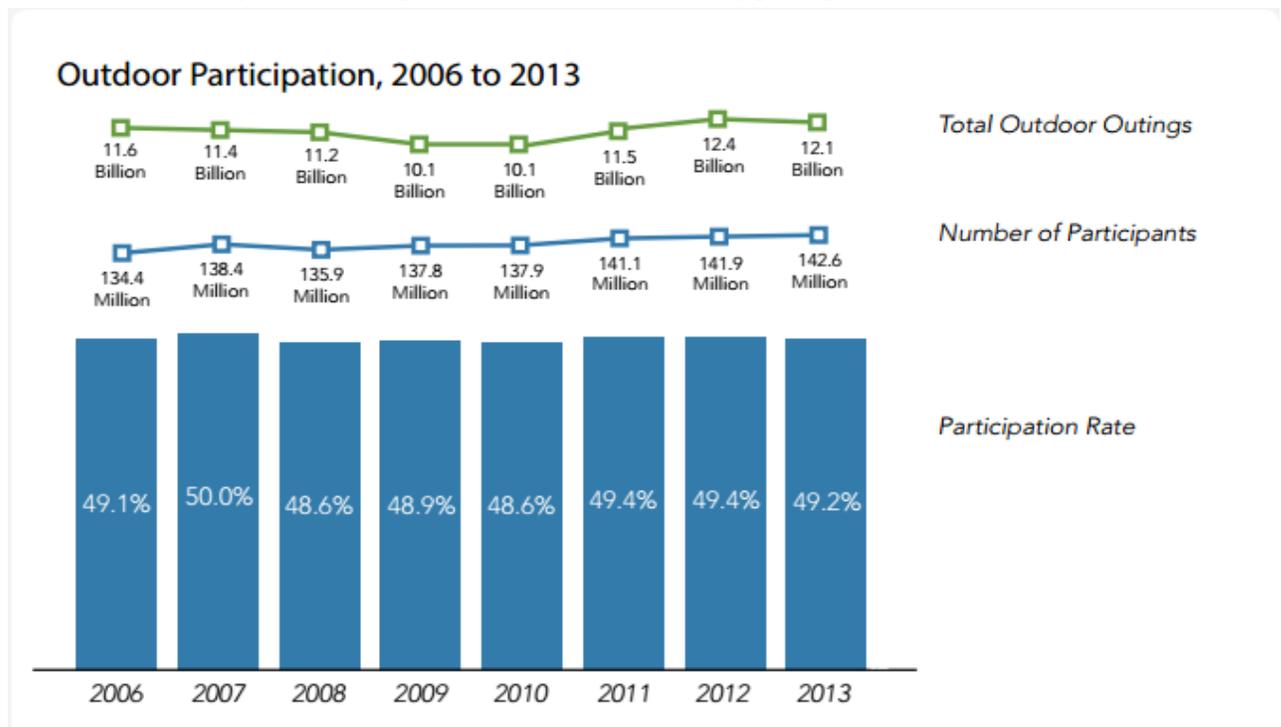
- Resource Protection: Information regarding critical natural and cultural resources was integrated into the planning process, including priority habitat for rare and endangered species, vernal pools, priority natural communities, wetland resource areas, soils and steep slopes. Doing so results in a sustainable trail system and helps anticipate maintenance needs/limitations.
- Trail Design/Sustainability: Recommendations regarding slope, drainage and trail surface will aid in the design of a sustainable trail as well as defining the type of uses.
- Connections to Major Destinations: Suggestions are provided for connections to historic sites, vistas, geologic formations, open space parcels, resources in adjacent towns and facilities including schools, public transportation, and local businesses.
- Sensitivity to Adjacent Conditions: The plan acknowledges land uses in the area, recommends priority open space for protection, and addresses abutter's possible concerns with noise, visibility, access, and safety.
- Sign Consistency/Hingham Parks Branding: The plan acknowledges signs currently used by the different Hingham agencies and organizations that manage land containing public recreational facilities and trails. Recommendations for additional signs such as directional, trail head, informational and regulatory signs are consistent with those already present on the grounds. Sign consistency will give individual users a sense of location and safety, allowing users to recognize that this is a Town trail, greenway or corridor, and that Town rules and policies apply.
- Americans with Disabilities Act: Although provisions of universal access on natural surface trails is not yet required by law, accessibility has been considered and discussed in the trail plan.
- Regulatory Issues: The plan incorporates local, state and federal regulatory programs.
- Cost Estimating: New trail construction, existing trail improvements, and ongoing maintenance costs are included.
- Future Options for Connectivity: Connectivity addresses property acquisition and easement needs.
- Public Input: Recommendations by Town members provided during public meetings, online surveys and the Hingham Trails Website helped formulate and prioritize the recommendations and information presented in this plan.
- Hingham Trails Steering Committee Guidance and Input: Representatives from a variety of Town committees composed the Trails Steering Committee. These individuals helped guide the Comprehensive Trails Plan process and assisted with public meetings, seeking public input, collecting trail information, and providing recommendations on behalf of their represented constituency.

# Chapter 1: National and Local Trail Trends

## National Trends

According to the Outdoor Industry Association (OIA)’s “Participation Topline Report,” between 2006 and 2013 participation in outdoor activities increased amongst all age ranges. Figure 1.1 highlights trends in outdoor activity participation between 2006 and 2013. In 2013, a record number of Americans, 142.6 million Americans (49.2% of the population) participated in at least one outdoor activity. New England accounted for 5% of the participants in these outdoor activities. Outdoor activities include running, fishing, bicycling, hiking, camping, birdwatching, wildlife viewing and hunting.

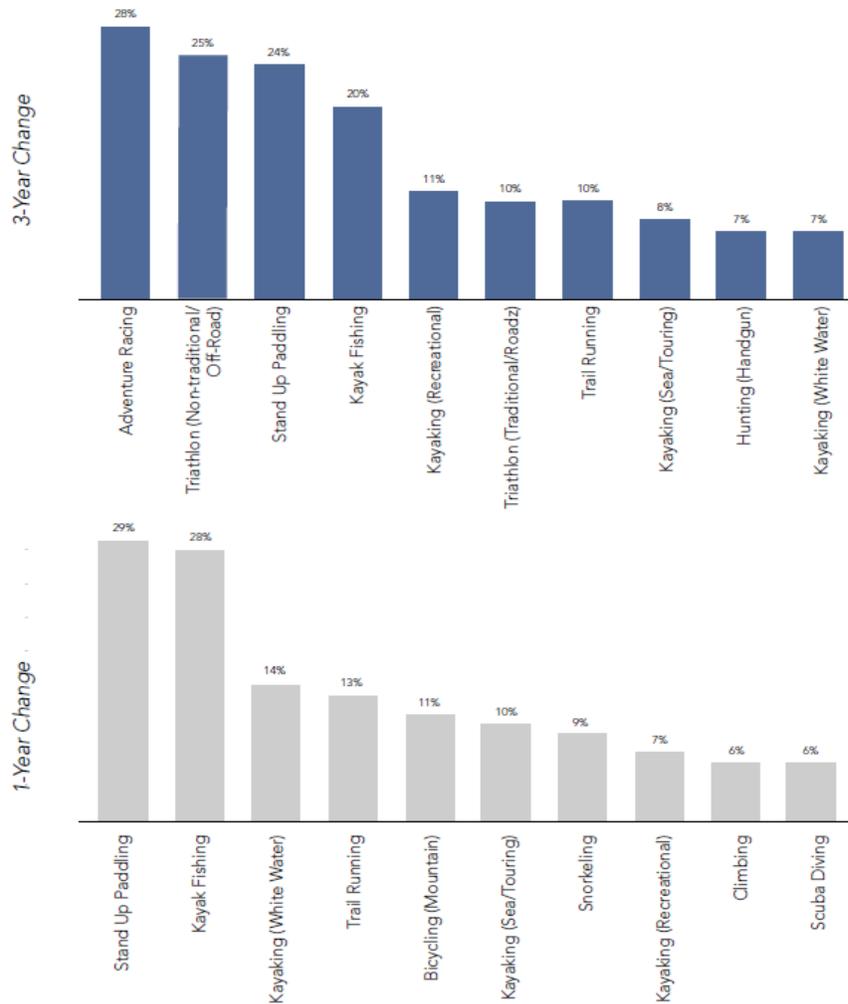
Figure 1.1: Outdoor Industry Association reports on trends in outdoor activity participation between 2007 and 2014.



The most popular activities among young people, in terms of overall participation, included running, biking, fishing, camping and hiking. Adults reported to have similar outdoor pursuits. Participation in racing, such as adventure racing and triathlons, has increased significantly over the past four years. Water sports, like stand-up paddling and kayak fishing, have also seen an increase in participation during the past several years. Figure 1.2 highlights changes in trending outdoor activities between 2010 and 2013.

**Figure 1.2: Changes in trending outdoor activities between 2010 and 2013 as report by the Outdoor Industry Association.**

**Trending Activities**



Studies by the Outdoor Industry Association show that children ages 6-12 and young adults ages 18-24 were going outside more frequently than in the past. Children went outside for an average of 99 outings. Outside play by teenagers ages 13-17 remained the same.. Compared to the nation, New England accounted for 5% of all outdoor activities. Participants were 50% male and 50% female.

According to the same study, when asked the reason why individuals participate in outdoor activities, 70% of the participants indicated it was to get exercise while 54% indicated it was to be with family and friends, 51% to get physically fit, 47% to get close to nature and 25% to experience solitude. Using trails as a means to commute was not an option provided in the survey.

The figures represented in Figures 1.1 and 1.2 were compiled from nationwide online surveys. For additional information, please visit

<https://outdoorindustry.org/images/researchfiles/ResearchParticipation2014Topline.pdf?207>

## **Massachusetts Trends and Goals:**

In 2012, the Massachusetts Office of Energy and Environmental Affairs completed phone surveys, youth surveys, web-based surveys, and public meetings throughout the state for residents to voice their wishes for the types of outdoor recreation they would like to see developed and maintained throughout the state. A Statewide Comprehensive Outdoor Recreation Plan (SCORP) resulted from this survey and is located at <http://www.mass.gov/eea/docs/eea/dcs/scorp-2012-final.pdf>.

In addition to requesting information about the recreational opportunities desired in the Commonwealth, the survey explored the motivation behind individuals participating in outdoor recreation activities. According to the survey, physical fitness received the most responses. Others mentioned relaxation, time with family and friends, and experiencing new things while recreating. The need for more trails, especially those closer to where people live, was most frequently mentioned as a real need across the state. According to the SCORP, there is a strong desire for more care-free recreation options including additional town or city-wide trail systems, loop trails within long distance trail networks, and urban trails connected to water. Water based recreation and the need for more water access, whether for swimming or boating, was also highly requested throughout the surveys. Finally, participants indicated that they would like to see more land protected along waterways for water quality purposes and that land be protected not just for trails, but also to provide wildlife corridors.

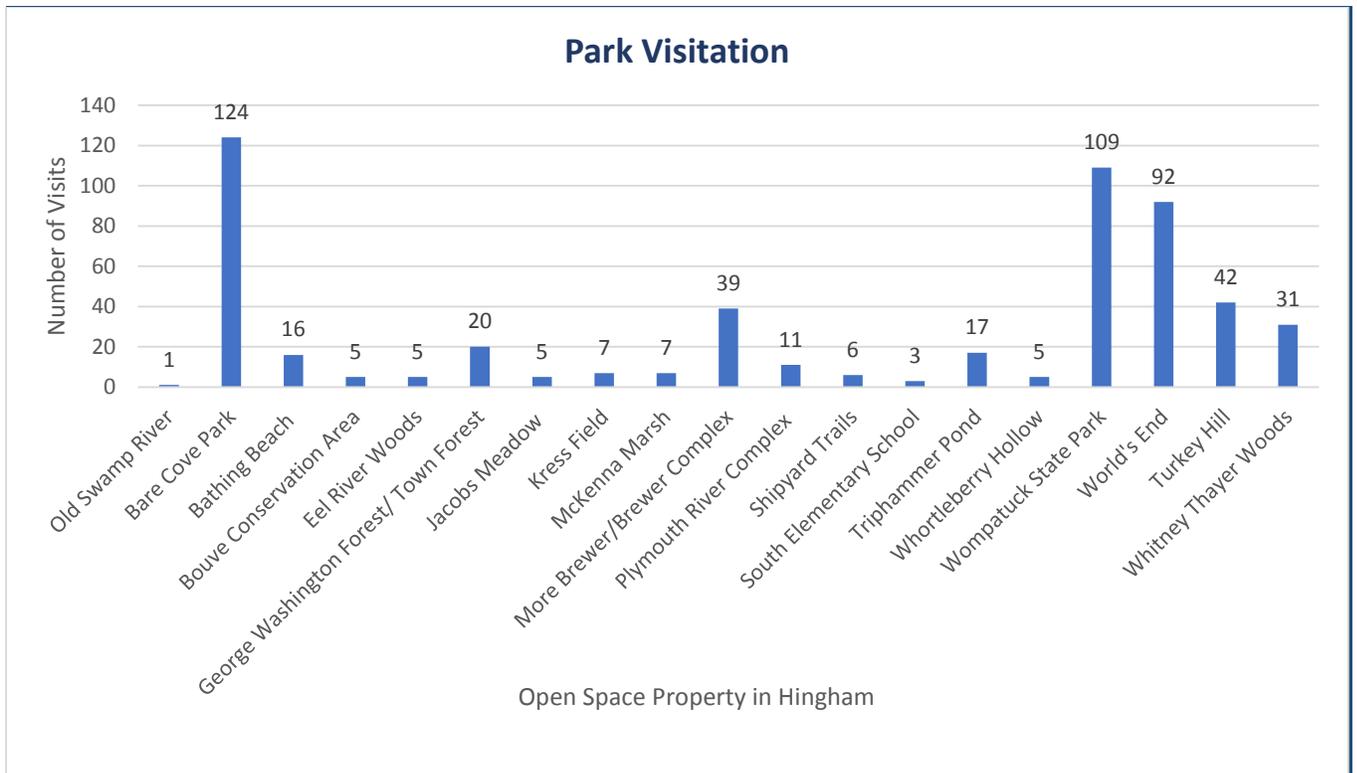
As a result, four goals within the 2012 Massachusetts SCORP include: 1. Increase the availability of all types of trails for recreation, 2. Increase the availability of water based recreation, 3. Invest in recreation and conservation areas that are close to home for short visits, and 4. Invest in racially, economically, and age diverse neighborhoods given their projected increase in participation in outdoor recreation. Massachusetts plans to implement such goals through LWCF, LAND and PARC grants.

## **Hingham Data and Trends**

During the Spring of 2015, the Town of Hingham completed an online survey to gather information on what opinions and expectations the residents have for their trails. There were 180 participants in the survey. It is important to note that the data collected is anecdotal based on the limited sample size that might be not be representative of the population.

Of the 180 participants, 175 (97%) said they live in Hingham, while only 5 (3%) said they do not. These individuals indicated that they lived in Quincy, Hull, East Weymouth, Weymouth, Whitman, Braintree, North Weymouth and Cohasset. This data indicates that the Hingham parks are used by Hingham residents as well as people living in surrounding towns.

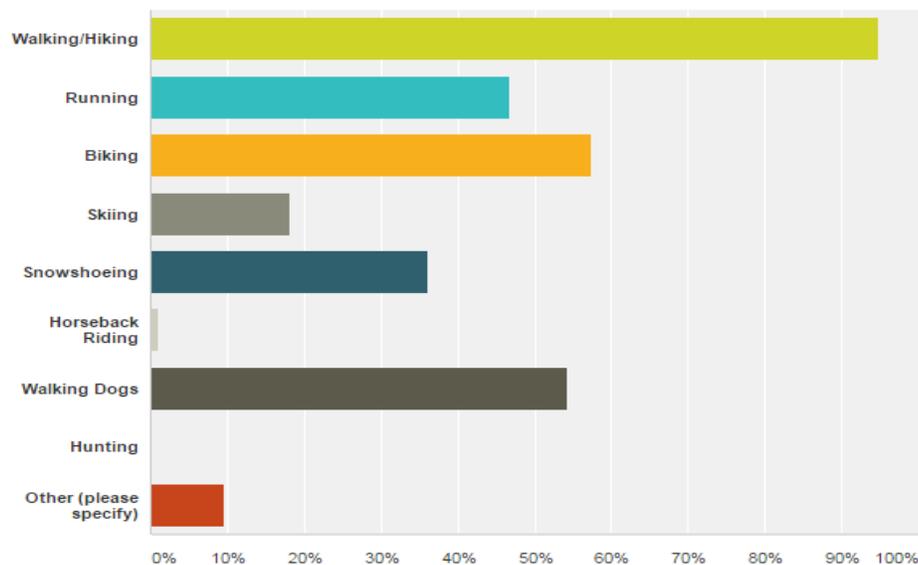
The survey also requested information regarding open space properties in Hingham most visited by the participants. These properties included both Town-managed and non-Hingham managed properties. Most of the responses indicated that people use multiple trails in Hingham. The most popular park was Bare Cove Park with 124 responses. The next most popular parks were Wompatuck State Park, managed by the Commonwealth's Department of Conservation and Recreation, with 109 responses, and World's End, managed by the Trustees of Reservation, with 92 responses. Some parks only received a handful of responses, making them less popular. Figure 1.3 below summarizes the frequency of visits per park provided in the survey.



**Figure 1.3: Frequency of visits to Open Space properties in Hingham, MA.**

Additionally, the survey requested information as to the types of activities participant engaged on while on the trails. The majority of the participants indicated that they used the trails mostly for walking/hiking. biking was the second most popular use and dog walking the third most popular activity. Horseback riding and hunting were the least popular. Other responses included bird watching, golfing, geocaching, photography, and fishing.

**Figure 1.4: Summary of activities engaged on Hingham trails by survey participants.**



In an effort to determine if individuals use the trails for commuting purposes, the Town requested information of trail use for commuting or recreation. A vast majority of the responses said they used the trails for recreation 100% of the time. Only 40% of the survey participants answered the question about trail use for commuting, and most of the responses were 0%. This indicates that people rarely use trails for commuting.

The seventh question in the survey asked how residents felt overall about their trails. Survey takers were asked to evaluate trails relative to the categories of recreation, commuting, maintenance, signage, and accessibility, ranking each on a scale of 1-10 scale, with 1 being not at all satisfied, and 10 being completely satisfied. All categories averaged between 2-4 for satisfaction. The category for commuting was the lowest at 2.76. The category for recreation had the highest rating at 3.96. Based on these results, Hingham is less than satisfied by their current trail system, especially as a means of commuting between locations.

The ninth question offered park users a chance to consider how they use trails, and indicate which trails were of the highest critical need to connect. There was a consensus on the need to connect the trails between the harbor, beach, and shipyard to the other state parks. These two regions are separated by Route 3A, which causes a safety concern at roadway crossings. Another identified connection was between the sports fields and surrounding parks. These connections would provide for additional options for commuting and recreation while moving between destinations.

Lastly, the survey gave participants the opportunity to provide additional feedback. Participants stated that they would like: more parking availability; more trash bins especially receptacles for dog waste; more paved and well maintained bike paths; and improved signage and trail markers. There was concern about dog use of parks. Some people want to keep Bare Cove Park as an unleashed dog park, so their dogs can have freedom to move around. However there seems to be a conflict because others commented that they feel unsafe to be in the park due to all the unleashed dogs. There were also some comments from people who were unaware of the trails in Hingham, so more promotion and/or awareness could be put into place, such as a wider distribution of maps.

### **Field Trail User Surveys**

The Hingham Trails Steering Committee is in the process of completing trail user surveys at a variety of parks. This information should be incorporated into the plan once it is completed. The trail user surveys will be helpful in determining the types of uses that should be allowed on Hingham trails, overall trail maintenance needs, public support and demand for priority links and user satisfaction.

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## Chapter 2: Hingham Recreation Open Space Properties and Trails

Open space acquisition is vitally important to every community's health, vitality and sense of well-being. There are varying levels of protection for Hingham's open space. These include protected, partially or temporarily protected lands and unprotected lands.

Protected lands refer to la

nds that are permanently committed to conservation or recreation by ownership and/or permanent conservation restriction or other deed restriction. These include: town owned conservation, historic preservation, and recreational lands; non-profit organization/ land trust owned land; and private lands with conservation or historical restrictions. Partially or temporarily protected lands refer to lands whose present use and ownership keep them open and delay probable development. These include: Chapter 61 lands and partially/temporarily protected lands such as land under time limited conservation or historic preservation restrictions, drinking water protection lands (Aquarion Water Company), land held by private schools, churches or other institutions and land held for other than open space and recreation purposes and without the protection of Article 97 such as cemeteries, non-recreational school lands or police, fire and public works facilities.

In Hingham, Town owned protected lands with recreational access, such as trails, are managed by Hingham's Conservation Commission and Department of Public Works as well as by the Hingham Land Conservation Trust. There are additional properties with public access to trails managed by The Trustees of Recreation (TTOR), the Massachusetts Department of Conservation and Recreation (DCR/MassParks), the Department of Environmental Protection's Waterways Regulation Program (Chapter 91 tidelands), and the Glastonbury Abbey.

### Hingham Conservation Commission

The Hingham Conservation Commission is a seven member board appointed to 3 year overlapping terms by the Board of Selectmen under Chapter 40 of the Massachusetts General Laws. The Commission is entrusted with the stewardship of over 1000 acres of conservation land and addresses natural resource issues of the town and region.

Empowered to administer the State Wetland Protection Act (M.G.L. Chapter 131, section 40), the Rivers Protection Law, and the Town of Hingham's Wetlands Protection Bylaw, the Commissioners review numerous projects that fall within their jurisdiction. After review, Orders of Conditions are issued to applicants which are intended to protect the natural resource interests of the community.

The Conservation Commission adopted regulations governing hunting requirements on certain conservation lands. Sixty two (62) hunters received permits during the Fall 2014 deer hunting season. The Commission's dedicated volunteers continued to help maintain and improve trails, fields and natural resources on conservation lands. Various student groups, Boy Scouts and resident volunteers worked to clear trails and improve facilities.

## The Hingham Department of Public Works

The Hingham Department of Public Works includes a Highway, Tree, and Park and Recreation Division, is responsible for the care and upkeep of approximately 140 miles of public roads, 100 miles of drain lines, 10,000 drainage structures, 60 miles of sidewalks and over 10,000 public shade trees. They maintain numerous parks, grounds, islands, recreation and athletic fields, playgrounds, tennis courts, basketball courts, parking areas, skating areas, beaches, public buildings, the Town Forest and two Town nurseries.

The Department maintains and provides other assistance for the upkeep of Conservation areas, the Bare Cove Park and numerous other public properties throughout Town. The DPW also assists other Town departments with procurement, building maintenance, and vehicle maintenance and repairs.

The Department of Public Works is directly responsible for snow and ice control on all public roadways, parking areas, public buildings, driveways, schools, sidewalks and certain private. They are also responsible for the operation of the Town's Recycling and Trash Transfer Facility, as well as, the monitoring and maintenance of the Town's capped Sanitary Landfill.

## The Hingham Land Conservation Trust

The Hingham Land Conservation Trust (HLCT), founded in 1972, works to acquire, preserve and maintain exceptional landscapes in Hingham. The HLCT's mission is "dedicated to preserving the quality of life in Hingham by acquiring, protecting, and maintaining natural landscapes for environmental protection, recreation and beautify." The HLCT holds 60 acres in neighborhood area and protects 34 acres through conservation restrictions. Table 2.1 lists the Town's properties with publicly accessible trails, total miles of trails, acreage as well as management responsibilities.

## **Hingham Open Space Properties with Trails**

A major element of this Hingham Comprehensive Trails Plan was to assess and inventory all trails on Town property. Trail information was collected using a data dictionary created for use with a Trimble GPS Unit. This data dictionary was designed by staff from the Massachusetts Department of Conservation and Recreation for the assessment of all trails on state property. The data dictionary is available for the public to use and alter as appropriate for their trail assessment need. See <http://www.davidkimball.com/q.html> for additional information.

The data dictionary provides a list of drop down menus that allows the surveyor to add specific attributes to individual points and lines taken with a Trimble GPS Unit. For lines, the attribute collected using the data dictionary include Type of Path, Condition, Surface, and Width. For points, the attributes collected include Type, Numbers, Comments, and Field Notes. A "type" point includes trail intersection, road intersection, trail/paved road, trail/unpaved road, official/unofficial trail, trail head, dead end, parking area, gate, bridge, other stream crossing, bench, vista, natural/historic feature, and interpretative/regulatory sign.

Trail inventories were completed during the fall and winter of 2014. These seasons afford the most visibility and reception for the GPS units. Additional surveys were completed in the late winter and early Spring of 2015.

All of Hingham's public open space properties with known trail systems were assessed including those managed by the Hingham Conservation Land Trust. Additional Hingham and other properties with public access such as the cemeteries were field reviewed in an effort to determine trail/path presence.

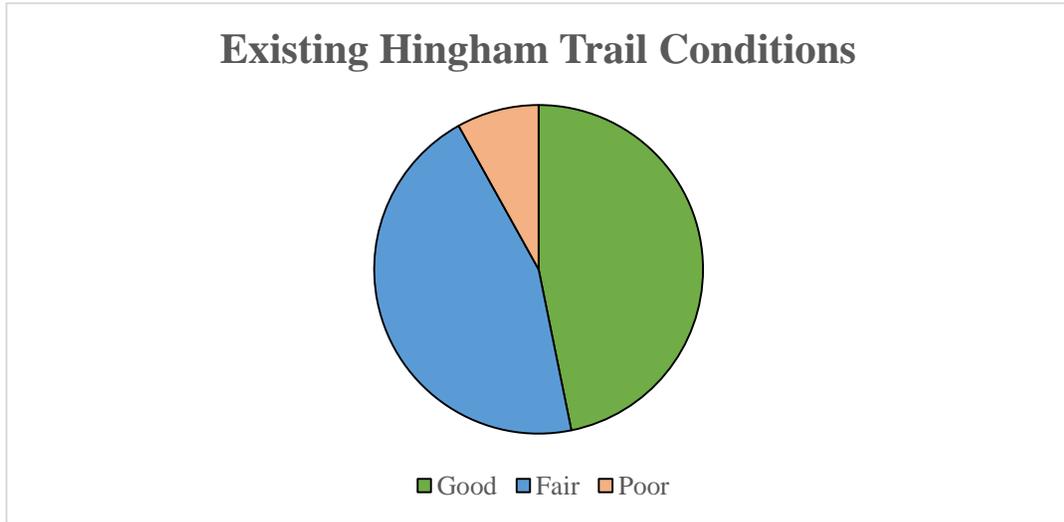
Approximately 33 miles of trails were inventoried using the data dictionary. Properties inventoried are listed in Table 2.1. Maps for each individual property were created highlighting areas of interest such as scenic vistas, parking lots and benches. In addition, a brief description of each property with photographs was provided as part of the maps. Property maps are located in Appendix A.

