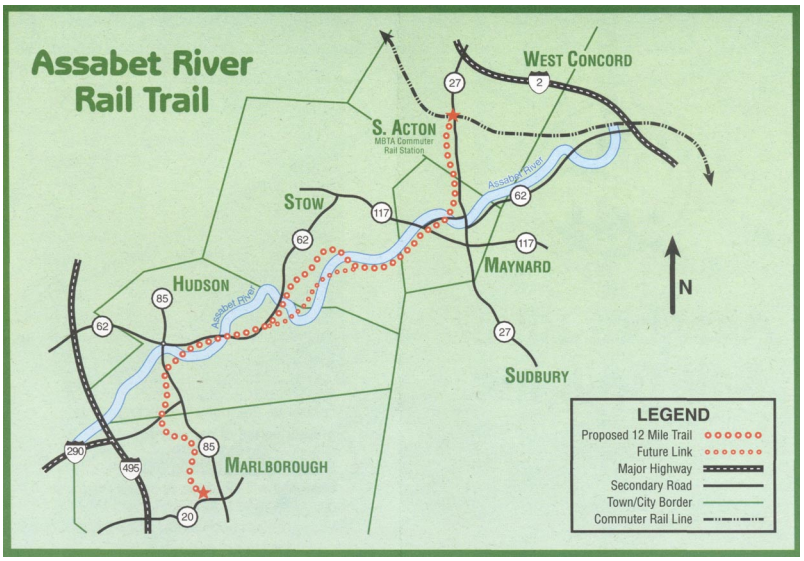
Assabet River Rail Trail

Implementation Plan



Earth Tech
196 Baker Avenue
Concord, MA 01742

www.arrtinc.org

June 2001

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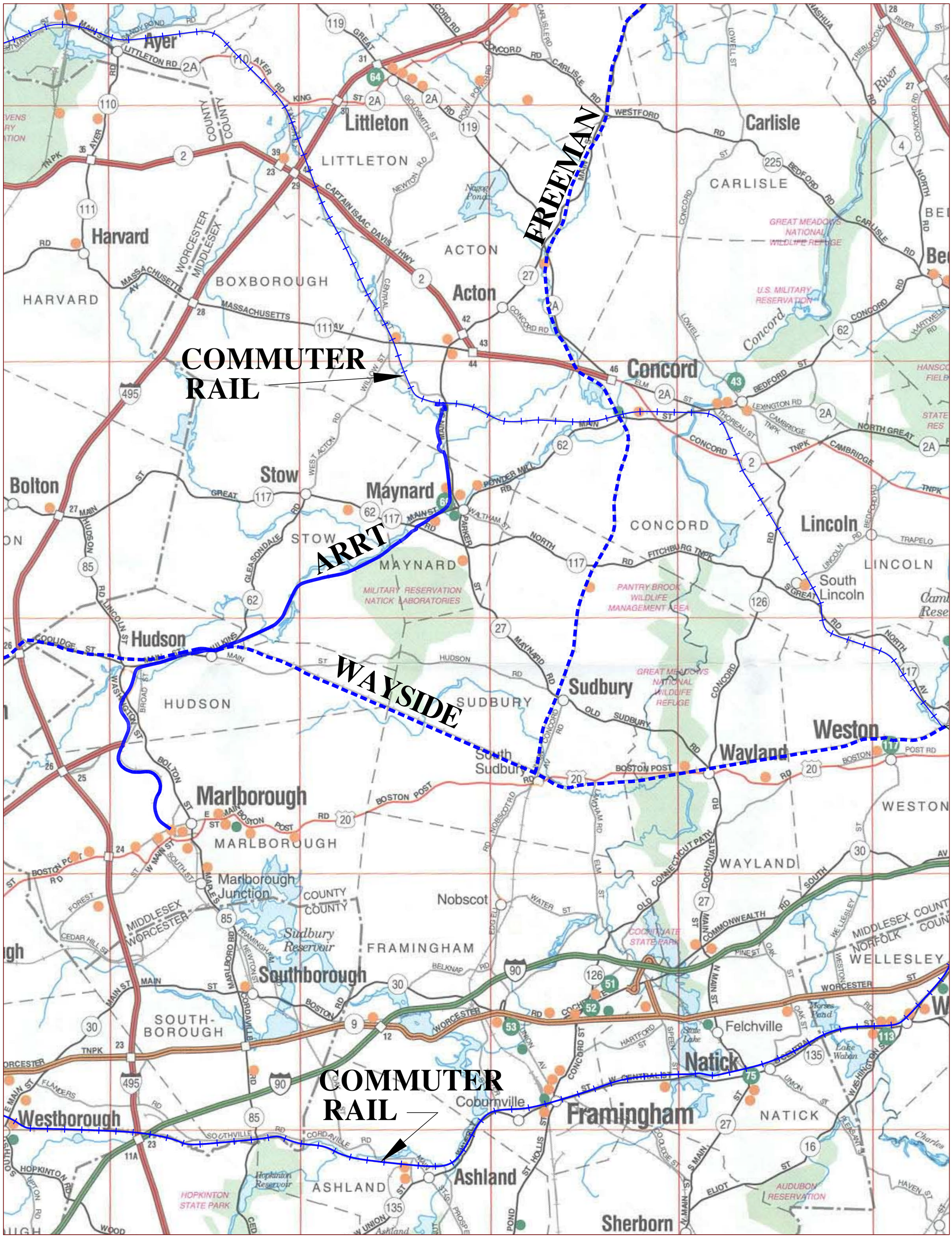
Section 1: Project