**Table 2.1: List of open space properties within Hingham with publicly accessible trails.**

<b>Open Space</b>	<b>Total Miles</b>	<b>Acres</b>	<b>Maintenance and Oversight</b>
Bouve Conservation Area	0.5	32	Conservation Commission
Foundry Pond	0.8	32	Conservation Commission
McKenna Marsh & Marchesiani Farmlands	1.5	128	Conservation Commission
More Brewer Park	2.90	244	Conservation Commission
Brewer Reservation	1	61	Conservation Commission
Triphammer Pond	1	98	Conservation Commission
Cranberry Pond	0.4	15	Conservation Commission
Mildred Cushing	0.5	19	Conservation Commission
South School Elementary (incl. Indian Spring)	0.63	6.52	Hingham School Department
Plymouth River Conservation Land	0.9	27.7	Conservation Commission
Jacobs Meadow/Glad Tidings/Fulling Mill River Conservation Land	1.45	23.09	Hingham Land Trust and Conservation Commission
Burns Memorial Park	0.35	24.1	Conservation Commission
Gov. Long Bird Sanctuary	0.08	11.1	Conservation Commission
Whortleberry Hollow	0.6	16	Hingham Land Trust and Conservation Commission
Bare Cove Park	12	469	Bare Cove Park Committee
George Washington Forest	3	108	Hingham Department of Public Works
Eel River Woods	0.55	12.2	Hingham Land Trust and Conservation Commission
Sydney Pond	0.17	3.06	Conservation Commission
South Junior High School/Main Street	0.75	31	Hingham School Department & Hingham Department of Public Works
Foster School	0.15	40.0	Hingham School Department
Col. William McClousky	0	2.4	Conservation Commission
Recreation Park Drive Open Space	.46	18.59	Conservation Commission
Old Swamp River	.4	13.6	Conservation Commission
Ridgewood Crossing	1.05	14	Private/Conservation Commission
Glastonbury Abbey	1.86	60.6	Private

**Existing Conditions:**

Hingham has an extensive public trail network. The trail inventory found 33 miles of woodland trails, user created (rogue) trails, fire roads and administrative paved road. Most of the user-created trails involve connections from private property to the Hingham trail system. Fewer user-created trails involve short cuts between existing trails. These account for approximately 9 miles of trails. Parks with the highest concentrations of user-created trails include the Bouve Conservation Area, Old Swamp River and the Plymouth River Complex.



Based on the recent trail inventory, the condition of the Hingham trail system is relatively good. The inventory indicates that 47% of the trails are in good condition, 45% are in fair condition and 8% are in poor condition. The fair conditions accounts for overgrown trails. The most common type of trail damage is areas of wet soils/ water mud holes where water pools within the trail corridor encouraging hikers to walk around the wet area, thus widening the trail. Other types of damage include trail washouts (areas of soil loss) and protruding roots and rocks.



*Entrance to Mildred Cushing Woods is seasonally wet.*

Hingham parks with the most need for trail maintenance include the Hingham Town Forest/George Washington Forest, Old Swamp River, Mildred Cushing Woods, and the South Junior High Trails. Trail maintenance needs at the Hingham Town Forest result from the ongoing red pine mortality and tree removal activities resulting from a Red Pine Scale and Pine Shoot Beetle infestation. Trail maintenance needs at Old Swamp River, Mildred Cushing Woods, and the South Junior trail result for overgrown paths and day use areas as well as wet/muddy spots on the trails.



*George Washington Town Forest, trees blocking trail access.*



*Overgrown interpretative/Day Use Area, Main Street Junior High School trails*

In addition to basic brush-back needs, there is a lack of directional, interpretative and branding signs throughout the trail system. Hingham parks with the most need for trail directional signs and/or blazing include Bare Cove Park (natural surface paths), More Brewer Park and the George Washington Forest. These parks should be prioritized due to their extensive network of trails. Future way finding, blazing and other signs at Bare Cove and the George Washington Forest should complement the existing trail marking system. At Bare Cove Park, existing directional signs include street signs and maps kiosks. Color coding and blazing of trail loops could be used in lieu of spray painting of pavement. Blazing on trees allows for year round park user information as opposed to pavement painting which may end up being covered by leaves in the fall and snow in the winter. At George Washington Forest trail signage could continue in the form of yellow plastic intersection markers on posts and/or trees. However, these markers need to be updated and/or maintained.

The pictures below are examples of directional trail marking technique implemented along some of Hingham's trails.



### Hingham Trail Uses

Based on an online trail user surveys as well as other field observations, the Hingham trail system is mostly used by Hingham residents. Of the 180 online survey participants, 164 individuals reside in Hingham. Non-Hingham residents that participated in the Hingham trail survey reside in Quincy, Hull, Weymouth, Whitman, Braintree and Cohasset. The Hingham trail system is used throughout the seasons for activities such as snow shoeing, cross country skiing, hiking, running, biking, horseback riding and dog. Based on the results of the surveys, the most popular Hingham open spaces with trails include Bare Cove and More Brewer Parks are visited for the purposes of walking/hiking and dog walking. While neither of these

samples is statistically representative of all trail use within Hingham, the survey offers data about the relative types of use, magnitude of uses, and the popularity of the individual parks.

All properties included in this Comprehensive Trails Plan are open for public access between dawn and dusk. Hingham trails and open spaces are not posted for particular uses. Allowed park uses seem to vary by park and depend on the town committee that manages the individual park. For example, Bare Cove Park has its own set of regulations promulgated by the Bare Cove Park Committee and published under Article 10 Section 33 of the Hingham Town Bylaws which allows for hiking, biking, dog walking ( off leash and on leash), horseback riding and passive boating. Activities not allowed in Bare Cove Park include hunting/trapping, camping, swimming (unless specifically posted), open fires, use of metal detectors, and the destruction of public property including nature. The Bouve Conservation Area, More Brewer Park , Burns Memorial, Cranberry Pond, Foundry Pond, McKenna Marsh and others are managed by the town's Conservation Commission under Article 30 of the Town's Bylaws. These bylaws provides for passive recreational use of the properties and prohibits the taking or breaking of structures such as rock walls and natural features such as trees. These bylaws also prohibit the creation of a new trail or installing of bridges or lean tos, fishing without a license (if over 15 years of age), possession of alcohol, digging for artifacts, dumping and camping.

### **User Demands, Input, Behavior and Conflict**

Trail user and stakeholder input was collected during the Comprehensive Trail Planning process via online surveys and public meetings. Feedback from such surveys indicated a desire for a designation of uses on all trails. There was a specific request for the allowed use of mountain bikes in the parks as well as an overall interconnectedness between the parks.

With respect to user conflicts, the survey did not highlight any conflicts between mountain bikers, hikers and horseback riders. Instead, the survey highlighted conflict between dogs off and on leash areas such as trails. The participants were divided between a strict adherence or enforcement of local dog leash ordinance vs. a desire for increased availability of off leash dog areas. Out of 18 individual comments involving dogs, 7 expressed that dogs should be banned if not leashed while 4 expressed the need to have at least one park where dogs can roam free and off leash, 1 person requested additional connections to run with the dog, 1 person was neutral in seeking off leash dog areas as well as dog free days with organized kid activities, 1 expressed concerned about off leash dogs and dog walkers and their potential impacts on pet owners recreating with their own pets while the rest were concerned about the lack of available trash cans and dog bag dispensers at the trail heads and the increase in dog waste in the parks.

To help understand trail conflict, the Federal Highway Administration and the National Recreational Trails Advisory Committee have produced —Conflicts on Multiple-Use Trails Synthesis of the Literature and State of Practice, available at [www.fhwa.dot.gov/environment/conflicts/conf1.htm](http://www.fhwa.dot.gov/environment/conflicts/conf1.htm). The executive summary of this review notes that conflict in outdoor recreation settings (such as trails) can best be defined as goal interference attributed to another's behavior.

Adherence to these principles should help improve sharing and cooperation on multiple-use trails.

1. Recognize Conflict as Goal Interference : Do not treat conflict as an inherent incompatibility among different trail activities, but a goal interference attributed to another's behavior.
2. Provide Adequate Trail Opportunities : Offer adequate trail mileage and provide opportunities for a variety of trail experiences. This will help reduce congestion and allow users to choose the conditions that are best suited to the experiences they desire.

3. Minimize Number of Contacts in Problem Areas : Each contact among trail users (as well as contact with evidence of others) has the potential to result in conflict. So, as a general rule, reduce the number of user contacts whenever possible. This is especially true in congested areas and at trailheads. Disperse use and provide separate trails where necessary after careful consideration of the additional environmental impact and lost opportunities for positive interactions this may cause.
4. Involve Users as Early as Possible : Identify the present and likely future users of each trail and involve them in the process of avoiding and resolving conflicts as early as possible, preferably before conflicts occur. For proposed trails, possible conflicts and their solutions should be addressed during the planning and design stage with the involvement of prospective users. New and emerging uses should be anticipated and addressed as early as possible with the involvement of participants. Likewise, existing and developing conflicts on present trails need to be faced quickly and addressed with the participation of those affected.
5. Understand User Needs : Determine the motivations, desired experiences, norms, setting preferences, and other needs of the present and likely future users of each trail. This "customer" information is critical for anticipating and managing conflicts.
6. Identify the Actual Sources of Conflict : Help users to identify the specific tangible causes of any conflicts they are experiencing. In other words, get beyond emotions and stereotypes as quickly as possible, and get to the roots of any problems that exist.
7. Work with Affected Users : Work with all parties involved to reach mutually agreeable solutions to these specific issues. Users who are not involved as part of the solution are more likely to be part of the problem now and in the future.
8. Promote Trail Etiquette : Minimize the possibility that any particular trail contact will result in conflict by actively and aggressively promoting responsible trail behavior. Use existing educational materials or modify them to better meet local needs. Target these educational efforts, get the information into users' hands as early as possible, and present it in interesting and understandable ways (Roggenbuck and Ham 1986).
9. Encourage Positive Interaction Among Different Users : Trail users are usually not as different from one another as they believe. Providing positive interactions both on and off the trail will help break down barriers and stereotypes, and build understanding, good will, and cooperation. This can be accomplished through a variety of strategies such as sponsoring "user swaps," joint trail-building or maintenance projects, filming trail-sharing videos, and forming Trail Advisory Councils.
10. Favor "Light-Handed Management" : Use the most "light-handed approaches" that will achieve area objectives. This is essential in order to provide the freedom of choice and natural environments that are so important to trail-based recreation. Intrusive design and coercive management are not compatible with high-quality trail experiences.
11. Plan and Act Locally : Whenever possible, address issues regarding multiple-use trails at the local level. This allows greater sensitivity to local needs and provides better flexibility for addressing difficult issues on a case-by-case basis. Local action also facilitates involvement of the people who will be most affected by the decisions and most able to assist in their successful implementation.

12. Monitor Progress : Monitor the ongoing effectiveness of the decisions made and programs implemented. Conscious, deliberate monitoring is the only way to determine if conflicts are indeed being reduced and what changes in programs might be needed. This is only possible within the context of clearly understood and agreed upon objectives for each trail area.

For many owners, dogs are a part of the family. Just like humans, dogs need exercise and socialization. As a result many users of the Hingham trail system, particularly Bare Cove Park, desire to recreate with their dogs on trails and allow their dogs to socialize and recreate together.

As expressed in the survey, many dog owners prefer to keep their dogs on leash to both control and protect their dog. However, other owners allow their dogs to recreate and socialize off leash. Current Hingham regulations require that dogs must remain leashed or under voice command, and in sight at all times. Dog owners must ensure that other park users are not disturbed, and that dogs don't damage wildlife or enter into private property. In addition, dog waste must be picked up and properly disposed of. As stated in the Bare Cove Park Dog Rules pamphlet, walking a dog on public property is a privilege, not a right. Thus, dog owners have responsibilities, including following town rules. The reasoning for this is that some dogs can be aggressive, and even friendly dogs off-leash, can startle or frighten other users of dogs as they approach. Off-leash dogs will also tend to run on and off trail, contributing to off trail impacts and disturbance of wildlife. These dog rules were challenged recently after an incident at Bare Cove Park. According to the Patriot Ledger, recent complains of unchecked dog behavior are prompting the Bare Cove Park Committee to review its dog regulations.

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## Chapter 3: Trail Management Recommendations

### **Recommendations**

Trail management activities and recommendations should consider the existing natural resources, recreational uses, user behavior and demands, public, stakeholder and town input, and in an effort to provide additional trail opportunities, reduce user conflicts and enhance the user experience (whether trails are used for recreation or commuting purposes). Recommendations for trails and parcels are summarized in Table 3.1.

Like many governmental organizations, the Town does not have sufficient resources to enforce park rules and regulations. Thus, the Town should consider establishing a Trail Watch Group that will help complete user surveys, educate others about rules, regulations and guidelines and submit observation reports to the town about park conditions, user interactions, etc. Additional information regarding the creation of a Trail Watch Group is included in Appendix B.

#### Improve trail system maps and signs

Trail maps and signs, including directional signs and trail heads, are important for public enjoyment of the trails. Interpretative and directional signs provides the park user a sense of safety and comfort and also sets appropriate use expectations. Overall trail sign recommendations, including branding for the Town of Hingham's trail, and sign recommendations for individual parks is included in Appendix C.

#### Enhance parking and access

Work with town committees , HLCT and community volunteers to formalize parking areas and trailheads, including "pull out" parking along town roads. Many open space properties containing trails offer informal parking for park users. These include pull offs on the side of the road as well as improved parking areas along drive ways and dirt paths. However, these are not typically signed as areas where the public can park. Thus, in an effort to promote the use of trails, this plan recommends an effort to designate parking in certain areas. Designating a parking area may involve posting signs with words such as " Trail Parking Area" or " Name of the Park, Parking Area." The mere presence of signs and panels establishing that the area is official parking for the particular Hingham open space parcel legitimizes the area and gives visitors a sense of security. Parking hours should also be posted to provide individuals with the information necessary to have a positive experience while recreating or commuting through the Hingham Trails. Other steps that can be taken to designate and improve a parking area include improvement to the substrate , storm water flow, clearing of vegetation, incorporating ADA parking, and the addition of trash receptacles and trail heads/entrance signs.

#### Maintain and improve trails

Operations, maintenance, and stewardship are essential to the safe use, enjoyment, and long term success of any trail or recreational area. Unsurfaced trails are susceptible to a variety of trail impacts. Some of the most common ones include vegetation loss, soil compaction, erosion, muddiness, exposure of plant roots, trail widening, and new user-created trails. These impacts may not only diminish the quality of the recreational experience, but also the quality of the adjoining natural and cultural resources. A best management guide to trail maintenance has been provided as an Appendix to this plan. These best management practices include a description of trail features, appropriate maintenance techniques as well as information about trail tools, Friends Groups and safety. See Appendix B for more information.

### Interpretative Trail Loops/ Enhance user education and information

Interpretative loops with panels are the perfect place to educate hikers about their surroundings. Ideally, interpretative signs offer stories that are designed to stimulate trail visitor interest. Through the use of interpretative signs, the trail presents themes that enable visitors to understand more clearly the messages of history, the environment of a forgotten culture. Recommendations for interpretative loops were made for open space properties near schools and/or parcels with significant historic and/or cultural resources. There are several options for providing park users with interpretative information. First is a basic kiosk and/or interpretative panel with images and lettering. However, panels require funding and long term maintenance. With the increased use of technology and smart phones, some parks have implemented the Quick Respond Code technology. These Quick Respond Codes (QRC) are images of symbols that individuals scan using their smart phones. These images link to a website or a video that hosts the interpretative information. These images are typically small, low maintenance and can be attached to a post or a tree.

### Enhance multi use trail experiences: Accessible paths, biking, pedestrian and horseback riding

Several open space properties provide for trails that, with minor improvements, could meet the requirements of ADA and /or multi use trails. ADA and multiuse trail standards are provided in Appendix B. Recommendations for ADA compatible trails are offered in areas where handicap parking is available or areas in closed proximity to Hingham Schools. Recommendations for multiuse trails such as hiking/mountain biking/horseback riding are made in areas that would provide links between areas that allow for multiuse access for uses such as mountain biking as well as locations where the trails appeared to be completely or partially built for sustainable multi use access.

### Invasive Species Management

Invasive species are present throughout Hingham's open space properties. Invasive plant species are those plants that are non-native and are highly adapted in a way that they can take over a natural area, displacing native species. These non-native invasive plants also have no natural predators and typically do not provide for benefits such as high quality food and/or shelter for native fauna. Some of the invasive species identified along the trails and within upland areas includes Oriental Bittersweet (*Celastrus orbiculatus*), Burning Bush (*Euonymus alata*), Norway Maples (*Acer platanoides*), Tree of Heaven (*Ailanthus altissima*), Garlic Mustard (*Alliaria petiolate*), Japanese barberry (*Berberis thunbergii*), and a variety of Honeysuckles (*Lonicera* spp). Invasive species identified in close proximity to waterbodies and wetlands include Purple Loosestrife (*Lythrum salicaria*), Japanese Knotweed (*Fallopia japonica*) and Glossy Buckthorn (*Frangula alnus*). Areas of high invasive plant species density that were isolated within native habitats were GPS'd as part of the trail inventories. These are areas that offer opportunities for volunteer removal efforts using manual and or mechanical management techniques such as hand pulling, weed wrenching and/or cutting. See <http://www.nps.gov/plants/alien/factmain.htm> for recommendations on best management practices of and information on individual invasive species.

### Provide positive experience for dog owners and their pets

Consideration for off leash dog areas including trails and dog parks are discussed in more detail in the trail user conflict of this document. Opportunities for off leash dog areas should be considered throughout the Town of Hingham. Some recommendations, which could be established on a trial basis to determine user satisfaction, that would help alleviate tension related to dogs off and on leash include the following.

- Creation of specific dog off leash areas within open space properties. These should be fenced to ensure dogs are contained and will not interfere with other uses in the area. It is recommended that fenced in areas be rotated and restored every 3-5 years. Restoration would include loosening of the soil which becomes highly compacted with increase use and seeding with an appropriate seed mix depending on the area.
  - A dog park friends group could be created to aid in the rotation and restoration of areas.
- Allow dogs off leash (verbal control) on certain trails in certain parks. This would include the wider trails that provide for a greater line of site to incoming park users.
- Allow dogs off leash (verbal control) on certain trails in certain parks during specific times of day.
- Guidelines for dog owners and park users with contact information in case of emergency.
  - Consider:
    - Asking that dog owners keep their dogs within 8' amount of feet when off leash especially when a park user is approaching;
    - Asking that park users not approach a dog without the owners authorization;
- The American Kennel Club provides for guidelines to establishing a community dog park. These are available at: <http://www.akc.org/pdfs/GLEG01.pdf> These guidelines provide recommendations to ensuring a successful and accessible dog park.

### Vista Management

Many of the Hingham trails provide users with a variety of viewsheds. For example, the Bouve trail affords views of the Boston Skyline as well as the Hingham Harbor. On clear days, the Harbor Islands can also be seen from points along the trail. Governor Long Bird Sanctuary provides views of the Hingham Harbor and the transitional marshes. Moreover, areas along the trail at Triphammer Pond provide views of the pond.

Viewshed points along the trail were recorded during the trail inventory and included in the park trail maps as destination points for park users. Viewsheds or vistas require ongoing maintenance to ensure the views are preserved. Maintenance includes vista pruning and removal of dead and diseased vegetation. Due to some of the vistas' proximity to the water, including wetlands, discussions of proper vegetation management should occur with the Conservation Commission.

### Close Unofficial Trails (Protection of Sensitive Resources)

Unofficial trails were noted and inventoried as part of the trail GPS'ing effort. Many of the unofficial trails in Hingham occur between abutting properties and the open space. Although in most instances these provide access for recreating and commuting within the parks, use of these paths for dumping of landscaping debris was observed and recorded. Most landscaping debris is biodegradable, however, some may contain invasive plant species seed or plant material. A public education and outreach campaign could help curtail this type of "dumping" activity.

Some unofficial trails providing access to sensitive resources such as coves, marshes and wetlands were also recorded. In many instances, particularly at Bare Cove Park and Bouve Conservation area, these user created trails have encouraged water flow leading to erosion of banks and deposition of sediment within sensitive resources. Off-trail access has also resulted in compacted soils with areas of little to no vegetative growth. Hingham should further investigate the need and desire to access these areas and provide official sustainable alternatives for the public. These would include viewing and/or fishing platforms, portage areas, and steps leading to the water. Access locations should be selected by balancing the sensitive resources with existing preferred routes. Undesirable and unofficial paths should be closed by placing clear closing signage at the trailheads and current location of the trail. The signage should explain the reasons why the trail is closed so users understand why they cannot use the trail any longer. Planting non-invasive native vegetation appropriate to the habitat in the lines of sight from roadways and adjacent paths will prevent

users from seeing the trail and using it. Scarifying the soil may also help accelerate the process of naturalization. As a last resort a fence can be used to block the trail.

The recommendations below in Table 3.1, include a column corresponding to the Open Space Plan goal. In making recommendations, BSC wanted to ensure that these paralleled those town-wide goals highlighted in the Town's Open Space and Recreational Plan. The following eight goals and associated recommendations were highlighted in the town's Open Space Plan:

**Goal 1:** To protect Hingham's natural resources and the ecological and biological integrity of its wildlife through open space acquisition, development regulation, and collaboration with varied authorities and interests.

**Goal 2:** To protect Hingham's scenic/aesthetic characteristics and its significant historical resources through open space acquisition, development regulation, and collaboration with varied authorities and interests.

**Goal 3:** To continue to maintain and enhance formal and informal recreational opportunities in an environmentally sensitive way in order to ensure diverse recreation opportunities for Hingham's diverse residents. To implement an ADA Transition Plan for recreation facilities and selected open spaces and identify and respond to any further needs.

**Goal 4:** To restrict detrimental development impacts on Hingham's remaining open spaces.

**Goal 5:** To effect the following priorities/criteria when considering the purchase of open space: a. drinking water protection, b. protection of vegetation and wildlife (habitat), c. visual impact, and d. passive recreation such as walking trail opportunities.

**Goal 6:** To take the initiative in protecting open space

**Goal 7:** To have some significant open space or recreation area adjacent to or near every neighborhood.

**Goal 8:** To connect isolated open space areas to make a more complete unified system for human use such as hiking riding, skiing and to provide needed wildlife corridors to link areas of fragmented Habitat.

Moreover, Table 3.1 prioritizes each recommendation based on information provided in the Open Space and Recreation Plan, by the Hingham Trails Steering Committee, the online trail survey and by the public during the public process. Recommendations are prioritized as low, medium and high.

Finally, a low, medium and high cost has been attributed to each recommendation. A low proximate cost is one that would potentially require less than \$5,000 to complete while a Medium Cost would range between \$5,000 and \$10,000 and a High Cost would include anything over \$10,000. Cost for implementation may vary depending on site conditions, the presence of cultural or environmentally sensitive resources requiring permitting reviews, and the length of trail.

**Table 3.1: Proposed Recommendations for existing trails and publicly accessible open space in Hingham by Open Space Property, Priority and Cost**

Open Space Property	Recommendations	Goals	Priority	Cost
Bouve Conservation Area	Develop improved walkway from the neighborhood to the Shipyard.	3,8	H	H
	Develop path to the nearby Bradley Woods Playground and that neighborhood.	3,7,8	M	L
	Designate and/or provide for parking off of Beach Lane.			
	Improve access from Beach Lane.	3,8	M	L
	Invasive species management.	6	M	L
	Improve accessibility to shoreline while protecting the banks.	3	L	L
	Improve signage (trail kiosks, trail blazing and informational signs).	3,8	H	L
	Maintain an open trail corridor throughout the park.	3,6,8	H	M
	Close fault line unofficial trails proximate to the marsh.	1, 6	H	L
Manage vistas.	3,8	M	L	

Open Space Property	Recommendations	Goals	Priority	Cost
Foundry Pond	Connect the western and eastern portions of the property.	3,7,8	H	H
	Cultural/Historic Resource preservation by removing vegetation around structures.	6	M	L
	Invasive species management.	6	M	L
	Consider multi use access .	3,8	M	L
	Improve accessibility to spillway.	3	H	L
	Develop interpretative signs regarding spillway, fish ladder, aquatic invasive plants, etc.	6	M	L
	Improve signage (trail kiosks, trail blazing and informational signs).	3,8	H	L
Maintain an open trail corridor throughout the park.	3,6,8	H	M	

Open Space Property	Recommendations	Goals	Priority	Cost
McKenna Marsh & Marchesiani Farmlands	Consider establishing an interpretative guided nature walk.	3,6,8	M	M
	Improve stream crossings .	3,6,8	M	M
	Maintain an open trail corridor throughout the park.	3,6,8	H	M
	Improve signage (trail kiosks, trail blazing and informational signs).	3,8	H	L
	Secure and promote park parking at the Middle School proximate to the tennis courts.	3,8	H	L

Open Space Property	Recommendations	Goals	Priority	Cost
More Brewer Complex (More Brewer Park, Brewer Reservation, Cranberry Pond and Ridgewood Crossing)	Connect Cranberry Pond to Brewer Reservation via the landfill.	3,6,7,8	H	L
	Sustainable entry points to Cranberry Pond for skating.	3,6,8	H	L
	Additional benches throughout the properties.	3,8	H	L
	Invasive species management throughout the properties.	6	M	L
	Possible bird blind at Cranberry Pond .	6	L	M
	Trail/pedestrian crossing signs along Hobart Street.	3,7,8	H	L
	Consider multi use access.	3	M	L
	Consider a rotating off leash dog park in the Brewer Field.	3,6	M	M
	Ensure privacy of Ridgewood Crossing Residents by providing additional signs in this area to stay on trail, leash dogs, etc.	3,7	H	L
	Maintain an open trail corridor throughout the park.	3,6,8 3,8	H H	M L

Open Space Property	Recommendations	Goals	Priority	Cost
Triphammer Pond	Improve portage and other water access areas.	3,7,8	M	L
	Manage vistas.	3,8	L	L
	Consider multi use access.	3,8	M	L
	Improve stormwater flow in the parking lot.	3,6,8	H	M
	Maintain an open trail corridor throughout the park.	3,6,8	H	M
	Improve signage (trail kiosks, trail blazing and informational signs).	3,8	H	L
	Manage vegetation on the dam.	3,6,8	H	L
	Improve trail tread along the eastern portions of the park.	3,6,8	H	L
	Update wayfinding signs along public ways (town roads).	3,6,7,8	H	L

Open Space Property	Recommendations	Goals	Priority	Cost
Mildred Cushing Woods	Designate portage area with landowner permission.	3,5,7,8	H	L
	Improve tread along the park entrance (wet and muddy).	3,6,8	H	L
	Link to areas that could provide park parking.	3,8	H	M
	Maintain an open trail corridor throughout the park.	3,6,8	H	M
	Improve signage (trail kiosks, trail blazing and informational signs).	3,8	H	L

Open Space Property	Recommendations	Goals	Priority	Cost
South Junior High School	Designate trail entrances.	3,6,7,8	H	L
	Set aside parking for trail use.	3,6,7,8	H	L
	Determine access hours for public use .	3,6,7,8	H	L
	Remove graffiti (red spray paint along trees).	6	H	L
	Maintain vegetation around benches.	3,7	H	L
	Maintain benches.	3,7	H	L
	Designate connection with Main Street open space trails.	3,6,7,8	H	M
	Continue to work with Notre Dame to designate connection between the trail systems.	3,6,7,8	H	L
	Maintain an open trail corridor throughout the park.	3,6,8	H	M
	Improve signage (trail kiosks, trail blazing and informational signs).	3,8	H	L

Open Space Property	Recommendations	Goals	Priority	Cost
Main Street DPW Land	Maintain an open trail corridor throughout the park.	3,6,8	H	M
	Improve signage (trail kiosks, trail blazing and informational signs).	3,8	H	L
	Remove litter.	3,6,8	H	M
	Remove graffiti.	6	H	L

Open Space Property	Recommendations	Goals	Priority	Cost
South Elementary School	Improve stream crossings.	3,6,8	H	M
	Connect to Cushing Street.	3,6,7,8	H	H
	Negotiate public use easement with Liberty Pole Neighborhood.	3,6,7,8	H	H
	Develop interpretative trail/nature classroom.	3,8	H	M
	Maintain benches.	3,7	H	L
	Manage vegetation around bench areas.	3,7	H	L
	Maintain an open trail corridor throughout the park.	3,6,8	H	M
	Improve signage (trail kiosks, trail blazing and informational signs).	3,8	H	L
	Establish an interpretative loop.	3,8	H	L
	Consider upgrading trail to ADA standards.	3,8	H	M

Open Space Property	Recommendations	Goals	Priority	Cost
Plymouth River Complex	Improve stream crossings.	3,6,8	H	M
	Maintain interpretative trails and signs.	3,8	H	L
	Maintain benches.	3,7	H	L
	Consider multiuse access .	3,7,8	H	L
	Consider improving portions of the trail system for accessibility particularly in those areas near the soccer fields where handicap parking is provided .	3,7,8	H	H
	Close redundant and unofficial trails.	4,8	H	L
	Manage invasive species, particularly along the entrance from the soccer fields .	6	M	M
	Maintain an open trail corridor throughout the park.	3,6,8	H	M
Improve signage (trail kiosks, trail blazing and informational signs).	3,8	H	L	

Open Space Property	Recommendations	Goals	Priority	Cost
George Washington Forest/ Hingham Town Forest	Work with DCR on a forest management and habitat restoration plan.	6	H	M
	Consider prescribed burns as a management tool.	6	H	L
	Negotiate public access with Aquarion Water Companies.	3,6,7,8	H	L
	Improve parking area at South Pleasant and Charles Street.	3,6,7,8	H	M
	Maintain an open trail corridor throughout the park.	3,6,8	H	H
	Improve signage (trail kiosks, trail blazing and informational signs).	3,8	H	L
	Consider multi-use access.	3,7,8	H	L
	Consider a rotating off leash dog park or off leash trail days.	3, 8	M	M

Open Space Property	Recommendations	Goals	Priority	Cost
Burn's Memorial Park	Maintain an open trail corridor throughout the park.	3,6,8	H	L
	Improve signage (trail kiosks, trail blazing and informational signs).	3,8	H	L
	Provide interpretative signs with historic information about the property.	3,6,8	M	L
	Work with abutters to curtail dumping of landscaping material.	3,6,8	H	L
	Designate park parking at the Hersey Street DPW facility .	3,6,8	H	L
	Improve and/or maintain entrance steps.	3,8	H	M
	Negotiate with abutters for potential public access connection to Central Street.	3,4,6,8	H	M
	Work with DCR on a forest management and habitat restoration plan.	6	H	M

Open Space Property	Recommendations	Goals	Priority	Cost
Bare Cove Park	Maintain an open trail corridor throughout the park.	3,6,8	H	M
	Additional signage (trail kiosks, trail blazing and informational signs).	3,8	H	L
	Provide interpretative signs with historic information about the property.	3,8	H	L
	Close trails leading to marsh areas causing erosion and storm water issues .	3,4,6,8	H	M
	Considering closing additional redundant and unofficial trail.	3,4,6,8	H	L
	Consider multi use access (promote if allowed).	3,7,8	M	L
	Consider bird blinds for marsh wildlife viewing.	6	L	M
	Maintain benches and map way finding stations.	6	H	M
	Ensure ADA access at gate entrances where handicap parking is provided.	3,6,8	H	L
Consider designated off leash park areas including trails and rotating fenced in fields on a trial basis (if user conflict continues).	6	H	M	

Open Space Property	Recommendations	Goals	Priority	Cost
Foster Elementary School	Improve trail entrance.	3,6,8	L	L
	Determine and post trail use hours.	3	L	L
	Designate trail parking along the school's northern parking lot.	3,7,8	L	L
	Negotiate with abutters to public access through existing trail to Simmons Road .	3,7,8	L	M
	Invasive Species management.	6	M	L
	Maintain an open trail corridor throughout the park.	3,6,8	L	M
	Improve signage (trail kiosks, trail blazing and informational signs).	3,8	L	L

Open Space Property	Recommendations	Goals	Priority	Cost
Wm J. McClusky Park	Provide for small day use area (picnic tables and benches).	3,6,7,8	L	L
	Study and improve storm water flow into the pond.	6	M	H
	Provide for official parking area in the commercial parking lot or along Bulow Place.	6,7,8	L	L

Open Space Property	Recommendations	Goals	Priority	Cost
Recreation Park Drive	Improve trail entrances along Deerfield and Recreation Park Drive.	3,6,7,8	H	M
	Designate parking at Deerfield or Recreational Park Drive.	3,6,7,8	H	L
	Improve trail tread.	3,6,8	H	M
	Maintain an open trail corridor throughout the park.	3,6,8	H	M
	Improve signage (trail kiosks, trail blazing and informational signs).	3,8	H	L
	Consider multi use access .	3,7,8	H	L

Open Space Property	Recommendations	Goals	Priority	Cost
Old Swamp River	Improve trail entrance.	3,6,7,8	L	M
	Improve trail tread (muddy).	3,6,8	L	M
	Negotiate encroachment mitigation with abutters.	4,6	H	L
	Negotiate public access along existing trails near the technology park (Fifield Inc.)	3,4,6,8	L	L
	Negotiate parking for trail access at the technology park (Fifield Inc.)	3,4,6,8	L	L
	Maintain an open trail corridor throughout the park.	3,6,8	L	M
	Improve signage (trail kiosks, trail blazing and informational signs).	3,8	L	L

Open Space Property	Recommendations	Goals	Priority	Cost
Sydney Ice Pond	Connect to Foundry Pond and Weir River Estuary.	3,4,6,7,8	H	M
	Designate parking along the edge of Rockland Street.	3,4,7,8	H	L
	Install trail/pedestrian crossing signs on Rockland Street if parking is designated .	3,7,8	H	L
	Negotiate public access through dirt road off of Kilby Street.	3,4,7,8	M	L
	Improve water access areas (fishing, ice skating) .	6	L	L
	Maintain benches .	6	M	L
	Maintain an open trail corridor throughout the park.	3,6,8	M	M
	Improve signage (trail kiosks, trail blazing and informational signs).	3,8	M	L

Open Space Property	Recommendations	Goals	Priority	Cost
Governor Long Bird Sanctuary	Move entrance sign closer to Cottage Street to make park more visible.	4,7,8	M	L
	Manage vista.	6	H	L
	Consider alternate location for materials storage.	6	H	L
	Improve signage (trail kiosks, trail blazing and informational signs).	3,8	L	L
	Consider a new trail accessible link (switch back trail) to Otis Street.	3,4,6,7,8	M	M
	Provide for handicap parking.	3	H	L

Open Space Property	Recommendations	Goals	Priority	Cost
Whortleberry Hollow	Continue the volunteer maintenance program.	6	H	L
	Improve tread in muddy locations.	6	M	L
	Improve trail structures .	6	M	L
	Consider multi use access.	3,6,8	M	L
	Improve signage (trail kiosks, trail blazing and informational signs).	3,8	M	L

Open Space Property	Recommendations	Goals	Priority	Cost
Eel River Woods	Continue the volunteer maintenance program.	6	H	L
	Improve tread in muddy locations.	6	M	L
	Improve trail structures .	6	H	M
	Improve signage (trail kiosks, trail blazing and informational signs).	3,8	M	L

Open Space Property	Recommendations	Goals	Priority	Cost
Jacobs Meadow/Glad Tidings Plain	Improve trail access area to make ADA accessible.	3	H	L
	Handicap parking at Wilder Memorial .	3	M	L
	Consider upgrading portions of the trail system for ADA accessibility.	3,6,7,8	L	M
	Maintain an open trail corridor throughout the park.	3,6,8	M	M
	Improve signage (trail kiosks, trail blazing and informational signs).	3,8	M	L

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## Chapter 4: Trail Management Funding

There are a variety of available grants that provide funding for trail maintenance and new trail development. There are also hands-on resources available that may come with financial assistance for the trail building projects. A summary of some of the available resources are provided below.

### Recreational Trails Program

The Federal Highway Administration is the largest single source of funding for shared use paths, trails, and related projects in the United States. Until 1991, Federal highway funds could be used only for highway projects or specific independent bicycle transportation facilities. Now, bicycle transportation and pedestrian projects and programs are eligible for nearly all major Federal highway funding programs. Recreational trails are eligible under the Recreational Trails Program (RTP).

RTP provides funds to the States to develop and maintain recreational trails and trail-related facilities for both non-motorized and motorized recreational trail uses. Examples of trail uses include hiking, bicycling, in-line skating, equestrian use, cross-country skiing, snowmobiling, off-road motorcycling, all-terrain vehicle riding, four-wheel driving, or using other off-road motorized vehicles. Congress authorized the RTP for \$84 million in 2010, \$97 million in 2011, \$79 million in 2012, and \$80 million in 2013. FHWA may use up to \$840,000 annually for program administration and trail related research, technical assistance, and training. The remainder of the funds is distributed to the States. Half of the funds are distributed equally among all States, and half are distributed in proportion to the estimated amount of off-road recreational fuel use in each State: fuel used for off-road recreation by snowmobiles, all-terrain vehicles, off-road motorcycles, and off-road light trucks.

Recreational Trails Program funds may be used for:

- Maintenance and restoration of existing trails.
- Development and rehabilitation of trailside and trailhead facilities and trail linkages.
- Purchase and lease of trail construction and maintenance equipment.
- Construction of new trails (with restrictions for new trails on Federal lands).
- Acquisition of easements or property for trails.
- Assessment of trail conditions for accessibility and maintenance.
- Development and dissemination of publications and operation of educational programs to promote safety and environmental protection related to trails (including supporting non-law enforcement trail safety and trail use monitoring patrol programs, and providing trail-related training) (limited to 5 percent of a State's funds).
- State administrative costs related to this program (limited to 7 percent of a State's funds).

States are encouraged to enter into contracts and cooperative agreements with qualified youth conservation or service corps. States must use 30 percent of their funds for motorized trail uses, 30 percent for non-motorized trail uses, and 40 percent for diverse trail uses. Diverse motorized projects (such as snowmobile

and motorcycle) or diverse non-motorized projects (such as pedestrian and equestrian) may satisfy two of these categories at the same time. States are encouraged to consider projects that benefit both motorized and non-motorized users, such as common trailhead facilities. Many states give extra credit in their selection criteria that benefit multiple trail uses. The deadline to apply for this grant is February 1<sup>st</sup>, 2016 To find out more information about the RTP contact Amanda Lewis, Recreational Trails Program Coordinator at 413-586-8706 ext. 19 or email at [amanda.lewis@state.ma.us](mailto:amanda.lewis@state.ma.us).

### IMBA Small Grants Program

The small grants program provides assistance to International Mountain Bicycling Association chapters and supporting organizations for trail and bike projects. These grants support projects that maintain and improve the sustainability of local trails, preserve the environmental and enhance conservation in the mountain biking community. <https://www.imba.com/resources-grants/imba-small-grants-program>

### REI Grant

REI provides grants to select nonprofits that care for the outdoor places. The process begins with REI store teams, who establish meaningful partnerships with organizations and invite them to apply for funding. REI does not accept unsolicited grant applications.

In 2014, REI will build upon a long-standing commitment to maintain the outdoors and help people connect with recreational opportunities by awarding \$4.6 million in grants to more than 300 nonprofit organizations.

The majority of the investments will support local organizations that are enhancing more than 650 parks, trails and waterways across the country, places enjoyed by the co-op's members, employees and other adventurers. Additional grants from REI will help fund national and regional nonprofit programs that support outdoor activities like urban cycling, mountain biking, backcountry skiing and climbing.

### STEP Grants

Stewards for Trails, Education and Partnerships (STEP) provides \$40,000 in grants annually to organizations promoting trail stewardship education and conserving horse riding trails. The grant is funded by Tractor Supply Co. for trail maintenance, trail construction and trail relocation on public land (Federal, State and Local) and trails that are open to public horseback riding. Priority is allocated to funds for improving an existing trail, such as design issues, erosion and additional features that will enhance safety and experience. Additional information: <http://www.aqha.com/Riding/STEP/Grant-Information.aspx>

### The National Trust Preservation

The National Trust Preservation funds grants for special programs. They have multiple grants that preserve battlefield frontiers, historic sites, and small local conservation projects. The Cynthia Woods Mitchell Fund for Historic Interiors is used to preserve historic sites. The Hart Family Fund for Small Towns is used to seed money for preservation projects in small towns. The Johanna Favrot Fund for Historic Preservation is a grant for saving historic environments and revitalizing the nation's communities. For information regarding applications for these grants contact [info@savingplaces.org](mailto:info@savingplaces.org).

### The National Park Service

The National Park Service will provide grants to help build trails. The Active Trail Program is geared towards getting people outside. The Parks Steward Program is geared towards getting high school students and teachers more educated about parks and gives them a chance to add service learning activities into the curriculum. The National Park Transportation Scholar grant aims towards improving sustainable transportation. The Disney Nature Impact Grant promotes conservation and wildlife habitat. The Parks Teachers Program shows a parks model to high school teachers to promote conservation education. For additional information, contacts, and applications please visit the National Park Service Website.

### Local Businesses

Other local businesses have the potential to offer financial assistance if contacted. The South Shore Country Club offers outdoor recreation such as hiking and golfing. The Recreational Equipment Store (REI) and Eastern Mountain Sports have stores in Hingham. These stores sell outdoor equipment and tools. These three parties may have an interest in creating more outdoor active space to increase their business. They also have been known to start community partnerships in other areas and offer assistance with trail building. The country club can be reached at 781-749-1747. REI can be reached at 781-740-9430. East Mountain Sports can be contacted at 781-741-8808.

### Other Available Assistance

#### Student Conservation Association

The Student Conservation Association (SCA), AmeriCorps Program, is known for sending trained crew members to help build trails. Their members have 'trail blazed' all across the country. To request their assistance, contact their Massachusetts Offices located at Dubuque State Forest Office at (413) 339-6631. The 2015-2016 cost for a 5 person SCA crews is \$740.00 per day. Trail hitches in Massachusetts are typically scheduled in the Fall for work during the Summer. Hitches are scheduled for 5 or 10 days.

#### The Appalachian Mountain Club

The Appalachian Mountain Club in Boston has volunteers and funding for trails in the area. They have worked on the New England Trail and the Appalachian Trail. They also put money into an Annual Trail Fund. To find out information on funding or request volunteers contact the Boston Office at 617-523-0636.

The Appalachian Mountain Club also provides technical assistance for trail building during the Summer and Fall. The AMC Professional trail crew works to protect and restore natural resources and the environment, and to provide safe and positive experiences for trails users through high quality trail work. The AMC Professional trail crew specializes in heavy reconstruction projects, the construction of trail structures with natural and fabricated materials, the building of rock steps, rock and water bars, drainages structures, foot bridges, etc. and also help maintain more than 350 miles of trails and 800 trail signs in the White Mountains. To request their assistance, contact the AMC Director of Trails and Recreation Management: White Mountains, NH at 603-466-2721. The 2015-2016 cost for a 4 person professional AMC Crew is approximately \$1,500 per day.

### IMBA Trail Care Crews

The International Mountain Bike Association (IMBA) is an organization that sends volunteers to host community events to excite and motivate volunteers to build trails. They offer a ‘Trail Building School’ with an in class and outdoor portion to offer background technical training to everyone volunteering. Contact [marty.caivano@imba.com](mailto:marty.caivano@imba.com) or 303-545-9011 ext. 101 for more information.

### The Equine Land Conservation Resource

The Equine Land Conservation Resource is a national organization promoting horseback riding interests. They create sustainable trails for horses. In the past there has been outreach in the Essex County Region. To find out more, contact [info@elcr.org](mailto:info@elcr.org) or call at 859-455-8383.

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## Chapter 5: Town Wide Vision for Expanded Trail Network

### Connectivity Vision, Goals and Objectives

In addition to improving access and the quality of the recreation and conservation opportunities within existing publicly accessible open space parcels, the Town is undergoing a planning effort to maximize connectivity within these parcels, community facilities such as schools and playgrounds, commercial areas and commuting hot spots. In addition, the Town is coordinating with abutting cities and towns to create contiguous protected open space areas. The overall goal is to create connections within and outside of Hingham to not only maximize the potential use of the existing trails and open spaces, but to also provide alternative means of commuting, improve quality of life, aid in the protection of natural resources, and implement recommendations proposed in the Hingham Open Space and Recreation Plan, the Master Plan Update, the SCORP, the Climate Change Vulnerability Risk Assessment and Adaptation Study and other Town reports.

In order to have an effective trail network, the links must:

- Minimize Cost (construction and maintenance)
- Maximize Safety and Security
- Minimize Adverse Impacts to Natural and Cultural Resources
- Increase public access
- Connect with available parking and/or commuting locations
- Be Consistent with Existing Open Space Plan and other Town Master Plans

The Hingham Trails Committee has incorporated trail related information from previous Hingham Planning efforts (i.e. Hingham Open Space and Recreational Plan, etc.), analyzed public desires related to trails at the regional and local level, and assessed the potential for meeting these needs and desires in a sustainable matter within the Town. From this analysis, the Hingham Trails Committee has selected the following trail connections as the top priorities for the Town. The priorities were further analyzed using a prioritization matrix which included factors such as purpose, accessibility, expected construction cost, expected environmental permitting costs, environmental sensitivity, future maintenance needs, public support and consistency with previous Hingham planning efforts. Each attribute was assigned a value and each value was added to further prioritize the connections.

The following items were used to help prioritize trail connections:

Functionality includes whether the trail link was proposed for commuting, recreation or school links.

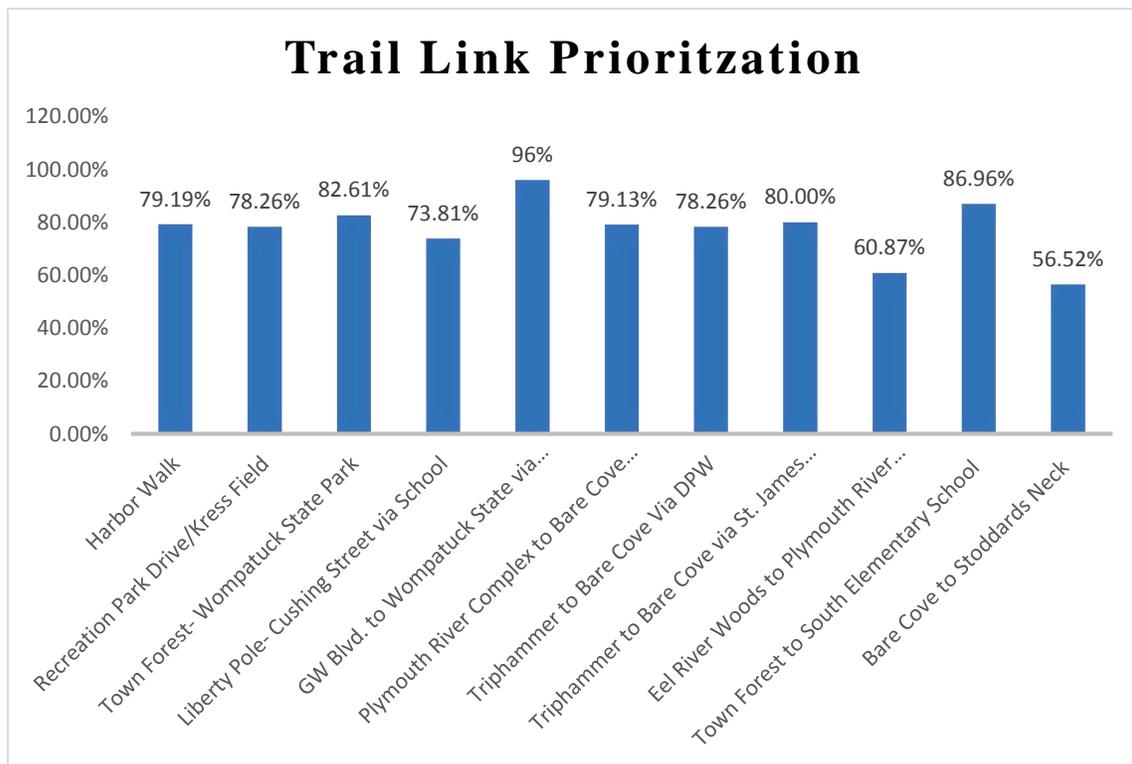
- If the link proposed is currently ADA accessible, it was awarded a point. No points were awarded to inaccessible trails.
- A high estimated construction cost was assigned a value of 1 point while low construction cost was assigned a value of 3 points.
- Similarly, a value of 1 point was assigned to construction requiring significant environmental permitting while 3 points were assigned to those links expected to not require permitting.

- One of the Town’s priorities includes environmental protection, thus, projects within environmental sensitive areas such as coastal and inland wetlands, Areas of Critical Environmental Concern, Priority and/or Estimated Habitat of Rare and Endangered Species and public water supplies areas were assigned a score of 1 through 3 depending on the impacts. A value of 3 was assigned to those projects with little to no impacts to priority environmental resources.
- Furthermore, a value of 1 was assigned to links expected to have high maintenance needs.
- Public support for the link and their consistency with other plans including the Hingham Harborwalk Master Plan and the Town’s Open Space and Recreation Plan was also considered in the prioritization matrix.

The values were added and a percentage value of prioritization was assigned based on the total points that could be awarded. Thus, the percentage value equals the rate of priority for such link. Individual links making up the overall links were further analyzed with the prioritization matrix. Links with alternative connections were included in the prioritization matrix as individual links. Figure 5.1 below provides the results of the prioritization matrix for the large scale links.

Based on the prioritization matrix, the Town Forest to Wompatuck State Park, the Harbor Walk, the Plymouth River Complex to Bare Cove Park and the Recreation Road Park Drive/ Kress Field resulted in the highest score in terms of feasibility, low cost, low environmental impacts, environmental permitting requirements. It is important to note that some of these links are proposed along existing public ways. A description of each link and their proposed subsections is provided below. Individual and overall maps of the proposed links and the prioritization matrix are also provided.

**Figure 5.1: Prioritization matrix results. A high percentage value equals a higher priority. However, please note that the prioritization matrix does not take into account that some links are part of a larger project being pursued by the Town such as the Harbor Walk and the Weymouth/Hingham Park Connection.**



### **Links Along Roads and Need for Sidewalks and Crosswalks**

Local roads should be able to accommodate pedestrian and cyclist without designated paths. For public safety reasons, main arteries and state roads will require sidewalks, bike lanes and cross walks. Sidewalks should be set as close to the outer edge of the road right of way and as far from travel lanes as practicable. Preferably walks should be 5' wide or wider to accommodate bidirectional use. On roads, where vehicle speeds approach 35-40 mph, off street bike paths should be considered if possible. Street crossings on higher speed roads like Route 3A should be designs with maximum consideration for pedestrian safety. In order to improve commuting systems for all Hingham residents, accessibility should be integrated into the link planning process. Therefore, wherever possible, accessible sidewalks should be provided.

The Town of Hingham should consider a pedestrian master plan to help guide long term pedestrian planning. These master plans outline the framework of the pedestrian network choosing walking as the preferred mode of transportation.

### **Coordination with Other Projects**

Link feasibility is increased when the link is located within a priority area of Town where they are current plans for construction or improvement. For example, a number of projects/activities area under Town or State consideration which could help implement some of the trail links and the overall trail network. These include the Harbor Improvements, Harbor Walk Master Plan, Summer Street improvements and the potential removal of the Foundry Pond Dam. Coordination with other projects, town departments and State agencies is crucial in promoting the implementation of this Comprehensive Trails Plan. This aspect has not been reflected in the prioritization matrix but is discussed within the description of the overall trail links.



## **Harbor Walk Trail Link**

The Harbor Walk trail link (Harbor Walk link) is an adoption of some of the proposals included in the 2007 Master Plan for the Hingham Harbor. Thus, feasibility for the implementation of this link increases if made part of the overall Master Plan development.

The goal of the Harbor Walk link is to provide a contiguous, safe, attractive and universally accessible pedestrian access along the harbor. Hingham includes 21 miles of shoreline. Hingham Harbor is not only an important source of economic growth for the Town but it is also a place where many residents and visitors go to enjoy natural beauty and scenic vistas. From the Harbor, a viewer can see a number of islands and headlands. There are both public and private boat launches and access to the water as well as privately owned marinas. There is also a public bathing beach, a bandstand, expanses of lawn and a few benches for scenic viewing of the Harbor and the islands.

In order to better explain the overall Harbor Walk link, separate sub-areas have been identified for detailed analysis. The subsection areas are as follow:

### Stoddards Neck to the Hingham Shipyard

Access between the Massachusetts Department of Conservation's Stoddards Neck and the Hingham Shipyard would occur along a series of existing public ways include the sidewalk along Route 3A, HMS Essington Drive, along the harbor's edge, the Shipyard Marina walkway, Shipyard Drive and the Avalon public harbor walk.

### Shipyard to Bouve Conservation Area

The Shipyard's public harbor walk connects to Bouve Conservation Area. Currently, access is limited to this area. BSC Group has drafted several options to reconnect the Bouve Conservation Area to the public Shipyard Harbor Walk that provide privacy for the property owners of abutting condominiums but affords public access, including some ADA access, to the Bouve property. Appendix D includes some of the designs reviewed by the Town as options for the Bouve connection.

### Bouve Conservation Area to Conditto Road

An informal trail connecting the Bouve Conservation Area and Conditto road was found during the trail assessment process. This trail would require some minor tread work, trash pickup and brushing. A portion of the trail is wet, thus requiring a minor stream/wetland crossing such as a bog bridge or short boardwalk as well as review from the Conservation Commission. This trail connects to the existing Bouve Path, along the back side of the HMC Haldstead Drive condominiums and onto Conditto Road north of the Ivy Way Hingham Playground If property owner permission is obtained, this link would provide alternative access to the Bouve Conservation Area for those living in the neighborhoods southeast of the recreation area.