EARTH TECH

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LOCUS MAP

SCALE 1:150,000

SECTION 1 – PROJECT

History

1992: The Start

In 1992, several Hudson residents envisioned a rail trail linking the communities of Marlborough, Hudson, Stow, Maynard and Acton. Following the abandoned Massachusetts Bay Transportation Authority (MBTA) rail bed known as the Boston and Maine (B+M) "Marlborough Branch," a volunteer group consisting of individuals from each of the five communities organized to promote the Assabet River Rail Trail (ARRT) concept.

Through trail walks, slide shows and talks, the group presented this vision for a "linear park" to selectboards, planning boards, conservation commissions and civic organizations. Individual letters were sent to direct abutters of the railroad right of way (ROW) and to the abutters (within 150 feet or 45 meters) describing the project concept. The members garnered support from the Organization for the Assabet River, the Sudbury Valley Trustees, Elected Officials from all five communities, chambers of commerce, recreation departments, and from then Senator Robert Durand and Representative Pat Walrath. Current Senator Pam Resor is also a strong supporter of the ARRT.

Copies of various support items are included in the Appendix.

1994: Support

The Massachusetts Department of Environmental Management (DEM), the Conservation Fund, and the Franklin Research and Development Corporation provided grants for preliminary concept work. Students from the Conway School of Landscape Design prepared architectural drawings of areas along the proposed trail and presented them at a public forum in the spring of 1994. Experts in rail-to-trail conversion participated in panel discussions.

1995: Feasibility Study

In 1995, the five communities commissioned a Feasibility Study (see Appendix) to be prepared by the State's Central Transportation Planning Staff (CTPS) and organized an Advisory Committee to work with CTPS in the preparation of the Feasibility Study. Three public meetings were held (in Stow, Maynard and Hudson) attracting close to 200 people in total. The study was released in January 1997 and concluded that the ARRT project is feasible and worth pursuing. In the spring of 1998, all five towns voted to start the first steps of the project.

1996: Marlborough Receives PWED Grant

The City of Marlborough received a $2.3 million dollar Public Works Economic Development Grant (PWED) from the state for the purchase of the entire MBTA railroad right of way from Lincoln Street to the Hudson Town Line, and for the construction of an access road along the ARRT to some undeveloped property.

1997: CTPS Feasibility Study, Massachusetts Enhancement Grant

In January, the Central Transportation Planning Staff (CTPS) prepared a Feasibility Study for the Assabet River Rail Trail. The preparation of this study was supported by MassHighway through Agreements 97098 and 96183, and by State matching funds. The study recommended that the ARRT is feasible and should proceed. A copy of this Study is included in the Appendix.