### Conditto Road to Simmons Road via Foster School

HMS Halsted Drive ends at a pipe gate near the property line, however, the pavement continues almost through Conditto Road. If permission from the landowner is obtained this pavement extension would serve as an accessible link to the already accessible portions of the Hingham Harbor Walk west of Bouve Conservation Area.

### Conditto Road to Simmons Road via the Foster School

A public way (sidewalk) exists along the northern edge of Conditto Road across a crosswalk to Crow Point Lane and Downer Avenue. The link between Conditto Road and Simmons Road would follow this sidewalk

and continue north along Downer Ave entering through the William L Foster Elementary School's parking lot. A trail connection was delineated during the trail assessment process that connects the northern section of the school's playground to the end of Simmons Road through the forest. A portion of this trail is located on Hingham property while a portion is located on private property, specifically 36 Talbot Road. The trail is very narrow but in overall good condition despite its location on a cross slope. The trail would benefit from minor maintenance in the form of brushing back, removing berm and re-establishing out flow and signage. The entrance of the trail includes a series of steps that require some basic maintenance. Invasive species including burning bush, garlic mustard and multiflora rose are located along the edges of the trail.

#### Condito Road to Route 3A via Lincoln Street and Derby Academy

Following Conditto Road onto Lincoln Street and through Derby Academy provides a link to Otis Street. Portions of Lincoln Street provide a public way (sidewalk), portions that do not provide a sidewalk provide for a manicured grassy area along the boundary with the Broad Cove wetlands. This section of Lincoln Street between Broad Cove Road and Burditt Avenue is very picturesque. Two alternative connections to Otis Street are available at the intersection of Burditt Ave. The Town can work with Derby Academy to create a series of educational boardwalks and paths within the Academy property. During the public meetings, participants indicated that Derby Academy had expressed an interest in providing such link and access to Broad Cove and its marsh. As an alternative, the connection would continue along the Burditt Ave sidewalk until the intersection with Route 3A.

#### Summer Street (Route 3A) to George Washington Boulevard Bikepath

A public way (sidewalk) is available along the northern edge of Summer Street between Burditt Ave and George Washington Boulevard. The sidewalk continues north as Summer splits into George Washington Boulevard and Rockland Street. The Hingham portion of the Harbor link would end as it enters Hull.

			<b>Harbor Walk Trail Link</b>						
<b>Prioritization Matrix</b>	Factor	Attributed Points	Stoddards to Harbor Walk at Shipyard	Haborwalk Shipyard to Bouve	Bouve to Condito Road (trail)	Bouve to Condito Road via Road	Condito Road to Simmons Road via Foster School	Condito Road to Otis Street via Derby Academy	Summer Street to George Washington Blvd
<b>Functionality</b>	Recreation	1	1	1	1	1	1	1	1
	Commuting	1	1	1	1	1	1	1	1
	Schools	1	0	0	0	0	1	1	1
<b>Multimodal Use Potential</b>	Yes	1	1	0	0	1	1	0	1
	No	0							
<b>Accessibility</b>	Yes	1	1	0.5	0	1	0	0	1
	No	0							
<b>Expected Cost (construction)</b>	Low	3	3	1	3	3	2	1	3
	Medium	2							
	High	1							
<b>Expected Cost (permitting)</b>	Low	3	3	1	3	3	3	1	3
	Medium	2							
	High	1							
<b>Environmental Sensitivity</b>	Low	3	3	1	2	3	3	1	3
	Medium	2							
	High	1							
<b>Future Maintenance Needs</b>	Low	3	3	2	3	3	3	2	2
	Medium	2							
	High	1							
<b>Public Support</b>	Low	1	3	3	2	2	2	2	3
	Medium	2							
	High	3							
<b>Consistency With Open Space Plan and/or another Project</b>	Low	1	3	3	3	3	2	2	3
	Medium	2							
	High	3							
	<b>Total High Score per sub segment</b>	<b>23</b>	22	13.5	18	21	19	12	22
			<b>Total</b>	127.5					
			161	<b>79.19%</b>					



# HARBOR WALK TRAIL LINKS



Source: MassGIS Basemap & Environmental Data. Field Delineated Data by BSC Group, Inc. Routes along Public Ways are approximate.



# HARBOR WALK TRAIL LINK SUMMER ST TO GEORGE WASHINGTON BLVD



Source: MassGIS Basemap & Environmental Data. Field Delineated Data by BSC Group, Inc. Routes along Public Ways are approximate.



## Recreation Park Drive Open Space, Kress Fields and Derby Street Shoppes Link

Community input provided during the public meetings as well as through the Hingham Trails Survey highlighted a need for connectivity between the neighborhoods south and east of Recreation Park Drive, Recreation Park Drive and the Derby Street Shoppes. The Town of Hingham recently acquired property referred to in this document as “Recreation Park Drive” which might allow for a link between Deerfield Road and Recreation Park Drive amenities and the Derby Street Shoppes. An additional connection is proposed between Kress Field and Recreation Park Drive to complete this link. The recommended subsections of this link are as follows:

### Kress Field to Recreation Park Drive

An informal trail link is present between the Kress Field parking area (following the fence line) and the southern corner of the Old Derby Animal Hospital located at 40 Recreation Park Drive. The potential for a new trail link from this southern corner to Recreation Park Drive is recommended along the south and western perimeter of the Animal Hospital parallel to the Queen Anne Nursing Home’s retaining wall. Minor clearing and grubbing would be required to establish such link. Additional tread work would be required if an accessible link is desired.

Moreover, the possibility of an accessible trail link also exists from Kress Fields through the small wooded area between the field and the Queen Anne Nursing Home located at 50 Recreation Park Drive and the nursing home’s driveway. This link would open access to both park users and residents of the Queen Anne Nursing home alike.

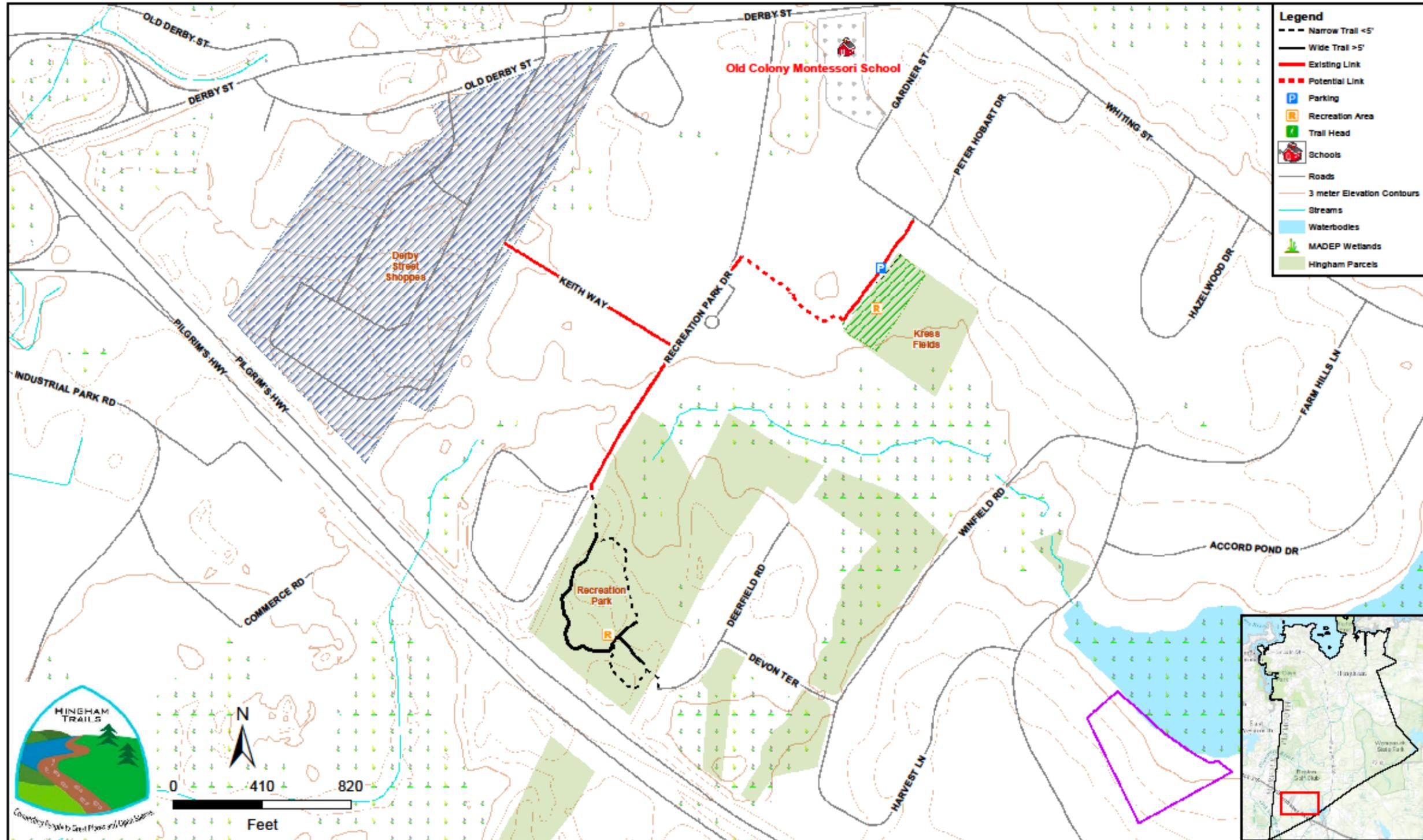
Access to the Derby Street Shoppes exist from either property along Recreation Park Drive and Keith Way. It is important to note that neither public way provides for a sidewalk.

### Recreation Park Drive to Deerfield Road

Hingham recently purchased a parcel of property located between Pilgrim’s Highway (Route 3), Recreation Park Drive and Deerfield Road. This piece of property provides an existing short trail loop connecting Deerfield Road to Recreation Park Drive. The trails require some minor maintenance include brush back, trash removal, tread stabilization and blazing. Additional work would be required to make this trail loop fully accessible. Portions of the existing trail proximate to Recreation Park Drive would have to be realigned to meet grade standards. See Appendix B for additional details on ADA trails.

			<b>Recreation Road- Derby Street Shoppes- Kress Field</b>	
<b>Prioritization Matrix</b>	Factor	Attributed Points	Kress Field to Recreation Park Drive	Deerfield Road to Recreation Park Drive
<b>Functionality</b>	Recreation	1	1	1
	Commuting	1	1	1
	Schools	1	0	0
<b>Multimodal Use Potential</b>	Yes	1	1	1
	No	0		
<b>Accessibility</b>	Yes	1	0	0
	No	0		
<b>Expected Cost (construction)</b>	Low	3	2	2
	Medium	2		
	High	1		
<b>Expected Cost (permitting)</b>	Low	3	3	2
	Medium	2		
	High	1		
<b>Environmental Sensitivity</b>	Low	3	3	2
	Medium	2		
	High	1		
<b>Future Maintenance Needs</b>	Low	3	2	2
	Medium	2		
	High	1		
<b>Public Support</b>	Low	1	3	3
	Medium	2		
	High	3		
<b>Consistency With Open Space Plan and/or another Project</b>	Low	1	3	3
	Medium	2		
	High	3		
			19	17
	<b>Total High Score per sub segment</b>	<b>23</b>	<b>Total</b>	36
			46	<b>78.26%</b>

# RECREATION PARK DRIVE TO KRESS FIELDS & DEERFIELD ROAD LINK



Source: MassGIS Basemap & Environmental Data. Field Delineated Data by BSC Group, Inc. Routes along Public Ways are approximate.



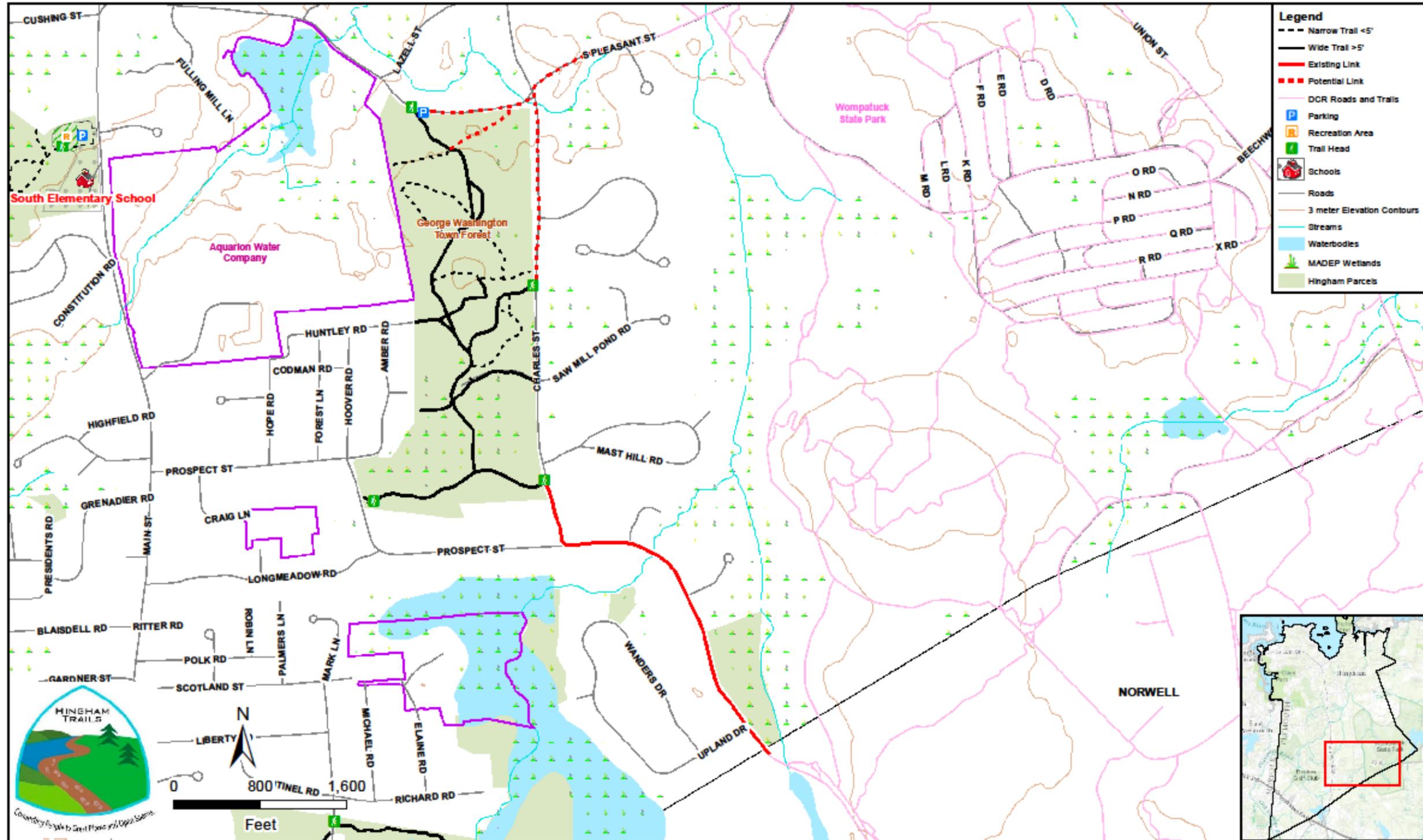
### George Washington Forest/Hingham Town Forest to Wompatuck State Park Link

Community input provided in the Open Space and Recreation Plan as well as through public meetings requested a link between the Hingham Town Forest and Wompatuck State Park. Links to between the Hingham Town Forest and Wompatuck State Park currently exist along the roadside edges and public ways of South Pleasant Street and Prospect Street via Charles Street. A shorter link between South Pleasant Street and the Town Forest could also be achieved with the creation of a short natural surface path trail starting across the street of 168 South Pleasant Street near the intersection of South Pleasant and Charles Street.

If an off road access is sought, the Town should further investigate a potential easement secured by the Town from Charles Street to the rear of 7 Brandon Woods Road. The easement crosses private property at 10 and 21 Saw Mill Pond Road and is described in the property plans recorded at the Plymouth County Registry of Deeds in Book 00021 Page 553. The easement from 21 Saw Mill Pond Road to Wompatuck across 7 Brandon Woods property remains to be documented.

			<b>Town Forest- Wompatuck State Park</b>		
<b>Prioritization Matrix</b>	Factor	Attributed Points	Via South Pleasant (existing public way)	Via Charles Street (to Norwell) (existing public way)	Via South Pleasant and Natural Surface Trail Link at Intersection with Charles Street
<b>Functionality</b>	Recreation	1	1	1	1
	Commuting	1	1	1	1
	Schools	1	0	0	0
<b>Multimodal Use Potential</b>	Yes	1	1	1	1
	No	0			
<b>Accessibility</b>	Yes	1	1	1	1
	No	0			
<b>Expected Cost (construction)</b>	Low	3	3	3	3
	Medium	2			
	High	1			
<b>Expected Cost (permitting)</b>	Low	3	3	3	1
	Medium	2			
	High	1			
<b>Environmental Sensitivity</b>	Low	3	3	3	3
	Medium	2			
	High	1			
<b>Future Maintenance Needs</b>	Low	3	2	2	2
	Medium	2			
	High	1			
<b>Public Support</b>	Low	1	2	2	2
	Medium	2			
	High	3			
<b>Consistency With Open Space Plan and/or another Project</b>	Low	1	2	2	1
	Medium	2			
	High	3			
			19	19	16
	<b>Total High Score per sub segment</b>	<b>23</b>	<b>Total</b>	82.61%	70.00%
			23	<b>Average</b>	<b>76.30%</b>

# TOWN FOREST TO WOMPATUCK STATE PARK LINK



Source: MassGIS Basemap & Environmental Data. Field Delineated Data by BSC Group, Inc. Routes along Public Ways are approximate.



## Liberty Pole Neighborhood to Cushing Street via the South Elementary School

### Link Via Private Property

Input provided during community meetings indicated a need for off road commuting access to schools for neighborhoods. This link provides such an amenity for the Liberty Pole Community and areas north and west of such community, and South Elementary School to Cushing Street via private property trails

Trails behind the south elementary school currently link to a series of boardwalks on private property located at 4 Cushing Street. If Hingham is able to obtain permission from the property owner for public access of a portion of the boardwalks, the South Elementary School would be linked to the Cushing Street Community, including Mildred Cushing Woods and Eel River Woods. Additional link options are available between the South Elementary School trails and Cushing Street via public ways (Main Street and Pioneer Road).

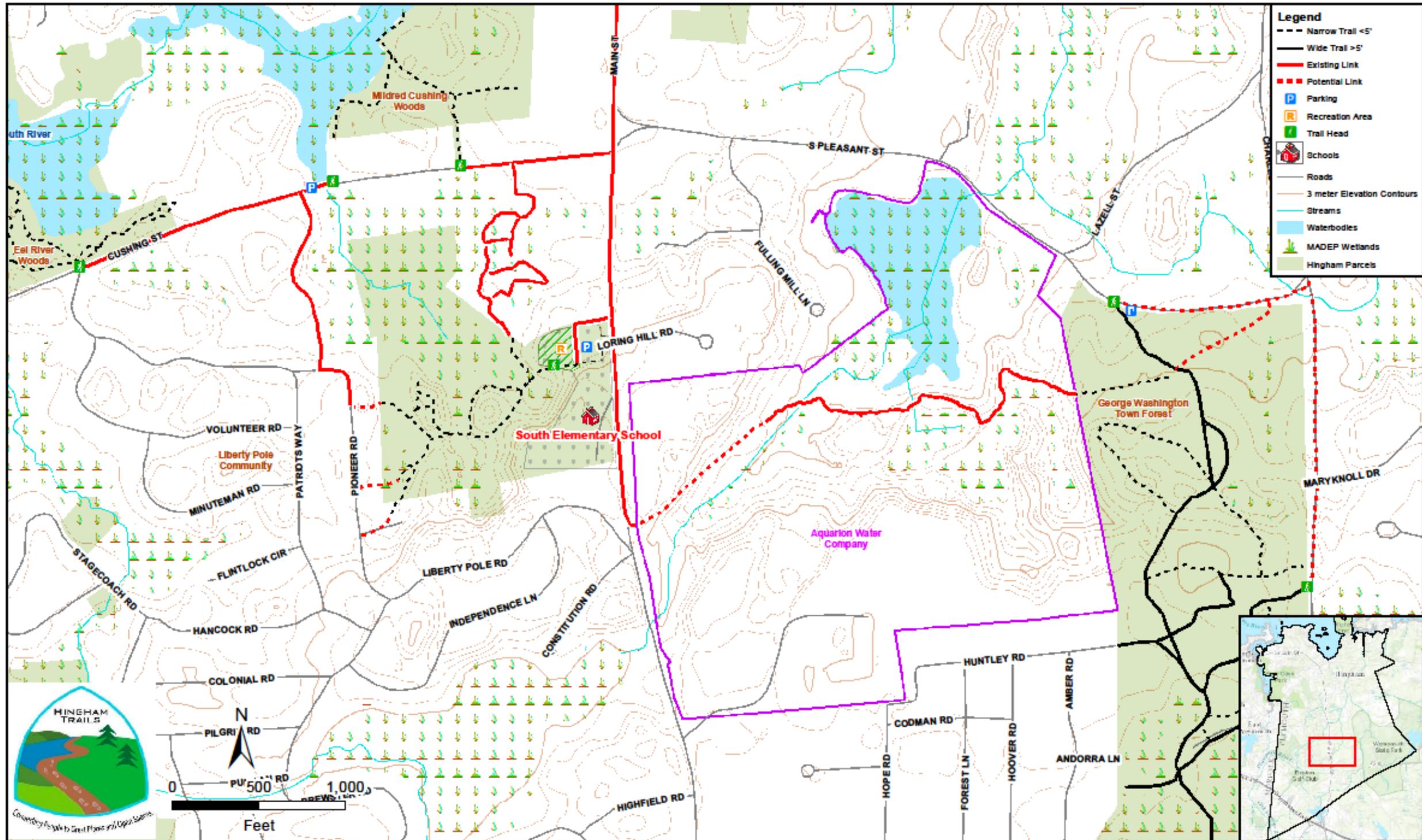
### Link via Trails

Two sections of trails within the South Elementary School property link to public right of ways along Pioneer Road. These trails were assessed as part of the Hingham Trail inventory. The southernmost trails link to 56 Liberty Pole Road and a parcel of property between 7 and 5 Pioneer Road while the northern most trail links to a parcel of property between 13 and 15 Pioneer Road. The trails leading to 56 Liberty Pole Road appeared to be proximate to wetlands. However, the trails linking to the two open space parcel of properties did not appear to be near any wetland resource areas. If property owner permission is acquired for public access along a small easement, these trails would provide off street recreational and commuting opportunities for the Liberty pole neighborhood and Main Street and access to Cushing Street from Main Street.

**Liberty Pole to South Elementary  
and Cushing Street**

<b>Prioritization Matrix</b>	Factor	Attributed Points	South Elementary School to Cushing St via private property	South Elementary School to Liberty Pole Community
<b>Functionality</b>	Recreation	1	1	1
	Commuting	1	1	1
	Schools	1	1	1
<b>Multimodal Use Potential</b>	Yes	1	0	1
	No	0		
<b>Accessibility</b>	Yes	1	0	0
	No	0		
<b>Expected Cost (construction)</b>	Low	3	2	3
	Medium	2		
	High	1		
<b>Expected Cost (permitting)</b>	Low	3	1	2
	Medium	2		
	High	1		
<b>Environmental Sensitivity</b>	Low	3	2	2
	Medium	2		
	High	1		
<b>Future Maintenance Needs</b>	Low	3	2	2
	Medium	2		
	High	1		
<b>Public Support</b>	Low	1	2	3
	Medium	2		
	High	3		
<b>Consistency With Open Space Plan and/or another Project</b>	Low	1	3	3
	Medium	2		
	High	3		
	<b>Total High Score per sub segment</b>		15	19
		<b>23</b>	65% <b>Average %</b>	82.61% <b>73.80%</b>

# TOWN FOREST TO CUSHING STREET LINK VIA SOUTH ELEMENTARY SCHOOL



Source: MassGIS Basemap & Environmental Data. Field Delineated Data by BSC Group, Inc. Routes along Public Ways are approximate.



## George Washington Boulevard to Wompatuck State Park Link via Whitney and Thayer Woods and Sydney and Foundry Ponds

A connection between the George Washington Boulevard and Trustees of Reservation and Department of Conservation and Recreation properties was requested during the public meetings and through the online trails survey and the Open Space and Recreation Plans. This link could include the following sub links:

### George Washington Boulevard to Sydney Pond via power line and private property

There are two options for connecting Sydney Pond to George Washington Boulevard. The existing connection would follow Rockland Street to the intersection of George Washington Boulevard. There is no existing sidewalk along Rockland Street so link users should use caution.

The alternative requires authorization from Weymouth Light and Power Company and private landowners. This alternative link would provide with natural views of the Weir River by providing access along the existing National Grid access road. The Town should continue to negotiate such access with National Grid. In addition, Hingham should continue conversation regarding public access with the property owner who owns several parcels which could serve as a link to George Washington Boulevard along the northern limits of the Weir River and the south western limits of the Weir River Estuary. All of these properties are with the Weir River Area of Critical Concern, thus, construction of any access would require additional reviews. Depending on the proximity to the Weir River and its surrounding wetlands, construction of a new path may also trigger additional environmental reviews.

### Sydney Pond to Foundry Pond

The Hingham Master Plan recommended an assessment to determine the feasibility of connecting the eastern and western portions of the Foundry Pond Trail System. Options that connect the western and eastern portions of the Foundry Pond Trail system are discussed in this plan. These include a bridge spanning the spillway abutments or a boardwalk through the wetlands located to the north of such spillway and along the riverbanks of the Weir River. These options would require environmental permitting including the possibility of a Massachusetts Environmental Protection Act (MEPA) filing due to the areas Critical Environmental Concern (ACEC) status. In addition, spanning the spillway would require engineering review to ensure that a bridge and its footings would not decrease the integrity of the existing spillway, abutments and retaining walls. Geotech borings are also recommended for these options. BSC has prepared some preliminary design and costs for the implementation of these recommendations. The construction costs do not include those pertaining to environmental, geotech or structural review or labor. These preliminary designs are included in Appendix D. Consideration should also be given to the Town's efforts to remove the dam.

Ultimately, these options would link to Kilby Street which provides a link to the southernmost trails at Sydney Pond via a dirt path (prior location of a rail bed) located behind 142 Kilby Street. This dirt path is located on private property, thus, landowner permission should be obtained prior to promoting it as a link access between Foundry Pond and Sydney pond. In the alternative, a link exists continuing on Kilby Street and bearing west on Rockland Street until reaching the entrance to Sydney Pond. Caution should be used on Rockland Street as there is no sidewalk and a very narrow road shoulder. The Town should consider adding a sidewalk along Rockland Street.

Foundry Pond to Wompatuck State Park via Whitney and Thayer Woods, the Glastonbury Abbey and Side Hill Road

Existing trails along the eastern section of Foundry Pond currently connect to the existing trail network at the Glastonbury Abbey. This link is possible through the abandoned Weir Street extension that partly runs parallel to the MBTA train tracks. . The Glastonbury Abbey trails connect to the parking areas by the Abbey and the conference center which are proximate to Hull Street. The link would continue along the Hull Street sidewalk and across the existing pedestrian access over the MBTA train tracks. An additional pedestrian crosswalk is recommended to link the sidewalk along Hull Street to Side Hill Road. Side Hill Road is a very narrow dirt road used primarily for residential access. Pedestrians should use caution. An additional pedestrian cross walk is recommended at the intersection of Side Hill Road and Justice Cushing Highway to aid people in accessing the northern entrance to Whitney and Thayer Woods. The trails at Thayer Woods connect with the trails at Wompatuck State Park.

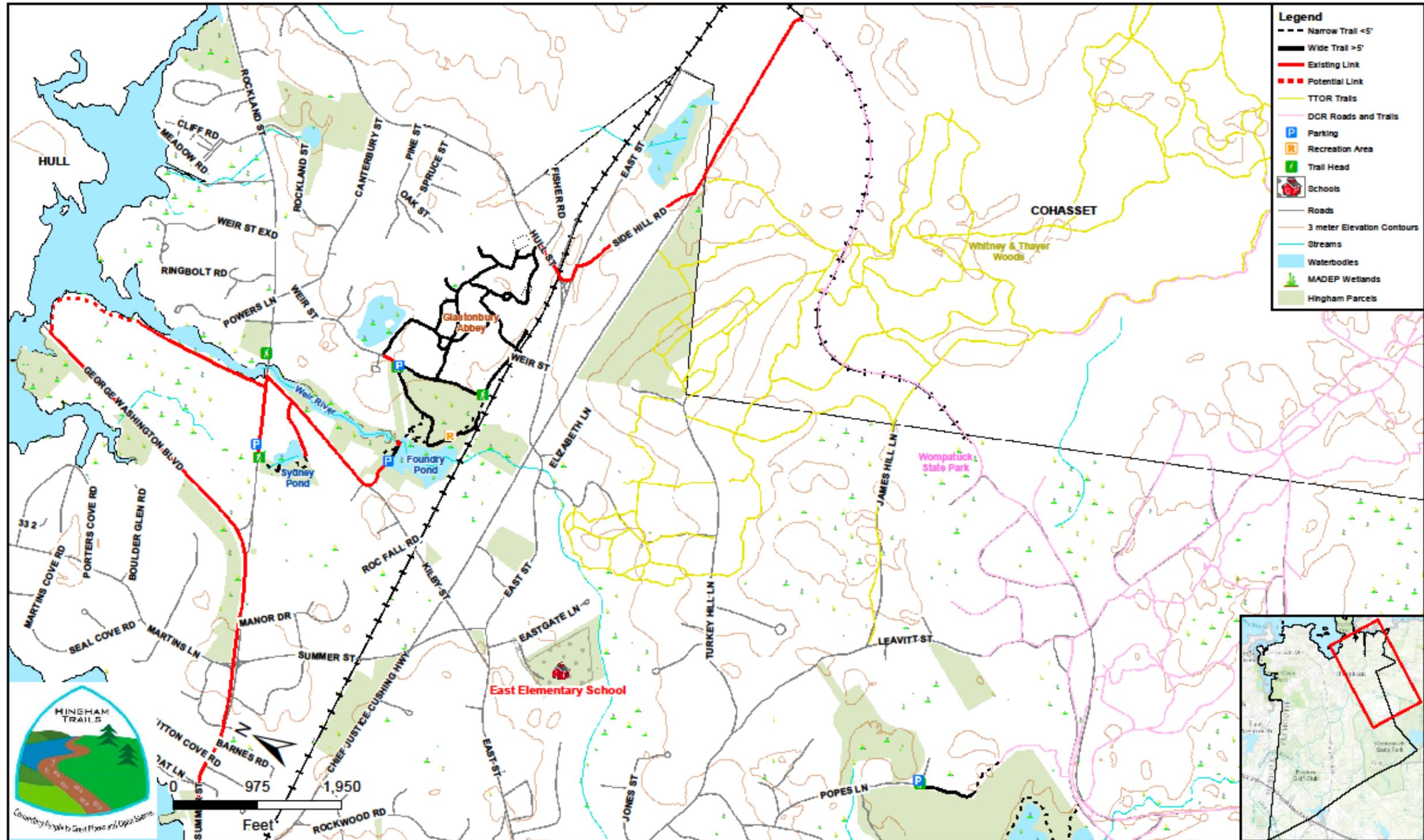
Mountain biking is permitted in designated areas of Whitney and Thayer Woods as well as Wompatuck State Park. However, the Glastonbury Abbey trails do not afford access to such use. However, a connection between Foundry Pond and Hull Street may exist following the paved access road that runs parallel to the MBTA train tracks.

**Wompatuck State Park to George Washington Boulevard**

<b>Prioritization Matrix</b>	Factor	Attributed Points	Foundry Pond to Wompatuck State Forest (Existing via TTOR, Glastonbury Abbey)	Foundry Pond to Sydney Pond (via spillway crossing/boardwalk)	Sydney Pond to GW Boulevard via Power Line	Sydney Pond to GW Boulevard via Rockland Street (existing)
<b>Functionality</b>	Recreation	1	1	1	1	1
	Commuting	1	1	1	1	1
	Schools	1	0	0	0	0
<b>Multimodal Use Potential</b>	Yes	1	1	1	1	1
	No	0				
<b>Accessibility</b>	Yes	1	0	0	0	1
	No	0				
<b>Expected Cost (construction)</b>	Low	3	3	1	2	3
	Medium	2				
	High	1				
<b>Expected Cost (permitting)</b>	Low	3	3	1	2	3
	Medium	2				
	High	1				
<b>Environmental Sensitivity</b>	Low	3	2	1	2	3
	Medium	2				
	High	1				
<b>Future Maintenance Needs</b>	Low	3	2	2	2	2
	Medium	2				
	High	1				
<b>Public Support</b>	Low	1	3	3	2	2
	Medium	2				
	High	3				
<b>Consistency With Open Space Plan and/or another Project</b>	Low	1	3	3	3	3
	Medium	2				
	High	3				
	<b>Total High Score per sub segment</b>		19	14	16	20
		<b>23</b>	<b>92</b>	69	<b>95.83%</b>	



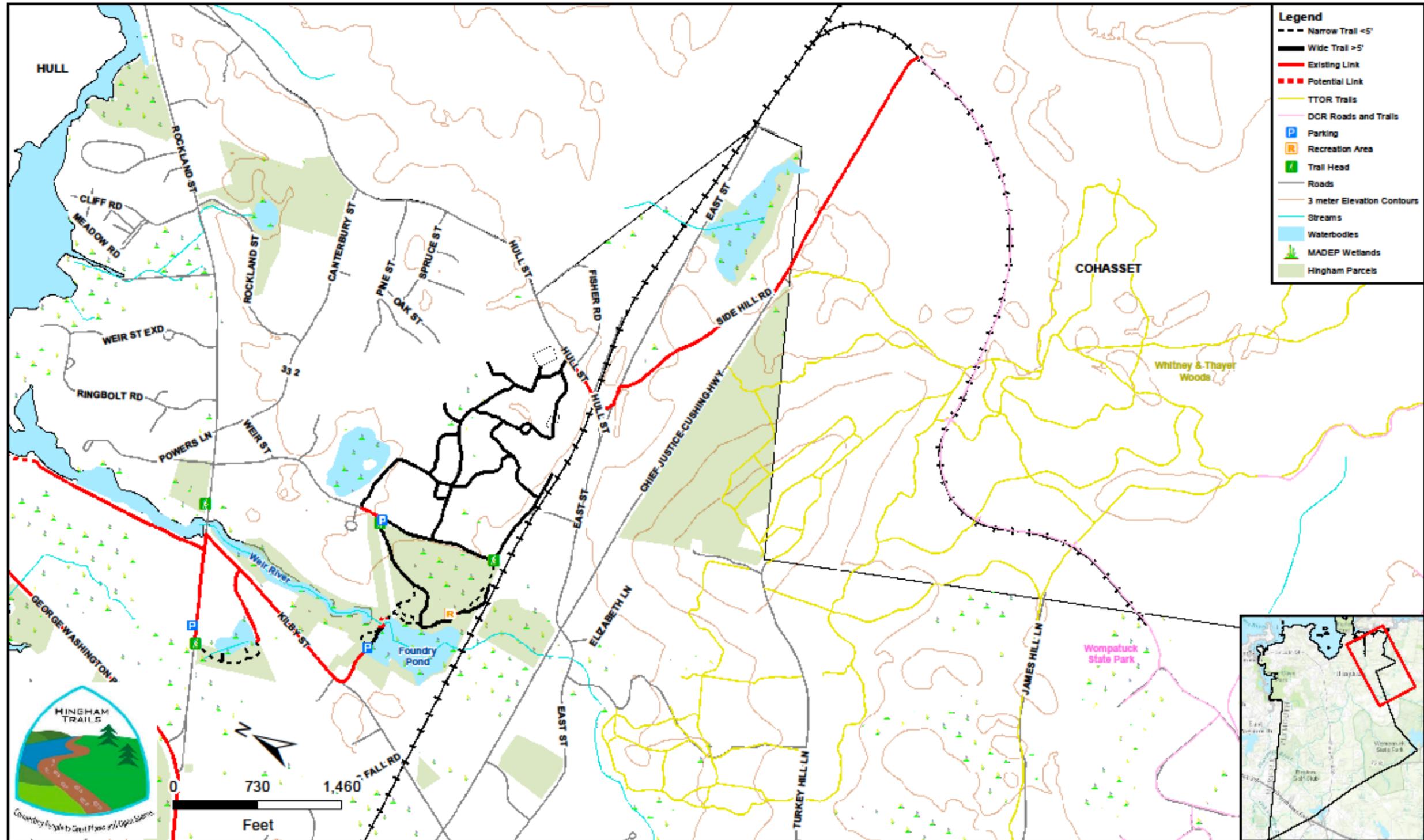
# GEORGE WASHINGTON BOULEVARD TO WOMPATUCK STATE PARK LINK



Source: MassGIS Basemap & Environmental Data. Field Delineated Data by BSC Group, Inc. Routes along Public Ways are approximate.

# GEORGE WASHINGTON BOULEVARD TO WOMPATUCK STATE PARK LINK

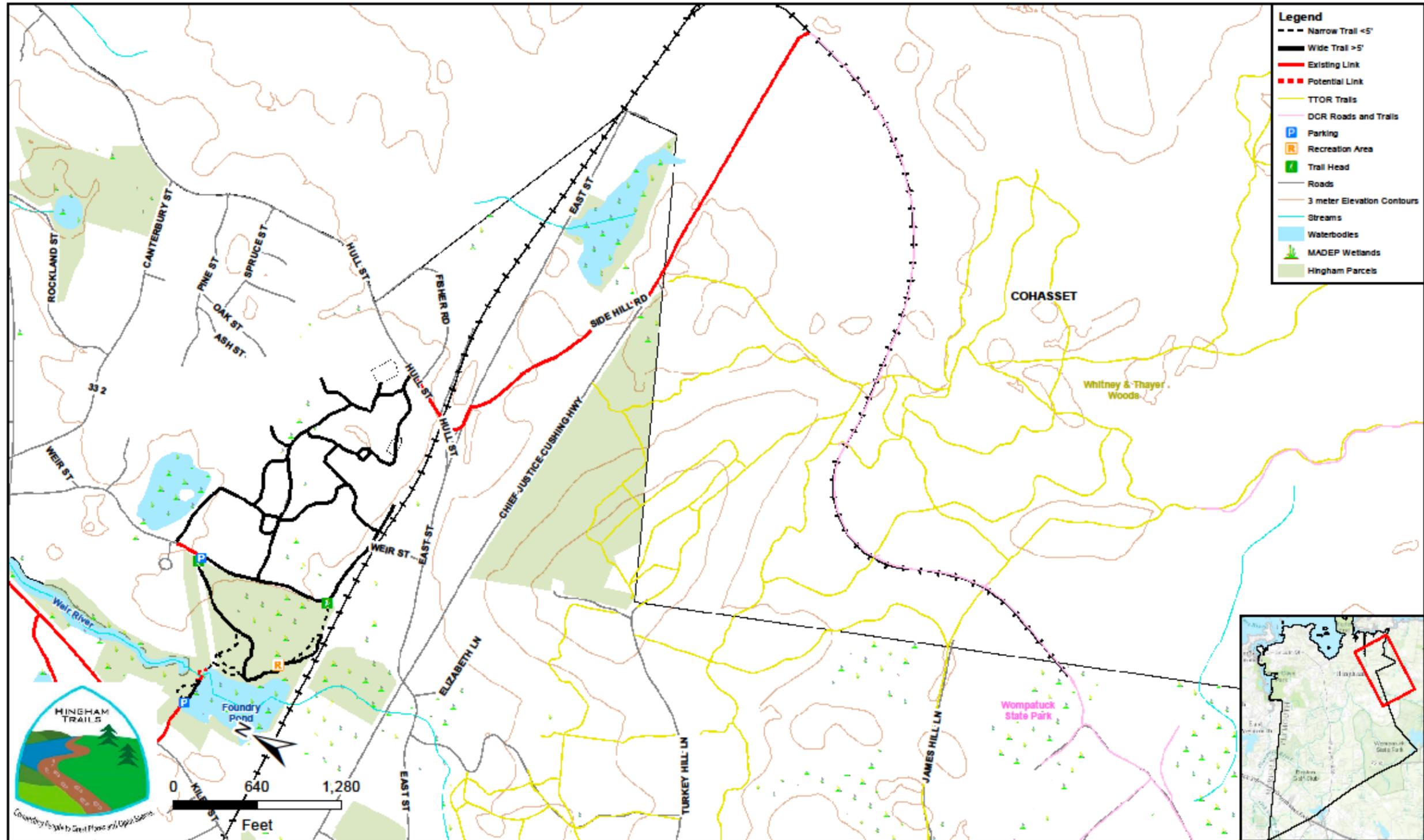
## FOUNDRY POND TO WOMPATUCK STATE PARK



Source: MassGIS Basemap & Environmental Data. Field Delineated Data by BSC Group, Inc. Routes along Public Ways are approximate.

# GEORGE WASHINGTON BOULEVARD TO WOMPATUCK STATE PARK LINK

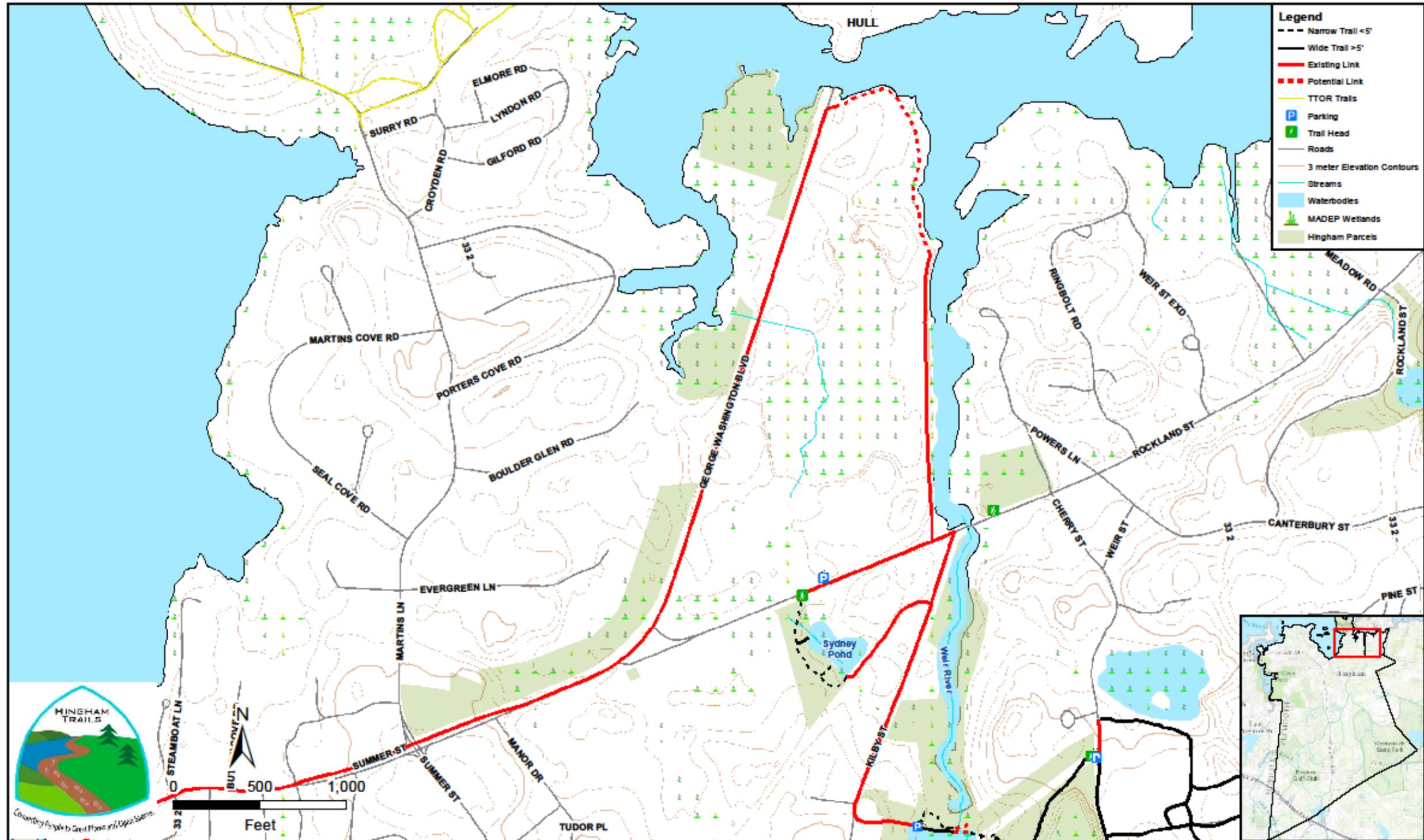
## FOUNDRY POND TO WOMPATUCK STATE PARK



Source: MassGIS Basemap & Environmental Data. Field Delineated Data by BSC Group, Inc. Routes along Public Ways are approximate.

# GEORGE WASHINGTON BOULEVARD TO WOMPATUCK STATE PARK LINK

## GEORGE WASHINGTON BOULEVARD TO SYDNEY POND



Source: MassGIS Basemap & Environmental Data. Field Delineated Data by BSC Group, Inc. Routes along Public Ways are approximate.

## Plymouth River Complex to Bare Cove Park Link

There is a great desire to connect Bare Cove Park to the Plymouth River Complex, particularly by those looking to commute between the areas for recreation and school. The following sublinks are recommended as part of the link between the Complex and Bare Cove Park.

### Plymouth River Complex to Brewer Park

This connection exists using a combination of trails and roads. Specifically, there is one trail in Brewer Park that exits at High Street, west of Carleton Road. There another trail that exits onto White Horse Road connects to Hemlock Road and High Street. Schirmer Road provides access to the trails south of the Plymouth River School that are part of the Plymouth River Complex. Schirmer Road intersects with High Street. High Street provides for sidewalks along the northern and southern perimeter. A pedestrian crosswalk is also present on High Street where it intersects with Schirmer Road. A sidewalk is present along the eastern edge of Schirmer Road which provides access to the Plymouth River School and parking area.

### Brewer to More- Brewer Park

Trail crossing signs and pedestrian striping is recommended at Hobart Street between the More Brewer Park parking area and the access to Brewer Park to the south of this parking area. This trail link exists and is in use. Pedestrian striping on the road and trail crossing signs would provide for a higher visibility of such connection and safer access for hikers.

### Brewer to Cranberry Pond

A connection between Cranberry Pond and Brewer Park currently exists along Hingham Transfer Station's maintenance road. This road connects to existing trails leading to Ridgewood Crossing and Brewer Park. A stream crossing structure is required in order to provide safe and sustainable access across a stream from Cranberry Pond and into the north west corner of the transfer station's maintenance road. Currently, trail users have accumulated logs and branches to access over the stream. The span is approximately 8-10' long. A simple trail bridge made of natural timbers and decking would provide both safe and sustainable access across the stream and into the transfer station area.

### Cranberry Pond to Bare Cove Park via French

A connection between Cranberry Pond and Bare Cove Park currently exists along French Street, Fresh River Ave and Clifford Street. If the Town makes this an official link, users should use caution along French Street. This street has narrow sections, particularly where it crosses the stream south of the railroad tracks and the tracks themselves. There is enough room on the shoulders of French Street to maintain a mowed path except at immediate approaches to and along the bridge. Trail or pedestrian crossing signs are also recommended at the intersections of French Street and Fresh River Ave.

### More Brewer Park to Bare Cove Park via French

A connection between More Brewer Park and Bare Cove Park currently exists via trails that connect from More Brewer Park to Old Hobart and Hobart Streets. Hobart Street intersects with French Street which crosses over the railroad tracks heading north and intersects with Fresh River Ave. Following Fresh River Ave to the east along the northern sidewalk, Fresh River Ave intersects with Clifford Street which provides a secondary access point to Bare Cove Park. If the Town makes this an official link, users should use caution along French Street. This street is narrow at times particularly where it crosses the stream south of the railroad tracks and the tracks themselves. There is enough room on the shoulders of French Street to

maintain a mowed path except at immediate approaches to and along the bridge. Trail or pedestrian crossing signs are also recommended at the intersections of French Street and Fresh River Ave.

Alternative access between More Brewer Park and Fresh River Ave could also potentially be achieved along Old Hobart Street in a north east direction (not shown on the links map). Further investigation including easement and other property research is required to assess this potential link. Notwithstanding, the issue of safe access along the approaches to and the bridge crossing is still present.

Another alternative (shown on the link map with an approximate location) would entail building a new trail link along the northern perimeter of More Brewer Park exiting at the railroad's pipe gate off of French Street. This would avoid the need to cross the French Street bridge. Further investigation is also required for this link. The northern section of More Brewer Park has an extensive network of wetlands that should be avoided if possible. Understanding the limits of the railroad right of way and keeping the trail as close as possible to these limits may provide enough space to delineate and establish a 3' trail that would provide with such link.

#### More Brewer Park to Bare Cove Park via South Shore Country Club

A connection between the South Shore Country Club and Bare Cove Park would involve the use of the golf course cart paths along the northeast edge of the golfcourse (hole #9), an existing golf course maintenance road (between holes #6 and #8), and town sidewalks and crosswalk. Specifically, a connection would be established between Brewer Park and the South Shore Country Club maintenance road across Newbridge Street. Road crossing sign and striping is recommended in this area. Individuals would follow the maintenance road heading north until they approach holes #6 and #5 where they would follow the cart path along the western edge of hole #5 in the direction of the maintenance shed. This part directs you to the maintenance shed parking area which connects to the country club's driveway and South Street. There is a cross walk at this intersection where the link would follow along the northern side of South Street into Fort Hill Street and turn into Bare Cove Park Drive to access the park's recreational fields and trails.

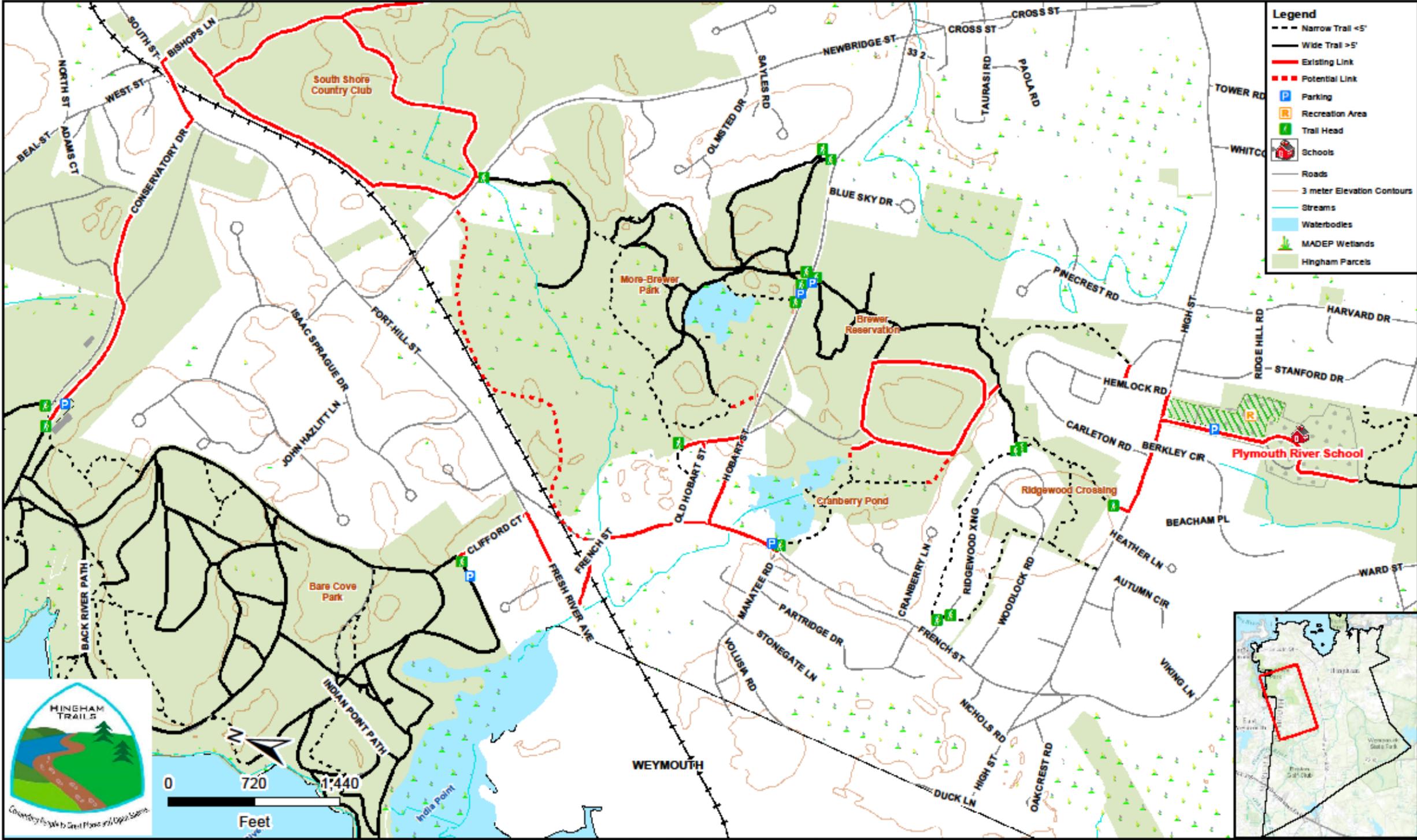
All of these pathways are existing. Small amount of maintenance may be required along the maintenance road due to water ponding.