Private donations were incorporated and the City of Marlborough was able to acquire the ROW of MBTA land through the PWED grant. Stratus Computer Co. (now Lucent) provided assistance through an agreement to help pay for the design work associated with the ARRT across their road project.

In May, the Metropolitan Area Planning Council (MAPC) recommended that the Assabet River Rail Trail receive funding in fiscal year 1998 to begin acquiring portions of the ROW, and to begin design of the segment of trail in Marlborough and Hudson. In a grant proposal submitted by the five ARRT towns, the towns would receive $668,000 to acquire the legal rights for the continuous 12.5-mile right of way. The grant also requested $105,000 for design of the four-mile segment from Marlborough to Hudson.

The five towns working collaboratively submitted an application for Federal Intermodel Surface Transportation Efficiency Act (ISTEA) funding under the FY98 Massachusetts Transportation Enhancement Program. That application was ultimately successful, with MAPC recommending funding in May 1997 and a final project award made by the Executive Office of Transportation and Construction (EOTC) in October 1997. The total amount of the funding at that time was $773,000, with $668,000 of the award to be used for ROW acquisition for the communities of Hudson, Stow, Maynard and Acton. (Marlborough had already purchased their ROW.) The remaining $105,000 was allocated for design of the Marlborough and Hudson segments. The local match committed from the five communities was $327,700. The funding for the local match came from a variety of sources and included in-kind donations of services. Communities agreed to pay for real estate appraisals, some survey, legal work and administration. Private donations were incorporated and the City of Marlborough was able to provide the trail ROW through its purchase of MBTA land in conjunction with the Lucent (then Stratus) PWED development.

In September, the City of Marlborough acquired the railroad right of way from the MBTA for $235,000 using PWED funding.

In December, the federal government approved $17 million in funding for transportation enhancements in Massachusetts, which included the grant proposal submitted by the five ARRT towns to acquire the legal rights to the ARRT route.

1998: Local Approvals; Selection of Engineer; Appraisals; MBTA Negotiations

Hudson initiated negotiations with the MBTA for purchase of their ROW in January.

In February, Requests for Proposals (RFPs) for appraising the entire ARRT route, including Hudson, were advertised on February 19, and bids were opened on March 6. Determining the fair market value of the parcels comprising the ARRT route is a key step in securing the federal funds earmarked for acquisition.

In the spring of 1998, towns appropriated the necessary matching funds, obtained authorization to purchase ROW from their respective Town Meetings. In addition, between 1997 and 1999, the five communities obtained the authority (from Town Meetings and City Council) to enter into an Inter-municipal Agreement with each other for the purpose of advancing the ARRT.

The April 1998 Acton Town Meeting voted by a two-thirds majority to authorize the acquisition of the ARRT right of way.

In April, the ARRT received a grant of $3,000 from the Department of Environmental Management's Greenways and Trails Demonstration Grant program. The grant was used to conduct a natural resource inventory (see Appendix) assessment of the proposed ARRT route.

In May, voters in Hudson approved Town Meeting articles supporting the ARRT. The measure authorized short-term borrowing for the reimbursable funds necessary for the acquisition of the ROW, and appropriation of the town's 10 percent local match, as required by the federal ISTEA grant that ARRT received the previous fall.

An Inter-municipal agreement (see Appendix) between the City of Marlborough and the Town of Hudson was negotiated and signed in June of 1998 (later amended in December 1999) to allow the communities to jointly oversee the design related work.

Later that year, Marlborough and Hudson submitted a project scope to the Massachusetts Highway Department (MassHighway) and received the go-ahead to solicit engineering consultants to undertake the design. MassHighway issued design contract #8426 to Hudson (acting as lead community on the project) for use of the $105,000 FY98 Enhancement Funds. The Hudson Board of Selectmen approved contract #8426 and returned it to MassHighway for final signing and a Notice to Proceed.