Golfcourse cart paths have been used in other towns to provide connections between trails. For example, the Ponkapoag Golf Course in Canton provides its cart paths as connections to the Ponkapoag section of the Blue Hills Reservation. Recreational uses at these location include horseback riding, and hiking/nature viewing. Mountain biking is allowed along the golf course's perimeter cart path. Informational signs at trail/golf cart path intersections provide for cart path use etiquette where the golfer has the right of way. Signs specifically state "Yield to Golfers," and "Notice Active Golfing Area." The town should consider similar signs to prevent any potential cart path user conflicts. The Rangers at the Blue Hills Reservation indicated that they have never had a report of accidents or conflicts between golfers and trail/cart path users.

			<b>Bare Cove Park to Plymouth River Complex</b>				
<b>Prioritization Matrix</b>	Factor	Attributed Points	More Brewer to Bare Cove Via French Street (existing)	More Brewer to Bare Cove Via South Shore Country Club	Cranberry Pond to Brewer/ Ridgewood Crossing	Cranberry Pond to More Brewer	Plymouth River Complex to Brewer via Ridgewood Crossing via (existing)
<b>Functionality</b>	Recreation	1	1	1	1	1	1
	Commuting	1	1	1	1	1	1
	Schools	1	0	0	0	0	1
<b>Multimodal Use Potential</b>	Yes	1	1	0	1	1	1
	No	0					
<b>Accessibility</b>	Yes	1	0	0	0	0	0
	No	0					
<b>Expected Cost (construction)</b>	Low	3	3	3	2	2	3
	Medium	2					
	High	1					
<b>Expected Cost (permitting)</b>	Low	3	3	3	2	2	3
	Medium	2					
	High	1					
<b>Environmental Sensitivity</b>	Low	3	3	3	2	2	3
	Medium	2					
	High	1					
<b>Future Maintenance Needs</b>	Low	3	2	2	2	2	3
	Medium	2					
	High	1					
<b>Public Support</b>	Low	1	2	2	3	3	3
	Medium	2					
	High	3					
<b>Consistency With Open Space Plan and/or another Project</b>	Low	1	2	2	3	3	3
	Medium	2					
	High	3					
	<b>Total High Score per sub segment</b>	<b>23</b>	18	17	17	17	22
			<b>Total</b> 115	91 <b>79.13%</b>			



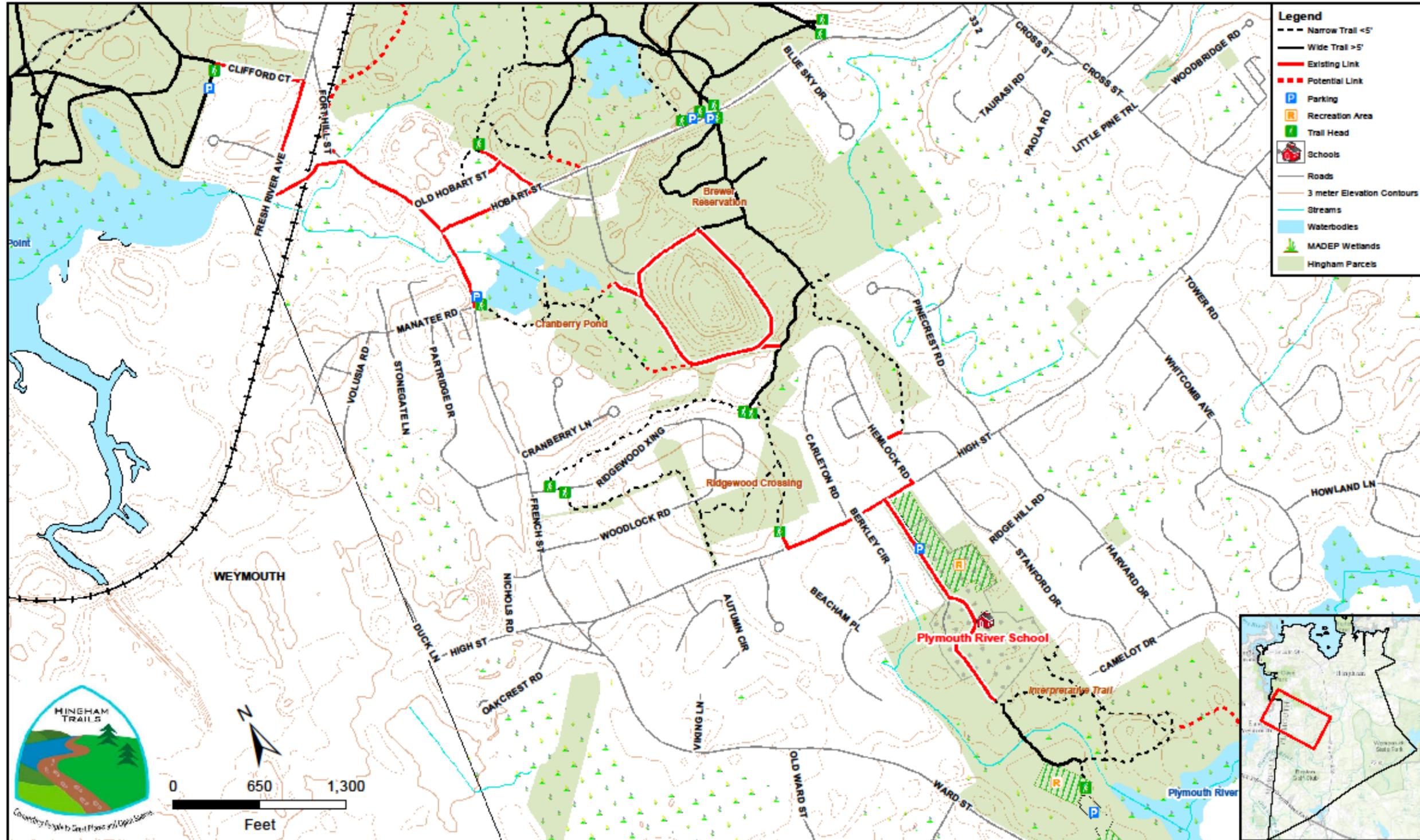
# PLYMOUTH RIVER COMPLEX TO BARE COVE PARK LINK



Source: MassGIS Basemap & Environmental Data. Field Delineated Data by BSC Group, Inc. Routes along Public Ways are approximate.

# PLYMOUTH RIVER COMPLEX TO BARE COVE PARK LINK

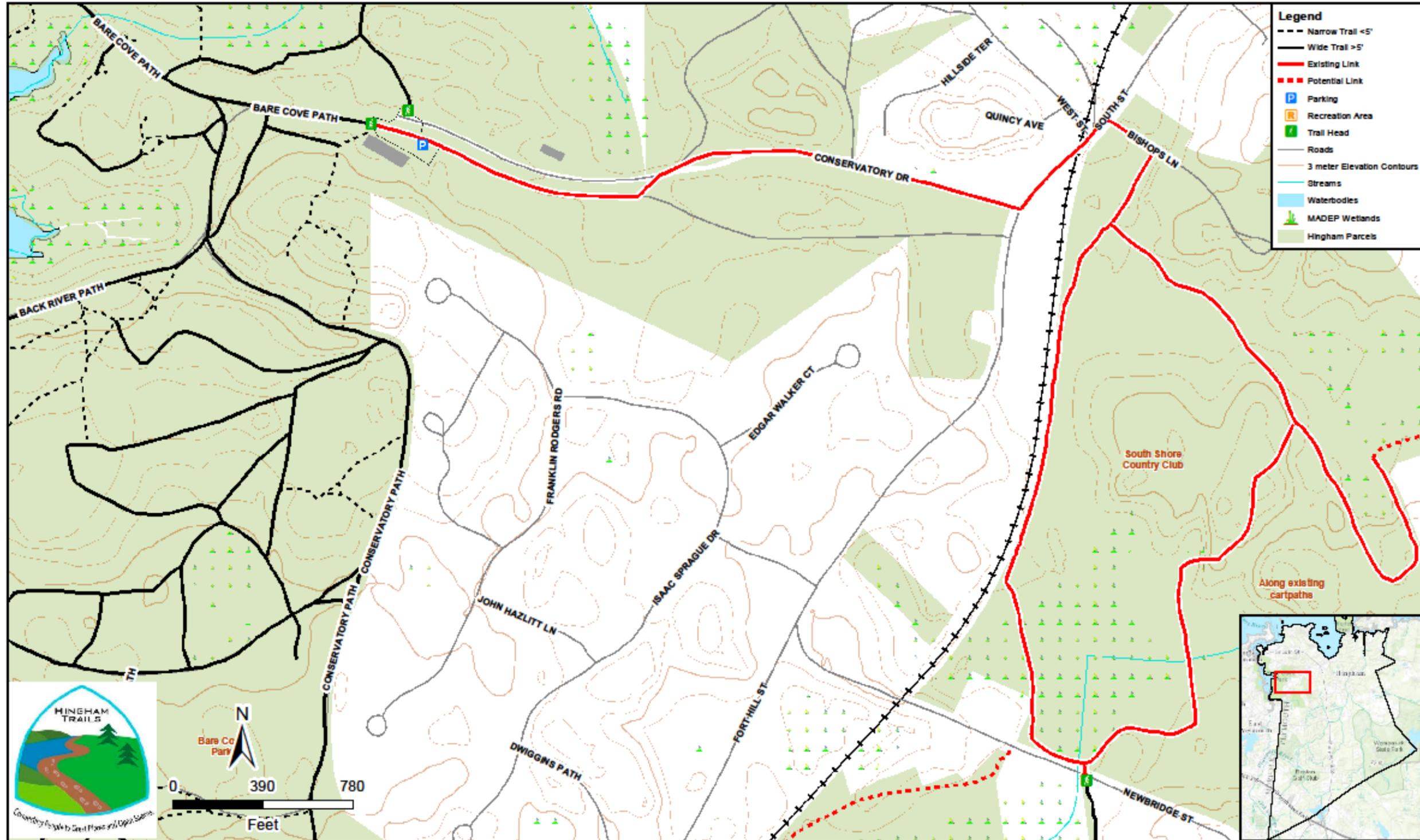
## PLYMOUTH RIVER COMPLEX TO BREWER RESERVATION



Source: MassGIS Basemap & Environmental Data. Field Delineated Data by BSC Group, Inc. Routes along Public Ways are approximate.

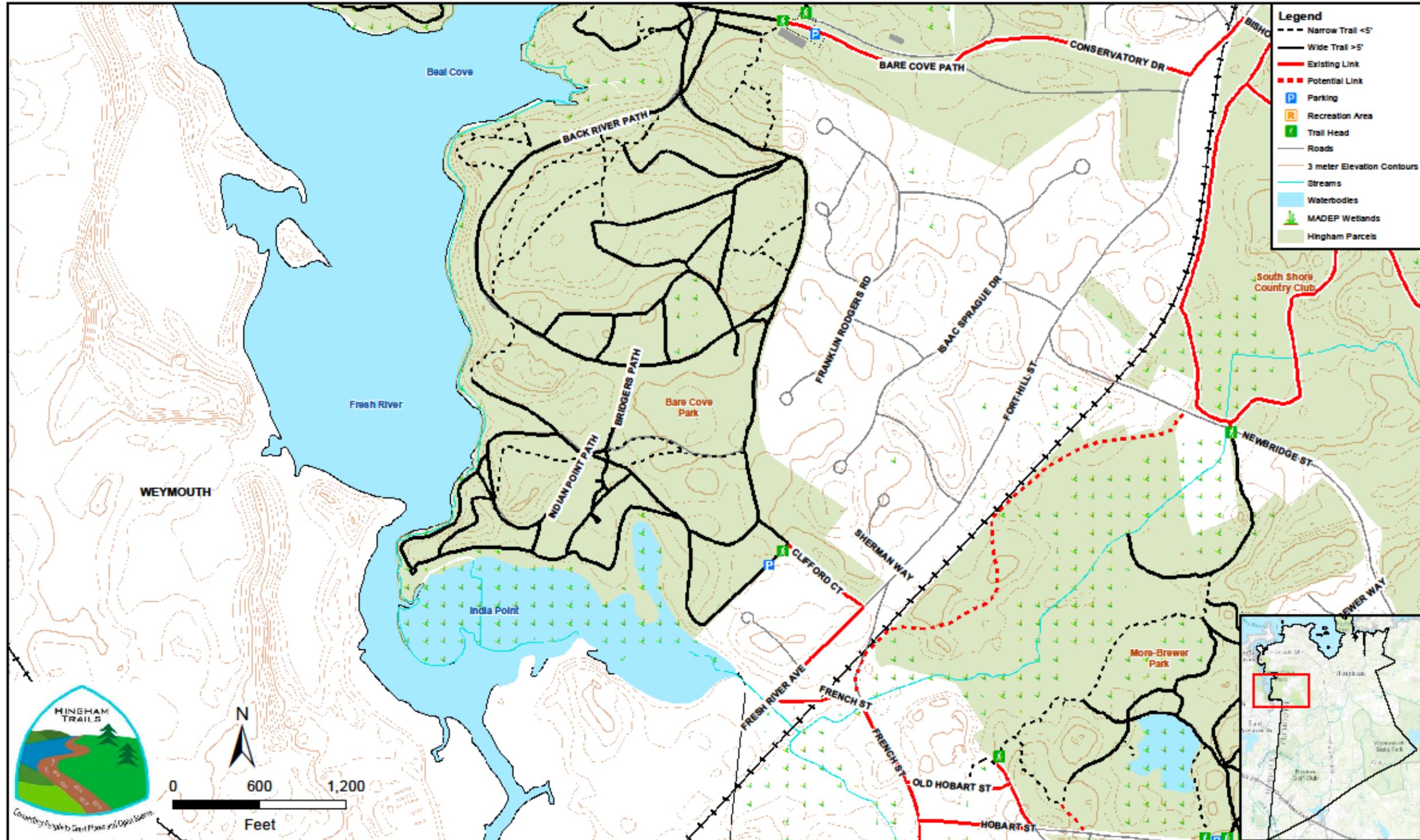
# PLYMOUTH RIVER COMPLEX TO BARE COVE PARK LINK

## SOUTH SHORE COUNTRY CLUB TO BARE COVE PARK



Source: MassGIS Basemap & Environmental Data. Field Delineated Data by BSC Group, Inc. Routes along Public Ways are approximate.

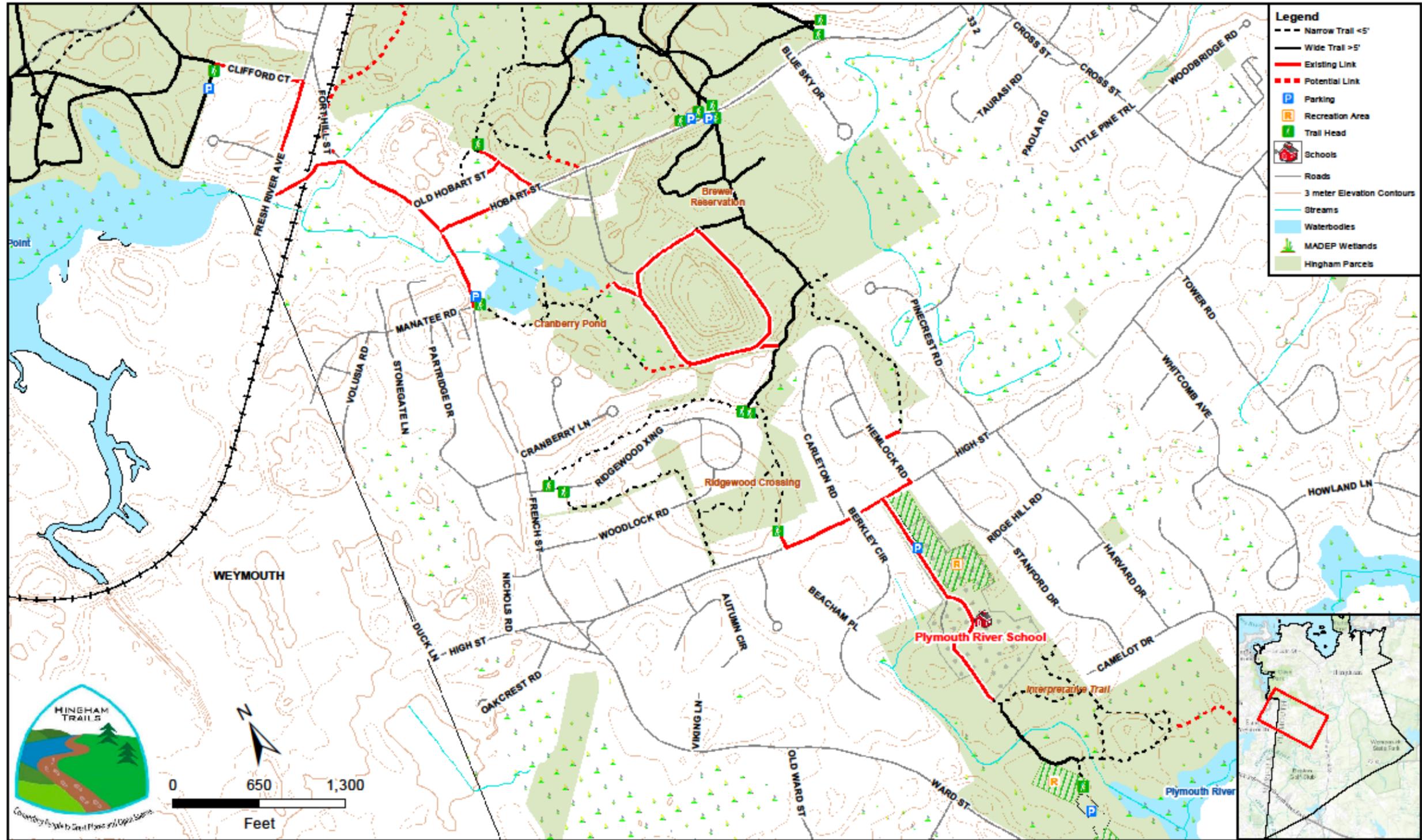
# PLYMOUTH RIVER COMPLEX TO BARE COVE PARK LINK MORE-BREWER PARK TO BARE COVE PARK



Source: MassGIS Basemap & Environmental Data. Field Delineated Data by BSC Group, Inc. Routes along Public Ways are approximate.

# PLYMOUTH RIVER COMPLEX TO BARE COVE PARK LINK

## PLYMOUTH RIVER COMPLEX TO BREWER RESERVATION



Source: MassGIS Basemap & Environmental Data. Field Delineated Data by BSC Group, Inc. Routes along Public Ways are approximate.



## **Triphammer to Bare Cove Park Link via High School/Merrymount Conservation Area, Hingham Town Hall, Burns Memorial and the South Shore Country Club**

This link is of particular importance as it traverses a large portion of the Town of Hingham. The link would provide access between recreational facilities, schools and local commercial areas.

### Triphammer Pond to Hingham High School

The town manages several parcels of land to the east of the high school, along Union Street. One of the parcels includes a driving range while the other, closer to Triphammer Pond is maintained for agricultural purposes. These parcels could provide natural surface mowed paths that provide a connection to the Triphammer Pond Hingham Parcels. An existing trail from the remains of the Triphammer mill building travels northwest along the fenced property line to a dirt road about 100' north of the driving range. This path continues along the northwest side of the driving range to the parking lot and Union Street. This path connects to the high school grounds along a sidewalk on the west side of Union Street.

### High School to Town Hall via Aquarion property and Haley Field

The link between Town Hall and Hingham High School currently exists through informal paths along the edges of the recreational fields at the previous Central Jr. High School and Haley Complex, along Pleasant street sidewalks, down Downing Street and through an existing forest path that extends from Downing Street and into the High School's Recreational area between the football field/track and the soccer fields. The Aquarion path is located through a pipe gate between 44 and 50 Downing Street. The path consists of a wide forest road with a gravel surface. Permission for public access along this path would be required. The path ends at an Aquarion building but then connects via an informal and wide natural surface path to the High School's soccer fields. Environmental permitting would not be required for this link unless a more formal path is proposed between the Aquarion building and the High School soccer fields, as there are wetlands present in the area.

An alternate route for linking the High School to Haley Field is available through the existing sidewalks along Pleasant, Pond and Main Street. Access to Hailey would occur along the paved Main Street fire station entrance.

### Town Hall to Burns Memorial

A trail link between Town Hall and Burns Memorial would entail the establishment of a new natural surface path with potential for wetland crossing structures or discussions with the Central street abutters to allow for public access as a connection between the Burns Memorial and Central Street. A connection would continue along the existing sidewalk along the eastern boundary of Central Street.

Additional field investigation is required to determine the location of a potential new trail connection from Burns Memorial to Central Street. According to MassGIS there is an upland area where this trail could be established, however, most of the southeastern portions of the Burn Memorial parcel is a wetland. Thus, wetland crossing structures such as boardwalks or bog bridges would be required to make the final connection to Central Street. See Appendix B for wetland area crossing structures design. Installation of such structure would require environmental review through the Conservation Commission and may also require Federal Army Corps of Engineer review depending on the amount of wetland disturbance.

As an alternative, the Town could work with those abutters between the eastern boundary of Burns Memorial and Central Street. An arrangement for public access could be made with an abutting property owner to establish a link between Burns Memorial and Central Street.

Finally, a cross walk the intersection of the link trail between Burns Memorial and the sidewalk along the eastern edge of Central Street should be considered to allow for safe access. Linking Burns Memorial to Town Hall would serve both for recreation and commuting. Interpretative signs including those explaining the historic significance of Burns Memorial and its tranquility grove could also be considered along this path.

#### Burns Memorial to South Shore Country Club via Town of Hingham Hersey Street DPW Facility

A trail link between Burns Memorial and the South Shore Country Club would entail the establishment of a natural surface path or trail behind the Town's Hersey Street DPW facility located at 101 Hersey Street. According to the MassGIS wetland overlay, this area is an upland, thus, providing more freedom in delineating its location. For the purpose of this plan, BSC Group has suggested a trail alignment that follows the southern perimeter of the DPW property and connects to the golf course path located to the south west of the practice area (as designated in the course details map provided on the South Shore Country Club Website) and along the southern and eastern perimeter of hole 18.

#### Burns Memorial to South Shore Country Club via St. James Cemetery

A link between Burns Memorial and the South Shore Country Club currently exists along Hersey Street and through the St. James Cemetery. There is a small trail access off of the north east corner of the cemetery that connects to the South Shore Country Club. If allowed, this could serve as a link between Burns Memorial and the South Shore Country Club. Users must note that dogs are not allowed at the St. James Cemetery.

#### South Shore Country Club to Bare Cove Park

A connection between the South Shore Country Club and Bare Cove Park is proposed using the golf course cart paths and town sidewalks and crosswalks. Golfcourse cart paths have been used in other towns to provide connections between trails. For example, the Ponkapoag Golf Course in Canton provides its cart paths as connections to the Ponkapoag section of the Blue Hills Reservation. Recreational uses at these location include horseback riding, and hiking/nature viewing. Mountain biking is allowed along the golf course's perimeter cart path. Informational signs at trail/golf cart path intersections provide for cart path use etiquette where the golfer has the right of way. Signs specifically state "Yield to Golfers," and " Notice Active Golfing Area." The town should consider similar signs to prevent any potential cart path user conflicts. The Rangers at the Blue Hills Reservation indicated that they have never had a report of accidents or conflicts between golfers and trail/cart path users.