In November, Earth Tech, a Concord-based design firm with extensive experience working with Mass Highway, was selected to design the Marlborough-to-Hudson segment of the ARRT. After following a competitive process, Earth Tech, Inc., was determined to be the qualified low bidder. However, all bidders who responded to the RFP requested fees higher than the original $105,000 awarded for design. In addition, the project scope was expanded by MassHighway to reflect stricter than anticipated design standards (primarily for the tunnel and bridge elements), which further increased the level of design funds needed. Marlborough and Hudson began seeking additional funds from a variety of sources and MassHighway contract agreement #8426 was "tabled" until funding issues were resolved.

Appraisals of the ROW in Hudson, Stow, Maynard and Acton were commissioned via a joint RFP process submitted in compliance with MassHighway Standards. Appraisals were prepared by Avery Associates of Acton and completed for the ROW in each community during the Spring

and Summer of 1998. Those appraisals were then individually submitted to MassHighway for review between May and August of 1998.

1999: MassHighway Review and Contracting; Additional Design Funding

In March of 1999, MassHighway completed the review of all of the individual ROW appraisals.

At the April 1999 Acton Town Meeting, the Inter-municipal Agreement was unanimously endorsed.

In July 1999, municipal officials and Earth Tech presented the ARRT project to the Metropolitan Planning Organization (MPO) Local Subcommittee, requesting additional funds for design. On July 6, 1999, an additional $221,715 in design funding was approved for the Marlborough to Hudson segment of the ARRT. In September 1999, MassHighway issued a Notice to Proceed for the original $105,000 of design money awarded to the communities pursuant to agreement #8426. In December 1999, MassHighway issued an amendment to contract #8426 to reflect the increase in the design funding. That contract amendment was approved by the Hudson Board of Selectmen and returned to MassHighway in late December 1999 to await a Notice to Proceed.

A local developer in Marlborough, John Deli Priscoli, obtained a permit to construct the ARRT and an access roadway to his property off of Fitchburg Street. This permit requires the ARRT to be completed in 2001, subsequently extended to January 2002.

2000: TDM Grant; Notice to Proceed; Inter-municipal Agreement

In January, the Town of Hudson submitted a Transportation Demand Management (TDM) two-year grant application to MAPC/EOTC. That application sought additional design funds for the next segment of the ARRT in Hudson. This segment extends from Main Street (Route 62) to Wilkins Street (Route 62) and includes two Park & Ride lots. These will be located along Main Street across from the Cemetery and at Wilkins Street (Route 62). The year-one funding request for this segment was approved by EOTC in August 2000.

In the spring, the City of Marlborough began construction on the Marlborough Segment from Fairbanks Boulevard to Fitchburg Street.

In May, MassHighway issued a Notice to Proceed for the #8426 design amendment increasing the design funding. In June 2000, MassHighway issued contract #8946 in the amount of $654,280 for the original FY98 Enhancement Grant in which the communities were awarded $668,000 for ROW acquisition. After requesting and receiving some language clarification on that contract, it was signed and returned to MassHighway by the Hudson Board of Selectmen on June 27, 2000. The Notice to Proceed for the acquisition contract (Agreement #8946) is still pending.

In May, the $226,000 design amendment portion of the original grant was released and Earth Tech was given notice to proceed with developing design plans for the Marlborough and Hudson Segments.

In June, Hudson and the other communities issued an RFP to hire a consultant to prepare an Implementation Plan for the ARRT. The plan would look at the various ARRT segments, identify the proposed trail alignment, identify how all the pieces fit into the bigger picture, develop cost estimates, and detail a phasing plan to reach the completion of the ARRT. After publicly advertising an RFP and reviewing proposals, Earth Tech was deemed to be the qualified low bidder for the work. This document is the result of that RFP.

In July, the ARRT volunteer support group was incorporated as "ARRT Inc.," a Massachusetts registered non-profit organization.

During the summer of 2000, Maynard completed reconstruction of Railroad Avenue, which runs parallel to the ARRT. As part of this project the right of way for the ARRT was obtained, and a corridor preserved.

In September, Hudson was notified that they would be awarded a TDM Grant of $89,000 for FY01 EOTC funds for the two Park & Ride facilities. This includes the funding for land acquisition and 25% design work for the segment from the Main Street Bridge, east to Wilkins Street. To date, the Notice to Proceed from MassHighway has not been received for these funds.