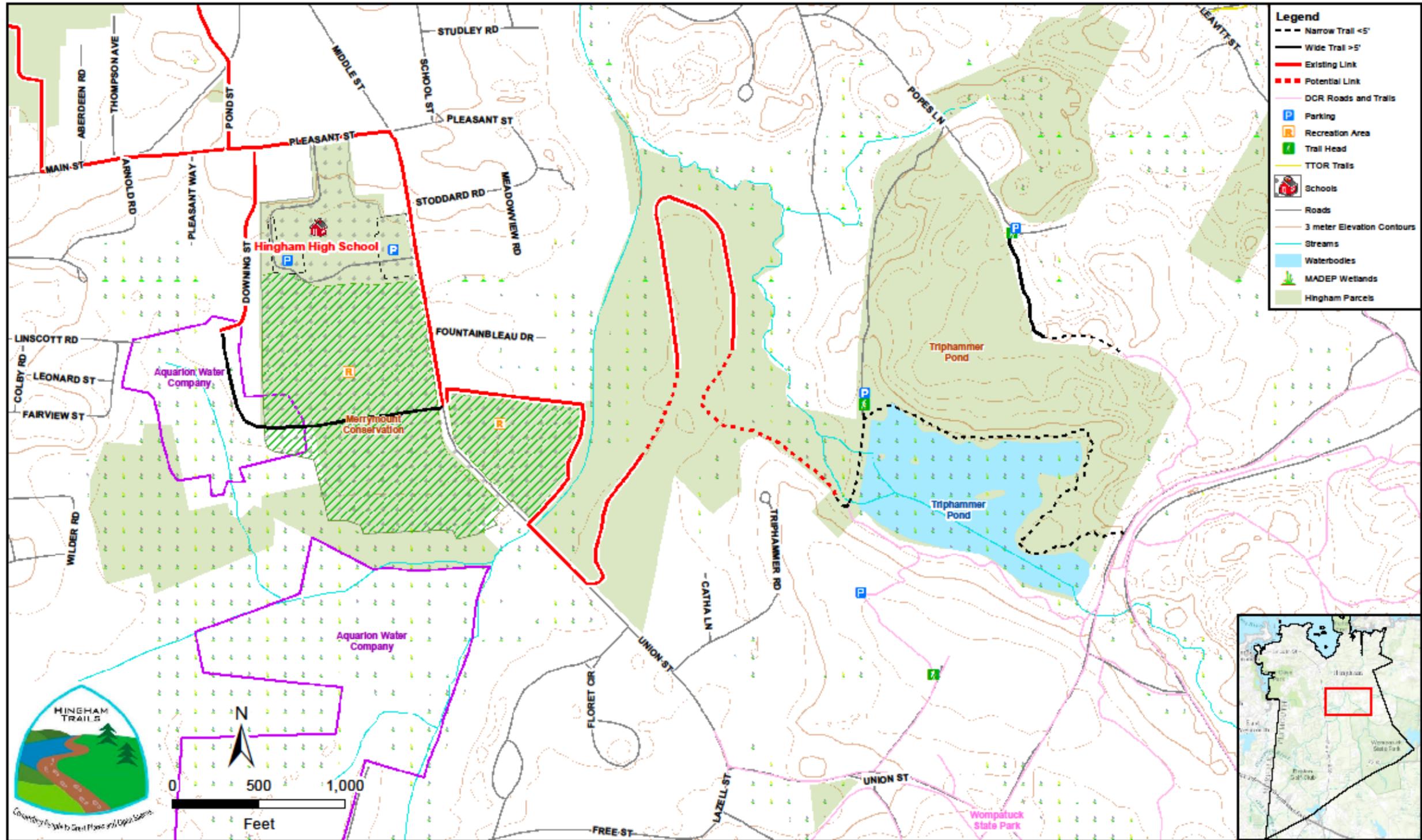
			<b>Triphammer Pond to Bare Cove Park via High School and Burns Memorial</b>					
<b>Prioritization Matrix</b>	Factor	Attributed Points	Triphammer Pond to Merrymount Conservation Land (High School)	High School to Town Hall via Haley Field	Town Hall to Burns Memorial	Burns Memorial to South Shore Country Club via DPW	*Burns Memorial to South Shore Country Club via St. James Cemetery	South Shore Country Club to Bare Cove Park
<b>Functionality</b>	Recreation	1	1	1	1	1	1	1
	Commuting	1	1	1	1	1	1	1
	Schools	1	1	1	0	0	0	0
<b>Multimodal Use Potential</b>	Yes	1	1	1	0	0	0	0
	No	0						
<b>Accessibility</b>	Yes	1	0	0	0	1	1	1
	No	0						
<b>Expected Cost (construction)</b>	Low	3	2	3	2	2	2	3
	Medium	2						
	High	1						
<b>Expected Cost (permitting)</b>	Low	3	2	3	1	2	3	3
	Medium	2						
	High	1						
<b>Environmental Sensitivity</b>	Low	3	2	3	2	3	3	3
	Medium	2						
	High	1						
<b>Future Maintenance Needs</b>	Low	3	2	3	2	2	3	3
	Medium	2						
	High	1						
<b>Public Support</b>	Low	1	2	2	2	2	2	3
	Medium	2						
	High	3						
<b>Consistency With Open Space Plan and/or another Project</b>	Low	1	3	3	3	3	3	3
	Medium	2						
	High	3						
	<b>Total High Score per sub segment</b>		17	21	14	17	19	21
		<b>23</b>	<b>Total</b>	Via DPW	90	<b>78.26%</b>		
				Via Cmty	92	<b>80.00%</b>		





# TRIPHAMMER POND TO BARE COVE PARK LINK

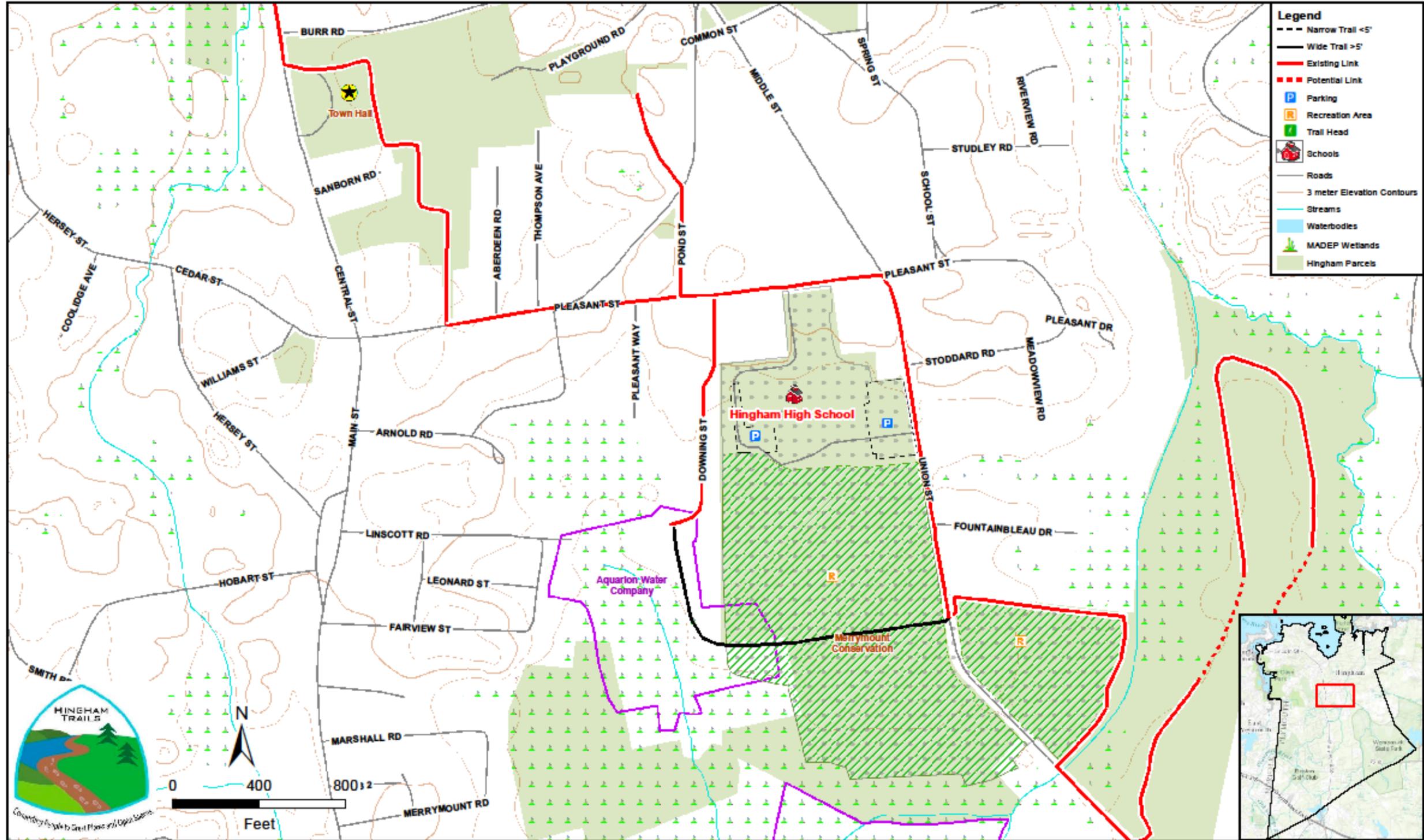
## TRIPHAMMER POND TO HINGHAM HIGH SCHOOL



Source: MassGIS Basemap & Environmental Data. Field Delineated Data by BSC Group, Inc. Routes along Public Ways are approximate.

# TRIPHAMMER POND TO BARE COVE PARK LINK

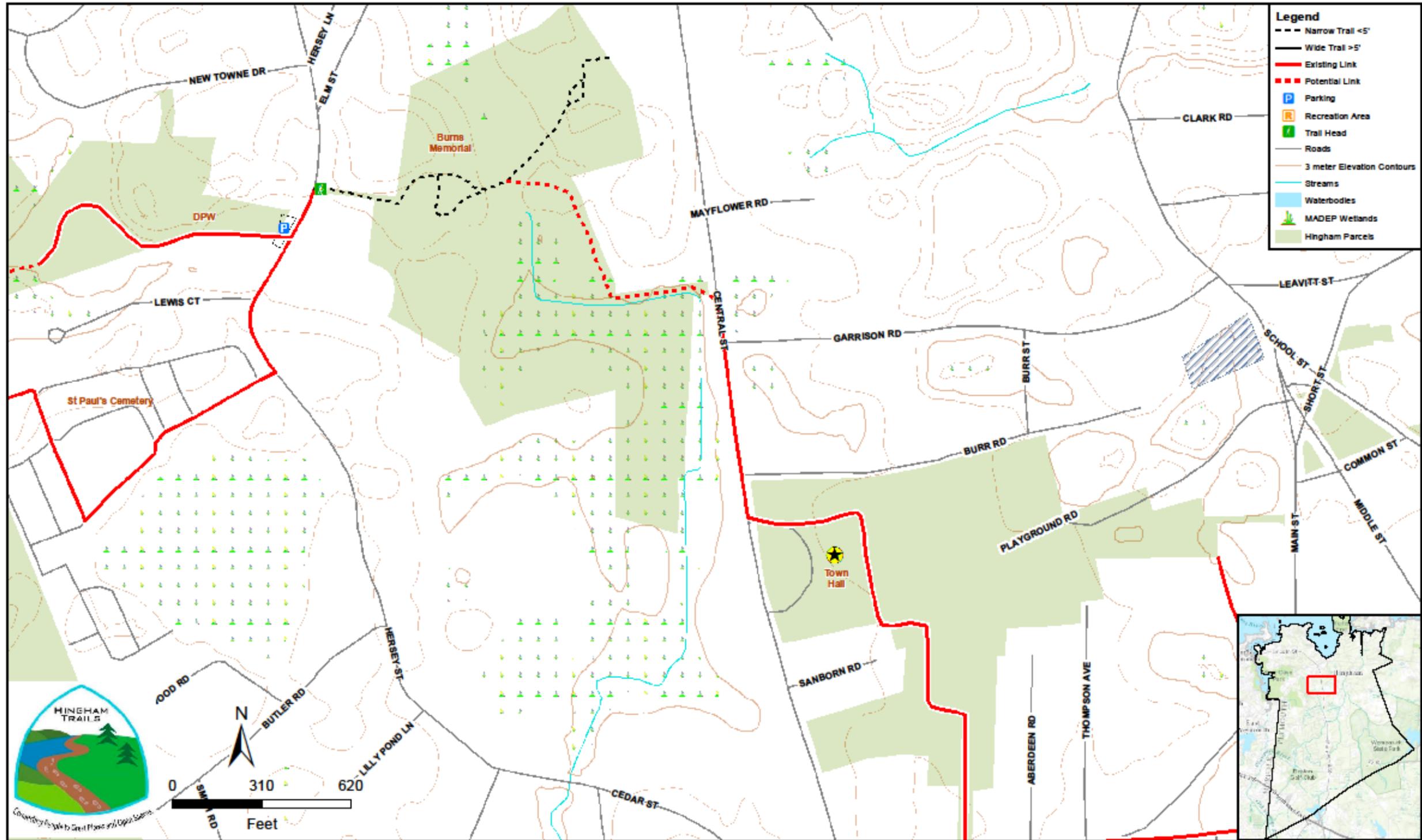
## HINGHAM HIGH SCHOOL TO TOWN HALL



Source: MassGIS Basemap & Environmental Data. Field Delineated Data by BSC Group, Inc. Routes along Public Ways are approximate.

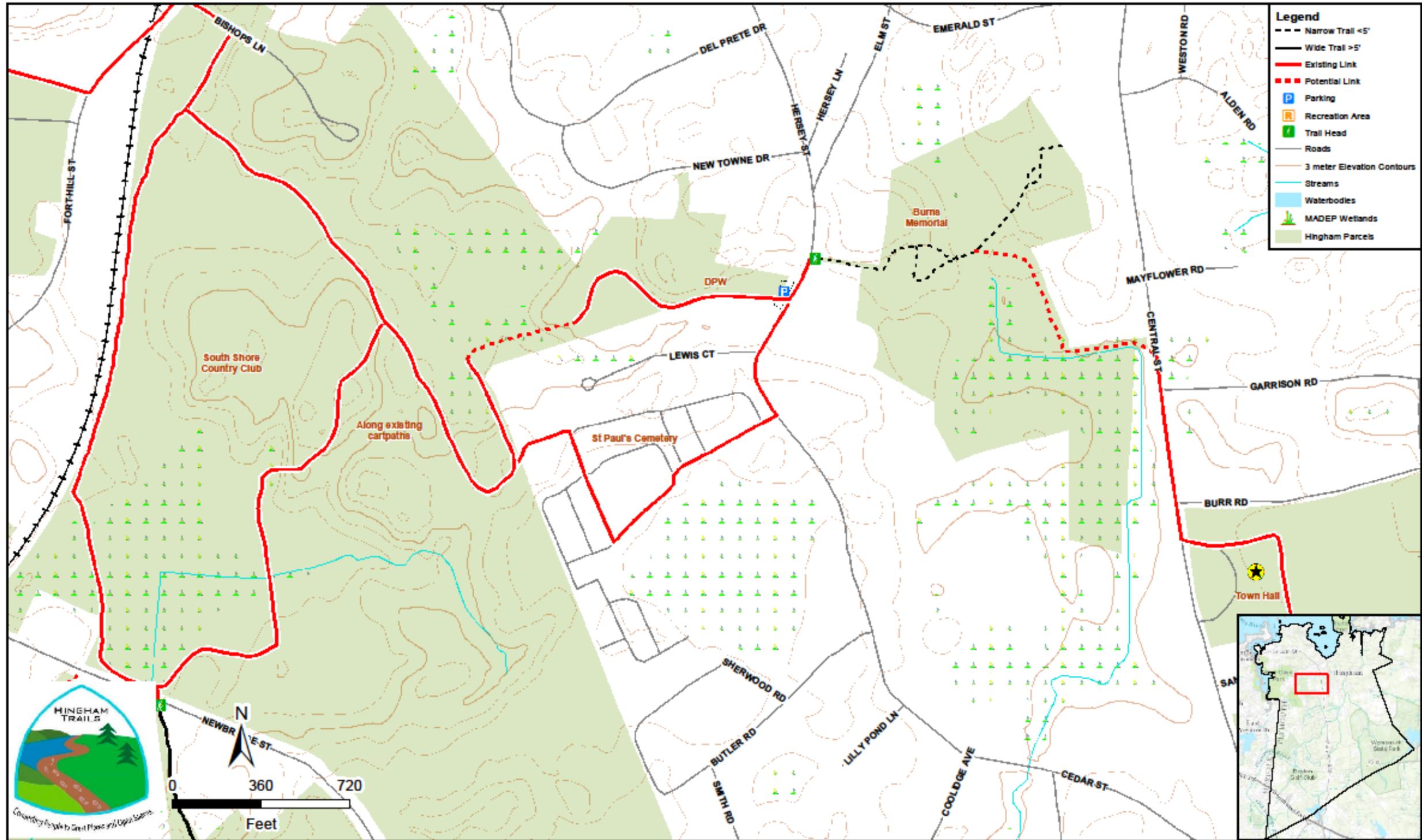
# TRIPHAMMER POND TO BARE COVE PARK LINK

## TOWN HALL TO BURNS MEMORIAL PARK



Source: MassGIS Basemap & Environmental Data. Field Delineated Data by BSC Group, Inc. Routes along Public Ways are approximate.

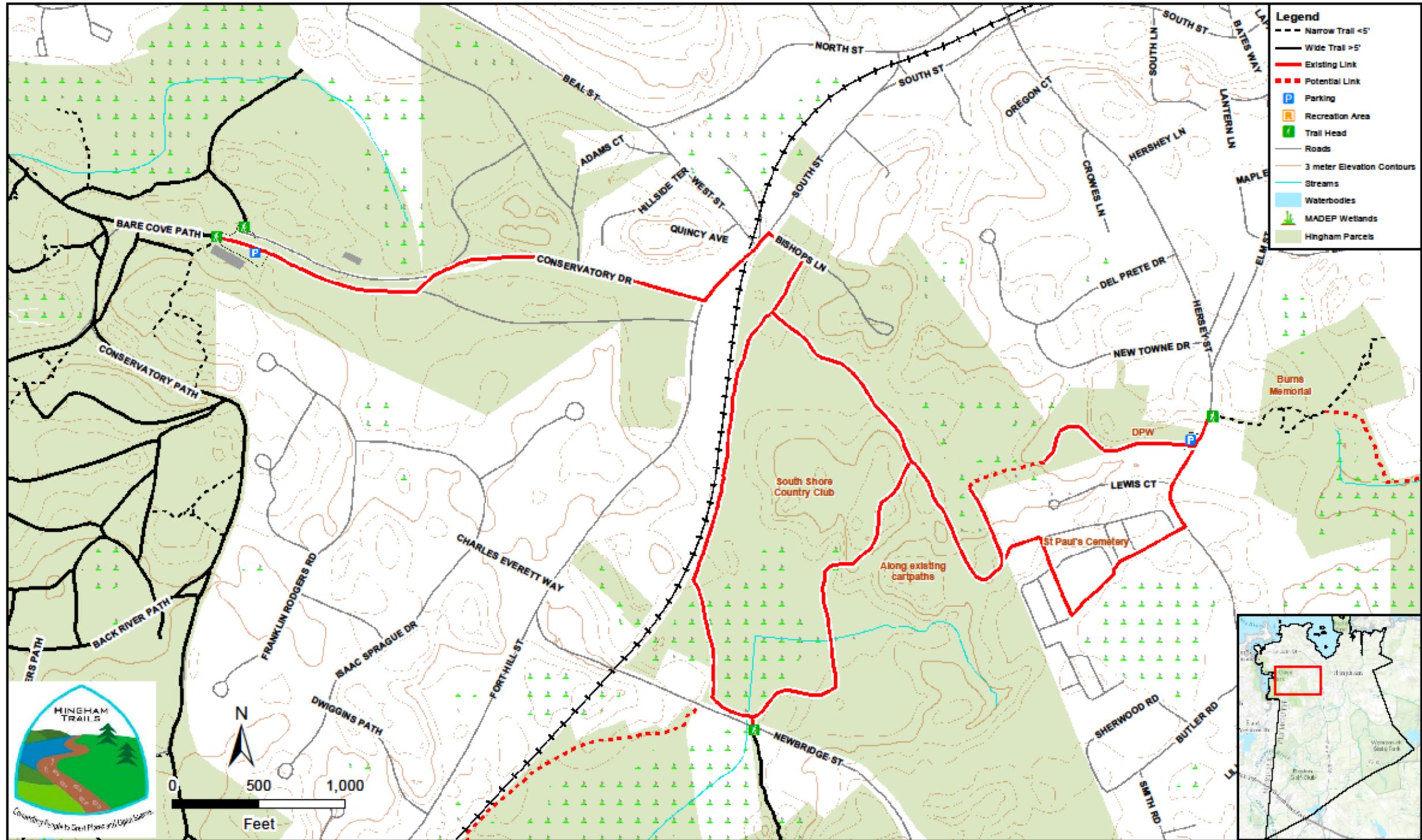
# TRIPHAMMER POND TO BARE COVE PARK LINK BURNS MEMORIAL PARK TO SOUTH SHORE COUNTRY CLUB



Source: MassGIS Basemap & Environmental Data. Field Delineated Data by BSC Group, Inc. Routes along Public Ways are approximate.

# TRIPHAMMER POND TO BARE COVE PARK LINK

## SOUTH SHORE COUNTRY CLUB TO BARE COVE PARK



Source: MassGIS Basemap & Environmental Data. Field Delineated Data by BSC Group, Inc. Routes along Public Ways are approximate.

### Eel River Woods to Plymouth River Complex Link

A connection between Eel River Woods and Plymouth River Complex would require a stream/wetland crossing. Further site assessment is needed to determine the best location for such connection. An additional alternative link between Eel River Woods and Plymouth River Complex is a trail from Eel River crossing the river from the trail nearest to Cushing Street and following the water side edge of two residential private properties (145 Cushing Street and 230 Ward Street). Upon reaching Ward Street, the trail would connect to the Plymouth River Complex along the Ward Street public way/sidewalk. Factors that should be considered in the selection of such location include extent of impacts to water resources including wetlands and streams, as impacts should be minimized and mitigated as part of the environmental permitting process. Moreover permission or easements from the private land owners would be required for the alternative link. The following can be considered as part of the alternative analysis: cost, existing technology and logistics in light of the overall project purpose.

Construction alternatives include a bridge span over the stream with boardwalk abutments or a continued boardwalk. Boardwalk piers could be constructed out of dimensional lumber, precast concrete, sono tubes or helical piers. See Appendix B for Stream Crossing Design Alternatives.

This link would provide not only additional recreational and nature viewing opportunities but also an alternative means of community access to the recreational fields within the Plymouth River Complex.

			<b>Eel River Woods to Plymouth River Complex</b>
<b>Prioritization Matrix</b>	Factor	Attributed Points	
<b>Functionality</b>	Recreation	1	1
	Commuting	1	1
	Schools	1	1
<b>Multimodal Use Potential</b>	Yes	1	0
	No	0	
<b>Accessibility</b>	Yes	1	0
	No	0	
<b>Expected Cost (construction)</b>	Low	3	2
	Medium	2	
	High	1	
<b>Expected Cost (permitting)</b>	Low	3	1
	Medium	2	
	High	1	
<b>Environmental Sensitivity</b>	Low	3	1
	Medium	2	
	High	1	
<b>Future Maintenance Needs</b>	Low	3	2
	Medium	2	
	High	1	
<b>Public Support</b>	Low	1	2
	Medium	2	
	High	3	
<b>Consistency With Open Space Plan and/or another Project</b>	Low	1	3
	Medium	2	
	High	3	
	<b>Total High Score per sub segment</b>		14
		<b>23</b>	<b>60.87%</b>

### Town Forest to South Middle and Elementary Schools via Aquarion Property Link

There is an existing trail connection between the Hingham Town Forest and the abutting Aquarion Property. Trails within Aquarion Property were not delineated as part of this project. However, information provided from Town residents show that the trails within the Aquarion property extend to Main Street at a location approximately 100' south of Constitution Road. In an effort to formalize such connection, the Town of Hingham should continue to seek permission from Aquarion properties for public access through their forest roads and trails and complete a formalized assessment of such trails to determine existing conditions, future maintenance needs and potential trail uses. Aquarion Companies and Hingham should also discuss informational signs at the locations of trail transitions between Hingham and Aquarion property so that path users understand that they are leaving/entering Hingham public property and that use regulations may be different at the different properties.

In addition, a new connection to the Aquarion trail from a location near Liberty Pole Road would bring it closer to the existing signalized cross walk. Thus, providing a link to both the Middle School and the Elementary School.

This link would provide not only additional recreational and nature viewing opportunities but an alternative means of commuting to the South Middle and Elementary Schools.

**George Washington  
Forest to South  
Elementary School via  
Aquarion Properties**

<b>Prioritization Matrix</b>	Factor	Attributed Points	
<b>Functionality</b>	Recreation	1	1
	Commuting	1	1
	Schools	1	1
<b>Multimodal Use Potential</b>	Yes	1	1
	No	0	
<b>Accessibility</b>	Yes	1	0
	No	0	
<b>Expected Cost (construction)</b>	Low	3	3
	Medium	2	
	High	1	
<b>Expected Cost (permitting)</b>	Low	3	3
	Medium	2	
	High	1	
<b>Environmental Sensitivity</b>	Low	3	2
	Medium	2	
	High	1	
<b>Future Maintenance Needs</b>	Low	3	2
	Medium	2	
	High	1	
<b>Public Support</b>	Low	1	3
	Medium	2	
	High	3	
<b>Consistency With Open Space Plan and/or another Project</b>	Low	1	3
	Medium	2	
	High	3	
	<b>Total High Score per sub segment</b>		20
		<b>23</b>	<b>86.96%</b>

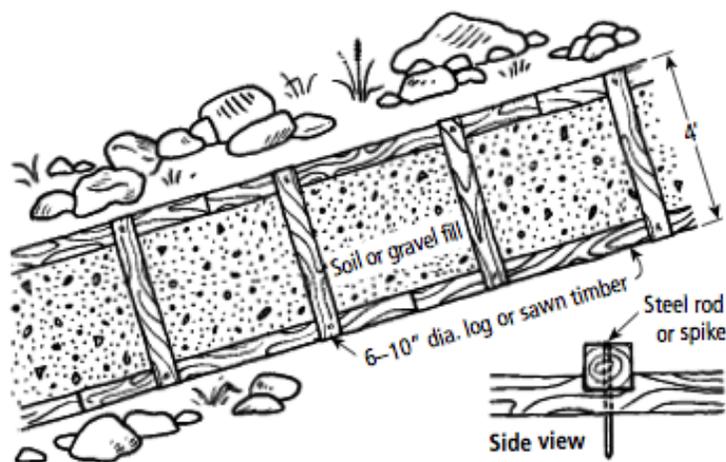
## Bare Cove Park to Stoddards Neck Link via a natural surface walkway under the Route 3A Bridge

Discussions with the Department of Conservation and Recreation, the Town of Weymouth, and the Executive Office of Environmental Affairs have resulted in proposals including a boardwalk along the Back River that connects Bare Cove Park to Stoddards Neck and a path under the Route 3A bridge that would allow access between the two parks. According to Rick Corsi of the Department of Conservation and Recreation, there are designs for these and other connections. However, the Department does not have the resources to complete such construction. Hingham residents should continue to pursue such connection. Further discussions with the Town of Weymouth propose a connection between Bare Cove Park and Great Esker Park.

In 2014, the Towns of Hingham and Weymouth applied for a FY2015 Community Innovation Challenge Grant seeking funds to develop a comprehensive wayfinding system across the area's four major parks: Abigail Adams Park, Bare Cove Park, Great Esker Park and Stodder's Neck Park.

In an effort to encourage use of an existing unofficial connection between Stoddard's Neck and Bare Cove Part, the Town should consider a low cost and semi-temporary level natural surface walkways could be achieved along the bridges abutments and under the bridge span with the authorization of the Mass Department of Transportation. In order to protect the integrity of such abutments and keep cost at a minimum, establishment of such path could be achieved using hand tools. A possible design would involve a raised dimensional lumber turnpike backfilled with local rock and soil to provide a more level surface that is still permeable. The approaches to the walk way portions underneath the bridge could be achieved via a climbing causeway or a staircase made from granite. Construction of such walk way could be completed by a low impact professional trail crew such as the Student Conservation Association. Continued vegetation management along the edges of the walkway would be necessary in order to ensure safe and comfortable access.

Environmental review through the Hingham Conservation Commission would be required regardless of the design of the walk way due to the path's proximity to the River. Direct wetland impacts would not be expected from such walkway.



**Figure 13-13. A climbing causeway allows you to hold fill material on a steep grade.**

			<b>Bare Cove to Stoddards Neck via 3A (underpass)</b>
<b>Prioritization Matrix</b>	Factor	Attributed Points	
<b>Functionality</b>	Recreation	1	1
	Commuting	1	1
	Schools	1	0
<b>Multimodal Use Potential</b>	Yes	1	1
	No	0	
<b>Accessibility</b>	Yes	1	0
	No	0	
<b>Expected Cost (construction)</b>	Low	3	1
	Medium	2	
	High	1	
<b>Expected Cost (permitting)</b>	Low	3	1
	Medium	2	
	High	1	
<b>Environmental Sensitivity</b>	Low	3	1
	Medium	2	
	High	1	
<b>Future Maintenance Needs</b>	Low	3	1
	Medium	2	
	High	1	
<b>Public Support</b>	Low	1	3
	Medium	2	
	High	3	
<b>Consistency With Open Space Plan and/or another Project</b>	Low	1	3
	Medium	2	
	High	3	
	<b>Total High Score per sub segment</b>		13
		<b>23</b>	<b>56.52%</b>

### **Trail Links Design and Scope**

With respect to new trail links and structural improvement to existing trails, the BSC Design Team understands that the long-term maintenance of recreational and open space resources enhances their long term viability and sense of safety. Therefore, our designers provide thoughtful consideration of construction materials, site furnishings and ease of maintenance. We strongly encourage the involvement of future maintenance staff in the planning process. In addition, we recommend that communities form friend groups and volunteers to help with maintenance tasks as well as fundraising for long-term maintenance needs.