The Fort Devens Annex was transferred to the U. S. Fish and Wildlife Service during September of 2000. Approximately 1.5 miles (2.4 km) of the ARRT parallels what will become the Assabet River National Wildlife Refuge (ARNWR).

In the fall, all five communities entered into an Inter-municipal Agreement to allow for the implementation of all aspects of the ARRT requiring joint management.

In October, a press conference was held by Senator Pam Resor, Senator Cheryl Jacques and MassHighway Commissioner Matthew Amorello to announce the MassHighway Board's vote to make $654,280.00 available for the acquisition side of the 1998 ISTEA grant. Hudson, Stow, Maynard and Acton will finally have funds to work with to secure the ARRT right of way.

In November, the Hudson Town Meeting voted to approve Warrant Article 4, which requested an appropriation of $50,000. This money will provide the final portion of funding needed to complete the design of the segment of trail from the Main Street Bridge to Wilkins Street and to acquire and design additional right of way needed for a trailhead and parking lot.

2001: 25% Design Completed, First Section Open

In January, each community appointed one member to be part of the Municipal ARRT Steering Committee. Members of this committee are assigned the task of coordinating with the lead community coordinator to move the ARRT project forward, work on grant applications, plans, and help advance ARRT project and see it through construction and completion. The steering committee members must bring all financial decisions back to their respective communities for formal votes.

In March 2001, the Massachusetts Bay Transportation Authority (MBTA) Board of Directors changed their policy on transferring abandoned right of way. The portions in Hudson and Acton will be transferred at no charge. This frees up $381,000 in grant money for other trail items.

In 2001, the designs for the Marlborough and Hudson Segments reached the 25% Design Review stage and were submitted to MassHighway for review. In April the review comments were received and on May 15, 2001 a Public Hearing was held. There was support for the Project at the Public Hearing and the design is currently advancing towards the 75% design review submittal.

In 2001, agreement was reached with MassHighway for the inclusion of the ARRT in the Main Street Bridge Project in Hudson. On May 8, 2001 there was a Public Hearing for the Main Street Project where support was expressed for both the bridge and trail projects. The bridge project is currently in final design.

The Town of Maynard is working with MassHighway and Caravan for Commuters to establish a van service between Clock Tower Place and the South Acton Commuter Rail Station. A grant of $110,000 has been awarded and the projected start up is in 2001.

On Thursday May 17, 2001, the first completed segment of the ARRT was dedicated. A ribbon cutting ceremony (see photo below) was held for the first completed section (3/4 mile long) of the ARRT. Approximately 90 people attended the ceremony. Speakers were Marlborough Mayor William Mauro, Jr., MassHighway Commissioner Matthew Amorello, State Senator Pam Resor, State Representative Stephen LeDuc and ARRT president Jeff Richards.

On May 2, 2001, the Acton Conservation Commission discussed the boardwalk concept for the ARRT at their regular meeting. The Commission voted that the boardwalk was a viable design element of the trail in the vicinity of the Wedgewood (Beacon) property.

Anticipated activities for the balance of 2001:

- Completion of design for the Marlborough and Hudson Segments through MassHighway.
- Acquiring funding for the construction of the Marlborough and Hudson segments.
- Receiving Notice to Proceed for the TDM grant for the Hudson Segment from Main Street to Wilkins Street.
- Complete Right of Way acquisition, and apply for design/construction funding for the Acton section and the first abutting section in Maynard.

Description

The following provides a summary of major topics:

- The Assabet River Rail Trail (ARRT) is a 12.5-mile (20.1 km) "rails to trails" project.
- The Trail commences in Marlborough and proceeds through Hudson, Stow and Maynard, to the commuter rail station in Acton.
- Much of the proposed trail alignment parallels the Assabet River.
- There are five crossings of the Assabet River along the length of the trail.
- The Trail alignment passes close to various employment, recreation and municipal centers.
- The total project length in each community is as follows:
    - Marlborough – 2.2 miles (3.5 km)
    - Hudson – 3.2 miles (5.1 km)
    - Stow – 3.2 to 3.4 miles (5.1 to 5.5 km)
    - Maynard – 2.25 miles (3.1 km)
    - Acton – 1.3 miles (2.1 km)
- A portion of the trail in Marlborough (.75 miles or 1.2 km) was opened on May 17, 2001.
- The balance of the trail in Marlborough and the majority of the trail in Hudson is at the 75% design phase (May 2001) with MassHighway.
- The trail will be designed for cyclists, wheelchairs, pedestrians, roller-blades, and cross-country skiers as a 12-foot (3.66m) wide paved path.
- There are numerous Schools, Parks and Municipal parcels in proximity to the trail.
- All roadway grade crossings will include a steel collapsible bollard to restrict motorized vehicles from entering, while allowing maintenance and or emergency vehicles to enter.

Advocates

The Steering Committee Members for each community are:

Marlborough
Priscilla Ryder, Conservation Officer
Marlborough Conservation Commission
City Hall
140 Main Street
Marlborough, MA 01752
508-460-3768 fax 508-460-3700 marconserve@rcn.com

Hudson
Michelle Ciccolo, Assistant Administrator
Town Hall
78 Main Street
Hudson, MA 01749
978-562-9963 fax 978-568-9641 michelle_ciccolo@mma.org

Stow
Mike Duclos
3 Birch Hill Road
Stow, MA 01775
978-897-5124 mike_duclos@ieee.org

Maynard
Carolyn Britt
Town Hall
195 Main Street
Maynard, MA 01754
978-897-1001 fax 978-897-8457 cjbritt@mediaone.net

Acton
Roland Bartl, Town Planner
Town Hall
72 Main Street
Acton, MA 01720
978-264-9636 fax 978-264-9630 rbartl@town.acton.ma.us

The non-profit volunteer committee leadership positions for ARRT, Inc. are:

President: Jeff Richards, 978-464-5581. hansoncyn@aol.com

Clerk: Duncan Power. dpower@ma.ultranet.com

Treasurer: George Mongeau. gmongeau@synqor.com

Webmaster: Tom Kelleher. tkell@ultranet.com

ARRT, Inc.
c/o Duncan Power, Clerk
246 Essex Street
Marlborough, MA 01752

Please visit the web site at **www.aartinc.org** for a meeting schedule and other information.

Air Quality

The following discussion of air quality is based on the CMAQ Air Quality Analysis Worksheet for Bicycle and Pedestrian Projects.

In communities such as those along the 12.5 mile (20.1 km) ARRT, commuting patterns are difficult to quantify. This is both because these patterns are variable, and because there is limited data that tells us from where and to what end destination people are traveling.

The service area of the ARRT is significant. If a 1-mile (1.6 km) radius is used, the service area is 25 square miles (64.75 sq km).

The land area of the ARRT communities is:

Community	Area Sq Miles	Area Square km
Marlborough	20.99	54.36
Hudson	11.66	30.20
Stow	17.68	45.79
Maynard	5.24	13.57
Acton	20.06	51.96
	Total = 75.63	195.88

This results in a Service Area % of 25 / 75.63 or 33.1%.

Looking at the overall benefits of the ARRT from a general overall perspective, we examined the possible number of people who could use this trail. In the five ARRT communities, there are over 91,000 total residents (2000 Census).

This potential user population however, does not take into account residents from communities surrounding the ARRT who might make use of the trail for portions of their commute, or for recreation in lieu of traveling to trails farther away from the Metrowest area (such as the Minuteman Trail).

Community	1990 Census	% gain	2000 Census
Marlborough	31,813	14.0%	36,255
Hudson	17,233	5.1%	18,113
Stow	5,328	10.8%	5,902
Maynard	10,325	1.0%	10,433
Acton	17,872	13.8%	20,331
Total =	82,571	10.2%	91,034

This results in a population served by the facility of 33.1% X 91,034 = 30,092

The total numbers of households in the ARRT communities are as follows:

Community	2000 Census
Marlborough	14,501
Hudson	6,990
Stow	2,082
Maynard	4,292
Acton	7,495
Total =	35,360

This results in a total number of households served by the ARRT of 33.1% X 35,360 = 11,688.