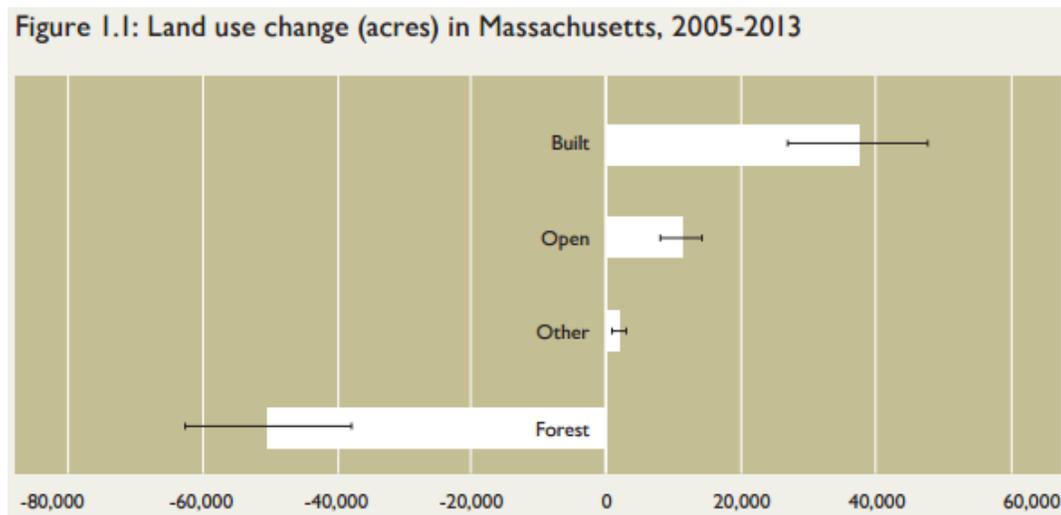
Within this plan, BSC Group has included several design ideas and suggestions for trail improvements and new trail connections. These are located within Appendix B and D. Please note that the designs and cost estimates are meant to be used to guide the trail maintenance and links process. Additional field review, including surveys, would have to be completed to provide actual cost estimates and engineering plans.



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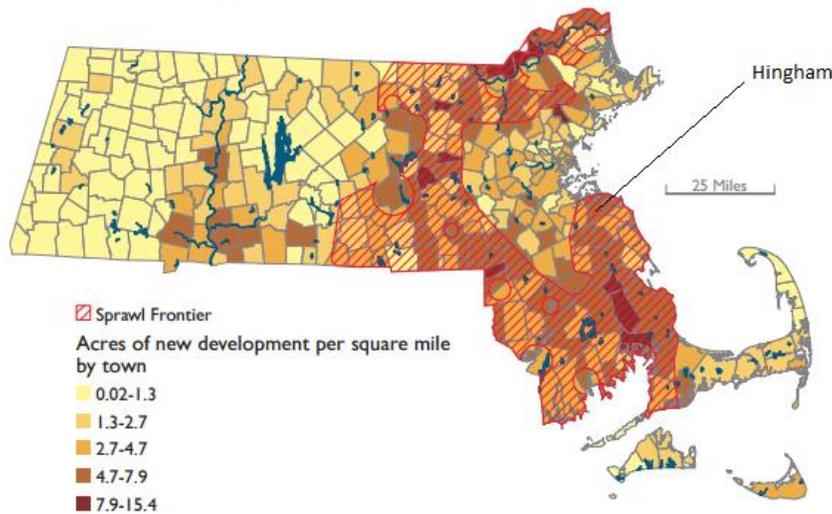
## Chapter 6: Natural Resources Protection and Property Acquisition

According to Mass Audubon's Land Protection within Resilient Lands, Massachusetts has increased in amount of acres developed from 1971 to 2014. In 1971 there were 775,000 acres of developed land, comprising 15% of the total land. That value has increased to 1.1 million acres, covering 21% of the land. In the eight year span between 2005-2013 38,000 acres of undeveloped land were developed. This resulted in a loss of 50,000 acres of forest. Despite these changes, 1,259,075 acres of land have been reserved to permanently protect wildlife habitats. The Figure below represents how land was developed.



During the recession in 2007, the development of land lost momentum. This was a gain towards preserving the environment and avoiding drastic regional changes. The 'Sprawl Danger Zone' describes an area that is in danger of significant change in community and ecology. The following map shows regions where urban sprawl has significantly occurred. Areas most prominent were those within 10 miles of I-495. Hingham falls within the 4.7-7.9 acres of development, and is within the sprawl frontier, which covers towns of the highest rate of development.

Figure I.3: Recent development trends in Massachusetts, 2005-2013



Conserved land accounts for 25% of the land in Massachusetts. 91% of this land is for open space and conservation, while 9% is for historical or cultural appreciation. Conserved land is protected through Article 97 of the Constitution and needs legislative and town approval to have its use changed. The state owns the most conserved land at 50%. Municipalities own 18%, Private owners own 12%, non profit organizations own 14%, and the Federal Government owns 6%. The government placed federal tax incentives on having open space land, which encouraged more people to make their private property open space, which is classified as ‘Private with Restriction’. Documenting private property as open space is uncomplicated. Towns within the I-495 belt have the most developed land. Hingham has 200-300 acres of unprotected natural land per square mile, making it in the mid-range for how much developed land it has. In a scoring of how a region fairs as far as enduring features – bedrock type, surface geology, land diversity, and landscape connectivity – Hingham has more ‘above average’ land than its surrounding areas, and otherwise is average. Most of the land in the I-495 belt scored average or below average. Areas around cities have the most ‘below average’ land. Resilience is a system’s ability to recover from disturbance. The Resilience score is based off of the following factors: Land Complexity, Landscape Connectedness, and Geophysical Setting. For ‘Development within Resilient Lands in 2005-13’ Hingham falls within the 8-18 range of acres per square mile of unprotected resilient land. Cohasset also falls within this range, while Weymouth falls within 2-8 acres per square mile. Norwell falls within 18-39 acres per square mile, which is the highest in that region. Southeastern Plymouth County had the greatest concentration of development on resilient land developed.

For ‘Land Protection within Resilient Lands in 2005-13’ Hingham falls within the less than 16 acres per square mile of available resilient land. The other surrounding towns are within the same category, with the exception of Cohasset which falls within the 16-49% range. For ‘Undeveloped and Unprotected Resilient Land, 2013’, Hingham falls within the less than 45 acres per square mile by town range. Most of the surrounding towns to Hingham fall within this category as well, with the exception of Cohasset and Norwell which have between 45-96 acres per square mile of resilient land. For ‘Protected Resilient Land, 2013’ Hingham falls within the 47-66% of Resilient Land Protected. In the same region, Quincy and Milton protect 66-89% of their resilient land (the highest percentage). Weymouth protects less than 16% of their resilient land. The rest of the surrounding towns are average. For Development of Critical Natural Landscapes between 2005-2013, Hingham falls within <1 acre per square mile of unprotected Critical

Natural Landscapes. Cohasset has 0 acres per mile, and Weymouth has 1-3 acres per square mile. Most of the towns in this area are <1 or 1-3 acres of square mile range.

The communities experiencing the greatest loss of Critical Natural Landscape were Southeastern Plymouth County, the I-495 Belt, and towns south of the Quabbin Reservoir. For Land Protection of Critical Natural Landscapes in 2005-2013, Hingham falls within the 23-61 Critical Natural Landscape protected in acres per square mile of available Critical Natural Landscape. Cohasset is slightly better in the 61-116 range, and Norwell is slightly worse at 0. Other towns in the Boston area are at 0, while towns south of Hingham have a higher amount protected acreage. Most of the greatest protection is in the Westernmost part of Massachusetts, and the southern Plymouth County. Undeveloped and Unprotected Critical Natural Landscape, 2013, Hingham falls within <40 acres per square mile of landscape. The towns west and north of Hingham are also within this range, while towns south are within 40-103 acres per square mile of landscape. In that region, Plymouth County shows higher concentrations of unprotected landscape. For Protected Critical Natural Landscape, 2013, Hingham is in the highest range of 70-100% of protected landscape. Cohasset also falls within this range. Rockland protects < 17% of landscape.

### **Hingham's Natural Resources**

The Town of Hingham has an area of 14,558 acres (22.7 miles) which contains 4,521 acres of open space, encompassing 31.1% of the total area. It is located at the southerly limit of the Boston Harbor Watershed within the much larger Gulf of Maine. Hingham's landscape is characterized by its 21 miles of coastline, which begins at the Weymouth Back River and ends at Straits Pond at the Cohasset town line. Hingham Harbor is flanked by World's End on the east and Crow Point on the west, two promontories thrusting seaward into Massachusetts Bay. Five uninhabited islands dot the harbor, the largest being Bumkin Island, which lies over 1 ½ miles north of the Hingham mainland.

Bedrock trending on a north/south axis underlies the undulating terrain from the harbor on the north to Prospect Hill in the south, the highest point in Town at 240 feet above sea level. The westerly boundary with Weymouth follows the northward flowing Weymouth Back River for much of its length. Streams in all of Hingham's sub-watersheds flow northerly, draining ponds, wetlands, forest and urbanized areas. The Weir River, the largest, drains 27 square miles of watershed or about 80% of Hingham.

The town's woodlands have visibly more pines and fewer hardwoods as one goes south, reflecting the increasingly coarse soils. These pines appear to be permanent, not the initial wave commonly succeeded by hardwoods on cleared land.

There are 1,333 protected out of 1672 acres of Core Habitat Protected (79.7%), and 1,980 protected out of 2193 acres of Critical Natural Landscape (90.3%). Core Habitats, as defined by the Massachusetts' Natural Heritage and Endangered Species Program, include habitats for rare, vulnerable, or uncommon mammal, bird, reptile, amphibian, fish, invertebrate, and plant species, priority natural communities, high quality wetland, vernal pool aquatic, and coastal habitats and intact forest ecosystems. Critical Natural Landscape are larger areas that have diverse ecological processes and wildlife, and include uplands that buffer wetland, aquatic, and coastal habitats. .

Within the Core Habitat locations in Hingham, there are 2 Forest Cores, 4 Wetland Cores, 1 Aquatic Core, 2 Vernal Pool Cores, and 16 species in danger. Some of these species include the, Mocha Emerald Dragonfly (Special Concern), the Eastern Box Turtle (Special Concern), and the Seabeach Dock flower (threatened). Hingham also has a Maritime Juniper Woodland which is a priority natural community. This is rated as S1, meaning that there are less than 5 documented sites in the state. It is critically imperiled.

These kinds of shrubs can only grow near coastal communities on sand dunes, facing copious amounts of salt spray.

Approximately 35% of the Town's area is made up of water and wetlands, including both fresh and salt water. Most of Hingham is in the Boston Harbor Watershed and parts are in the South Coastal Watershed. The Weir River and Weymouth Back River drain roughly 85% of the land area to Boston Harbor and the balance drains via the Aaron River to the South Coastal basin.

There are two designated Areas of Critical Environmental Concern (ACEC) in the town of Hingham; the Weir River ACEC and the Back River ACEC. An ACEC designation is a formal state designation of a significant ecological area directed to the actions and programs of Massachusetts environmental agencies. The designation works through the existing state environmental regulatory and review framework and does not change local regulations or zoning. The Department of Conservation and Recreation (DCR) administers the ACEC Program on behalf of the Secretary and coordinates with other state agencies and programs in the review of ACEC nominations and in the implementation of ACEC designations.

#### Weymouth Back River ACEC

The Weymouth Back River ACEC comprises approximately 950 acres in Hingham and Weymouth. It is an unusual natural area in the midst of an urban/suburban environment, uniquely preserved considering its proximity to Boston. Approximately 180 acres are tidal waters flushing into Hingham Bay. There are productive clam flats and nursery and feeding areas for a wide variety of finfish. Herring Brook in Weymouth provides annual passage to Whitmans Pond for thousands of alewives, locally referred to as herring. The lower portion of Herring Brook, Hingham's Fresh River, and several unnamed tributaries provide spawning sites for an annual smelt run. The 100+ acres of salt marsh and several salt ponds are vital links to the marine food web. Also included in the ACEC are ponds and swamps that form the headwaters of various tributaries to the Weymouth Back River.

Most of the uplands within the ACEC are parks managed by the two towns: Great Esker Park in Weymouth and Hingham's Bare Cove Park. Within these areas are several outstanding examples of glacial eskers - the size and scope of the eskers are unique in Massachusetts. There are also numerous historical sites, including evidence of prehistoric habitation as long ago as 500 to 7500 B.C. Breeding or feeding habitat for some 150 species of birds combines with the scenic quality of the parks. These conservation areas provide buffers for the waters of the river and space for passive recreation.

#### Weir River Area ACEC

The Weir River Area ACEC composes approximately 950 acres containing one of the most extensive salt marsh systems in the greater Boston metropolitan area. The ACEC includes the Weir River and its tidal flats downstream of the Foundry Pond Dam to the mouth of the river at Hingham Bay. The extent of the ACEC, unlike small pockets of marshland that dot the urban landscape, supports over 100 species of migratory and resident bird species. Shellfish is an abundant food resource for the bird populations. In addition, the marshes and flats are a nursery for a wide variety of finfish including alewives, smelt, flounder, bluefish and striped bass.

### **Climate Change Vulnerability Risk Assessment and Adaptation Study**

In 2014, the Town of Hingham was awarded a Coastal Communities Resilience Grant from the MA Office of Coastal Zone Management to complete a Climate Change Vulnerability, Risk Assessment and Adaptation Study. The town undertook such project with the goal of defining the degrees of impact in

vulnerable areas, develop recommended strategies to manage existing infrastructure, facilities and natural resources and to plan for future adaptations.

With climate change comes the threat of sea level rise. Being a coastal community, this puts Hingham in a particularly risky location as a coastal community lying on the edge of the Boston Harbor. The floodplains and estuaries fall within developed regions of the town. Salt marshes and rivers affected by tidal progression have the potential to create damage during storms. In order to evaluate the situation, models were created to measure floods, storms, and model water surfaces.

The Advanced Circulation (ADCIRC) software was used to predict storm surge flooding. The Simulated Waves Nearshore (SWAN) software models wave motions. The Boston Harbor Flood Risk Model (BH-FRM) was used for water surface modeling. These models produced estimates for sea level rise, tides, waves, and storm intensity for the years 2013, 2030, and 2070. The figure below shows a conservative, likely and intense estimate for the height the sea level could possibly rise.

Some places in Hingham were studied specifically due to the resources in that area evolving to accommodate for the higher sea levels. The Hingham Harbor Shoreline will be retreating through 2030 as beach transitions into open water. By 2070 a majority of shoreline has been overtaken. Marshes that were previously upland become high marshes which are areas that are marshes that may be covered by the high tide and flooded in an extreme weather event.

The Foundry Pond shows minor changes in 2030. However; by 2070 marsh transitions from high marsh to low marsh. Rather than just being covered by high tide, the low marsh is flooded regularly.

The Back River and Beal Cove area shows minor changes until 2030. During the year 2070 the estuarine beach will be gone, and the tidal creeks will expand. All high marsh will become low marsh or open water.

According to the study, there will be a loss of regions of high marsh, uplands and transitional marsh between 2011 and 20130. There will be a gain of regularly flooded marsh, and tidal flats. From 2030 to 2070, there will be a greater loss of high and transitioning marsh, uplands, and estuarine beaches. Tidal creeks will expand. There will be a gain of low marsh, tidal flats in the Broad Cove region, and significantly more tidal creeks.

In order to take action against the onset of water, the study made several recommendations. Pertinent to this Comprehensive Trails plan are the following:

- Design, permit and construct improvements to existing waterfront structures and landscapes to provide a continuous and consistent level of protection no lower than the base flood level of 10.2 NAVD88 . Design should account for variables such as wave run up and increasing sea levels. Modular designs should be favored.
- Make improvements to the Foster Elementary School and/or raise the route 3A Broad Cove culvert. The study found that by 2070 sea level rise could cause daily flooding of the southern parking lot and sports facilities at high tide.
- Work with MassDOT to make improvements along route 3A including the potential of redesigning the road to serve as a levee from rising sea levels and more intense storm surge.
- Design, permit and implement a roadway improvement project to raise low lying sections of George Washington Boulevard located north and south of the Hingham District Court and Rockland Street to Hull Street, proximate to Sydney and Foundry Ponds to a minimum elevation of 10.2ft NAVD88.

- Increase the size of the culvert under Route 3A to increase the overall health of the Broad Cove ecosystem and improving tidal flow from the Hingham Harbor. The increased culvert should also include tidal controls and raising of Route 3A.
- Implement green resilient designs along Beal Cove such as marsh expansion and/or living shorelines to benefit the natural resources and fringing marsh in this area.
- Consider acquiring land adjacent to coastal resource areas to accommodate changing conditions of areas such as salt marsh. Consider implementing a rolling easement program.
- Require that Town funded project take into account predicted impacts of climate change and sea level rise.

### **Parcels of Conservation Interest**

An evaluation of Hingham properties was completed using MassGIS information to highlight properties with conservation value (Appendix These are properties with significant open space and with portions containing wetlands, priority habitat and other important natural resources, and abut Hingham open space properties or Hingham waterways. In the future, Hingham should consider acquiring some of these parcels or parts of these parcels through beneficial negotiations with the landowners. Acquisition could occur through easements, fee interest or purchase of development right to protect its natural resources and provide for climate change resiliency. Land can be protected in full (fee) or by protection of the development rights (conservation restriction or agricultural preservation restrictions) through gift, bargain sale, or purchase by the town, state or non profit land trusts. In Massachusetts, properties can be protected under Article 97, Chapter 61, 61A or 61B, M.G.L. c. 182 permanent Conservation Restriction (CR), Agricultural Preservation Restriction (APR), or a Watershed Preservation Restriction (WPD). Federal grant programs providing funding for land protection include the Local Acquisition for Natural Diversity (LAND), Parkland Acquisition or Renovation for Communities (PARC), Drinking Water Supply Protection, Land and Water Conservation Fund (LWCF), or Conservation Partnership.

As identified in the 2009-2016 Open Space and Recreation Plan, the Town's top priority goals include the protection of natural resources and the ecological and -biological integrity of its wildlife and to protect the Town's scenic/aesthetic characteristic and its significant historical resources. Trails provide corridors of natural areas within developed land, resulting in positive effects on the environmental health of the region. Green space created by natural corridors can help mitigate storm water runoff, encourage water table recharge, and help filter and trap pollutants. Trails also help preserve habitat for wildlife by providing formalized access for people through sensitive areas. Finally, trails also encourage non-motorized means of transportation, which can significantly reduce air pollutants. However, trail construction and providing access to the public into the natural areas can have an impact on natural communities, and the wildlife and natural processes required for species to survive and thrive. Trails fragment wetlands and contiguous forests and can also impact stream continuity. Trails may also encourage on-trail and off-trail behaviors which are incompatible with resource protection. Thus, the Town's resource protection and management goals must be balanced with appropriate and safe public access. Trails are compatible with resource protection when built in a sustainable way. Information regarding sustainable trail design, maintenance and construction is provided in Appendix B. Avoidance of and minimization of impacts to sensitive resource should be the focus when determining whether to create a new trail.

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## Chapter 7: Funding Sources for Open Space Acquisition

### Community Preservation Act (CPA) (M.G.L. c.44B)

The Community Preservation Act (CPA) is a smart growth tool that helps communities preserve open space and historic sites, create affordable housing, and develop outdoor recreational facilities. CPA also helps strengthen the state and local economies by expanding housing opportunities and construction jobs for the Commonwealth's workforce, and by supporting the tourism industry through preservation of the Commonwealth's historic and natural resources.

CPA allows communities to create a local Community Preservation Fund for open space protection, historic preservation, affordable housing and outdoor recreation. Community preservation monies are raised locally through the imposition of a surcharge of not more than 3% of the tax levy against real property, and municipalities must adopt CPA by ballot referendum. The CPA statute also creates a statewide Community Preservation Trust Fund, administered by the Department of Revenue (DOR), which provides distributions each year to communities that have adopted CPA. These annual disbursements serve as an incentive for communities to pass CPA.

Each CPA community creates a local Community Preservation Committee (CPC) upon adoption of the Act, and this five-to-nine member board makes recommendations on CPA projects to the community's legislative body. Property taxes traditionally fund the day-to-day operating needs of safety, health, schools, roads, maintenance, and more. But until CPA was enacted, there was no steady funding source for preserving and improving a community's character and quality of life. The Community Preservation Act gives a community the funds needed to control its future.

### The Trust for Public Land

The Trust for Public Land will offer assistance in campaigning for public funding. Their services include, "helping state and local governments design, pass, and implement legislation and ballot measures that create new public funds for parks and land conservation." They will create the ballot and implement a get out the vote program. In order to access these services, contact Ernest Cook, the Conservation Finance Director at (617) 367-6200 or email at [ernest.cook@tpl.org](mailto:ernest.cook@tpl.org).

### Conservation Partnership Grant (815 CMR 2.00) – non profits

The Conservation Partnership Program assist non-public, not for profit corporations in acquiring interests in lands suitable for conservation or recreation purposes. The Conservation Partnership grants provide funding to assist non-public, not-for-profit corporations in acquiring interests in lands suitable for conservation or recreation purposes. Potential projects fall into one of two categories:

- Land or a conservation restriction (CR) purchased by an eligible Applicant
- Due diligence for land or a conservation restriction gift donated to an eligible Applicant

The Act requires that all selected Applicants convey an appropriate perpetual conservation restriction, within the meaning of sections 31 and 32 of Chapter 184 of the General Laws, to either the city or town in which the selected project is located, to be managed by either its conservation or recreation commission, or a state agency, or both. The Act also requires that all projects provide appropriate public access, as determined by the Secretary.

### Drinking Water Supply Protection Grant Program

The DWSP grant program provides financial assistance to public water systems and municipal water departments for the purchase of land or interests in land for the following purposes: 1) protection of existing DEP-approved public drinking water supplies; 2) protection of planned future public drinking water supplies; or 3) groundwater recharge. It is a reimbursement program.

### Massachusetts Land and Water Conservation Fund

The Federal Land & Water Conservation Fund (P.L. 88-578) provides up to 50% of the total project cost for the acquisition, development and renovation of park, recreation or conservation areas. Municipalities, special districts and state agencies are eligible to apply. Nearly 4000 acres have been acquired and hundreds of parks renovated using the \$95.6 million that Massachusetts has received from the state side portion of the federal program since 1965. DCS administers the state side Land & Water Conservation Fund program in Massachusetts. Access by the general public is required.

### Local Acquisitions for Natural Diversity (LAND) Grant Program

The LAND Program (formerly the Self-Help Program) was established in 1961 to assist municipal conservation commissions in acquiring land for natural resource protection and passive outdoor recreation purposes. The grant provides reimbursement funding for the acquisition of land or a conservation restriction, as well as for limited associated acquisition costs. Lands acquired may include forests, fields, wetlands, wildlife habitat, unique natural, historic or cultural resources, and some farmland. Access by the general public is required. Appropriate passive outdoor recreational uses such as hiking, fishing, hunting, cross-country skiing, and bird watching are encouraged.

### Landscape Partnership Grant

The Landscape Partnership Program seeks to preserve large, unfragmented, high-value conservation landscapes including working forests and farms, expand state-municipal-private partnerships, increase leveraging of state dollars, enhance stewardship of conservation land, and provide public recreation opportunities. The program offers competitive grants to municipalities, non-profit organizations, and EEA agencies acting cooperatively to permanently protect a minimum of 500 acres of land.

### PARC - Parkland Acquisitions and Renovations for Communities

The PARC Program (formerly the Urban Self-Help Program) was established in 1977 to assist cities and towns in acquiring and developing land for park and outdoor recreation purposes. Any town with a population of 35,000 or more year-round residents, or any city regardless of size, that has an authorized park /recreation commission is eligible to participate in the program. Communities that do not meet the population criteria listed above may still qualify under the "small town," "regional," or "statewide" project provisions of the program.

Only projects that are to be developed for suitable outdoor recreation purposes, whether active or passive in nature, shall be considered for funding. Grants are available for the acquisition of land and the construction, or renovation of park and outdoor recreation facilities. Access by the general public is required.

### Massachusetts Preservation Projects Fund

The Massachusetts Preservation Projects Fund (MPPF) is a state-funded 50% reimbursable matching grant program established in 1984 to support the preservation of properties, landscapes, and sites (cultural resources) listed in the State Register of Historic Places. Applicants must be a municipality or nonprofit organization. The program is administered in accordance with 950 CMR 73.00.

The Massachusetts Preservation Projects Fund is currently funded for one grant round through fiscal year 2016. Requests for pre-development projects can range from \$5,000 to \$30,000; requests for development or acquisition projects may range from \$7,500 to \$100,000. Work completed prior to grant award is ineligible for funding consideration.

A unique feature of the program allows applicants to request up to 75% of total construction costs if there is a commitment to establish a historic property maintenance fund by setting aside an additional 25% over their matching share in a restricted endowment fund.

Emergency funds are available at the Secretary's discretion for stabilization of resources considered in imminent danger. There are no deadlines for the submission of emergency fund requests

### Chapter 61

Massachusetts current use programs (Ch. 61, Ch. 61A, and Ch. 61B) were created to give preferential tax treatment to those landowners who maintain their property as open space for the purposes of timber production, agriculture or recreation. Chapter 61 was designed to classify forestland. Chapter 61A was designed to classify agricultural land which may include forestland and Chapter 61B was designed to classify recreational land which can also include forestland.

In order to qualify for the Chapter 61 program, a landowner must have 10 or more contiguous acres of forest land and a long-term commitment to improving the "quality and quantity" of timber on that land. Other values such as wildlife, aesthetics, and recreation can also be incorporated into the management goals of the property through the Forest Stewardship Program. An approved, forest management plan describing and mapping property resources and making management recommendations objectives is required to guide management of the property. This plan is based on the landowner's objectives and is renewed every ten years to reflect changing conditions, goals, etc.

To ensure that land under Chapter 61 is actually managed in a long-term sustainable fashion, there is a penalty for withdrawal from the program and changing it to residential, industrial or commercial use. This penalty consists of payment for the difference between taxes paid and taxes deferred plus interest. The penalty is computed for the previous five years under certification.



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## Chapter 8: Conclusion

Trails are more than routes that connect places or paths through natural landscapes. Trails create recreational experiences for users that trigger the use of all senses and that develop into memories. By connecting people with the natural and cultural world around us, trails become a key component in the development of environmental stewardship and resource protection.

This Comprehensive Trails plan incorporates the spirit of Hingham's Open Space and Recreation Plan and the Town's need for an integrated trail network. The purpose of the plan is to provide Hingham with recommendations for interconnectivity between open spaces, communities, schools, commercial areas, and abutting towns as well as best management practices for the maintenance of existing trails, development of future trails and/or links, increasing safety and quality of the recreational resource and acquisition of property for resource protection purposes. There are multiple initiatives incorporated in this plans that should be incorporated on existing and future development and resource protection plans within the Town.