Examining the numbers of workers in the ARRT communities, we know that there are:

Community	2000 Census
Marlborough	19,292
Hudson	10,152
Stow	3,450
Maynard	6,039
Acton	11,353
Total =	50,286

This results in a workers per household ratio of 50,286 / 35,360 = 1.42.

The number of workers in the service area is 11,688 X 1.42 = 16,622.

Statistics of workers give us some idea of the number of people who must commute on a daily basis. Annually, more than 10,227,000 vehicle trips are made to commercial destinations along the Marlborough and Hudson portions of the trail, alone. The work statistics cited above do not take into consideration activities of those under the age of 17. Students of all age groups are left out of the statistics entirely, even though they make up a sizable percentage of vehicular trips generated daily. Parents regularly shuttle their kids between scholastic, athletic engagements, lessons and other activities.

The population density of the service area is 15,021 / 12.5 = 1,204 persons per sq mile.

We also estimate that within the work population, the percentage of people who bike or walk to work is 2.18 percent in Hudson, and 2.22 percent in Marlborough. Unfortunately, we don't know the reasons more people do not bike or walk to work, and we cannot predict if the ARRT itself will increase the likelihood of people commuting on bike or foot.

Interestingly, however, the percentages in the Towns of Hudson and the City of Marlborough are significantly lower than the Metrowest average, and the Metrowest region is well below the statewide average of 5.8 percent. We believe that one cause might be the lack of good bike and pedestrian facilities, and indeed, the Metrowest Bicycle-Pedestrian report asserts that, "Good bicycling roads in Hudson and Marlborough are limited."

The above data can be inserted into the CMAQ Air Quality Worksheet for Bicycles and Pedestrian Projects, as shown on the following page.

CMAQ Air Quality Analysis Worksheet for Bicycle and Pedestrian Project

FILL IN SHADED BOXES ONLY

TIP YEAR:

RPA:

Project: **Bicycle and Pedestrian Facility**

Step 1: Calculate Estimated Reduction in Vehicle Miles Traveled (VMT):

If VMT reduction per year is known then go to Step 2B, if not proceed with Step 1 :

A.	Facility Length **(L)**:	12.5	Miles	
B.	Service Area Radius **(R)**:	1.0	Miles	(Default = 1 Mile)
C.	Service Area of Community(ies) **(SA)**: L * 2R = SA	25	Sq. Miles	
D.	Total Land Area of Community(ies) **(T)**:	75.63	Sq. Miles	
E.	Service Area % of Community(ies) Land Area **(LA)**: SA / T = LA	33.1%		
F.	Total Population of Community(ies) **(TP)**:	91,034	Persons	
G.	Population Served by Facility **(P)**: LA * TP = P	30,092	Persons	
H.	Total Number of Households in Community(ies) **(HH)**:	35,360	HH	
I.	Number of Households Served by Facility **(HS)**: LA * HH = HS	11,688	HH	
J.	Total Number of Workers Residing in Community(ies) **(W)**:	50,286	Persons	
K.	Workers Per household **(WPHH)**: W / HH = WPHH	1.42	Persons	
L.	Workers in Service Area **(WSA)**: HS * WPHH = WSA	16,622	Persons	
M.	Population Density of the Service area **(PD)**: P / SA = PD	1,204	Persons Per Sq. Mile	

N. If the bicycle and pedestrian commuter mode share is known, enter the percentage at the right. **(BMS)** 2.2%

If not, using the population density for the service area refer to the graph for "Percent Bike Use for Commuting" (Available from MassHighway Planning), or use the "Massachusetts Pedestrian Transportation Plan" (Pages 3-2 & 3-3) to assume a bicycle and pedestrian commuter mode share.

O.	Bike and Ped. Work Utilitarian Trips **(BWT)**: WSA * BMS = BWT	366	One-Way Trips
P.	Bike and Ped. Non-Work Utilitarian Trips **(BNWT)**: BWT * 1.7 = BNWT	622	One-Way Trips

Step 2: Calculate the VMT Reduction Per Day:

A. ((2 * BWT) + (2 * BNWT)) * (0.5* L) = VMTR 12342.1 VMTR Per Day

B. VMTR * Operating Days Per Year **Used 75% yr** 12,342.1 * 365(75%) = 3,394,081 VMTR Per Year

If the Vehicle Miles Traveled Reduction is known enter in the box to the right. VMTR Per Year

Note: A manual entry of the VMTR will override the calculated cell.

Step 3: Mobile 5AH Emission Factors for Average Commuter Travel Speed:

Note: Use 35 MPH as a default if average speed is not known.

2003 VOC Factor grams/mile	2003 NOx Factor grams/mile	2003 Summer CO Factor grams/mile
0.690	**1.049**	**4.416**

Step 4: Calculate emissions reductions in kilograms per year (Seasonally Adjusted):

VOC	NOx	Summer CO
2,385.9	**3,627.3**	**14,988.3**

Step 5: Calculate cost effectiveness (first year cost per kg of emissions reduced)

Emission	Project Cost		Emission Reduction in kg per year	First year cost per kilogram
VOC	$6,000,000	/	2,385.9 =	**$2,515**
NOx	$6,000,000	/	3,627.3 =	**$1,654**
Summer CO	$6,000,000	/	14,988.3 =	**$400**

Project Cost includes the basic trail beyond the current (2001) Marlborough and Hudson Segments

The CMAQ Air Quality Analysis Worksheet is used as a guide to compare benefits of various projects seeking funding. The CMAQ consultation committee determines eligibility and the MPO's determine priority through programming of the TIP. The cost-effectiveness calculation is a relative judge of worthiness. The key is if the project provides an air quality benefit.

From the spreadsheet, we see the following:

- 25-mile service area using a 1 mile radius;
- This equates to 33% of the five communities;
- Population served is 30,092 within the 1 mile radius;
- Workers served is 16,622 within the 1 mile radius;
- A reduction of more than 3,394,000 vehicle miles traveled (VMTR) per year;
- 2,385 kilograms of VOC reduced each year;
- 3,627 kilograms of NOx reduced each year; and
- 14,988 kilograms of Summer CO reduced each year.

These figures clearly indicate that the ARRT provides a significant benefit to the Air Quality of the project service area.

Mr. Michael Vivaldi authored the following subsections on Economic and Cultural Development, and Natural Resources and Recreation. Mr. Vivaldi is a candidate for a Master's degree in regional planning at the University of Massachusetts – Amherst. While a graduate student, he developed a passion for promoting the benefits of rail trails and greenways to the public. He wrote the complete report, *Projecting the Ecomonic Benefits for the Assabet River Rail Trail in Eastern Massachusetts,* to fulfill a graduate course requirement. A copy of this report is included in the Appendix.

Economic and Cultural Development

All across the country, bicycle and pedestrian facilities are proving to be a wise economic investment for the communities through which they pass.[1] Studies have shown that rail trails stimulate local economies by attracting bicyclists, hikers, cross-country skiers and other tourists to the area.[2] The increase in bicycle and pedestrian traffic may attract new businesses and revitalize the current businesses that are operating along the path. The trails and pathways may also have positive effects on nearby properties as homebuyers and business owners realize the value that such facilities bring to a community.

Of the five communities that the Assabet River Rail Trail will traverse, the rail trail will pass directly through the commercial centers of Hudson and Maynard and terminate within a quarter mile of Marlborough's historic commercial downtown. However, all businesses will benefit from the additional pedestrian traffic that the rail-trail will provide.

According to National Bicycle and Pedestrian Clearinghouse Technical Brief, the types of businesses that benefit from the success of nearby recreational rail trails include bed-breakfast establishments, bicycle shops, campgrounds, and restaurants. There will be numerous examples of the types of businesses within the five communities that will benefit from the rail-trail passing. Communities all across the country are benefiting from having bicycle and pedestrian facilities pass through their town. According to research conducted by Rails-To-Trails Conservancy, 85 million people used rail trails in 1994.

Rail trail development will bring both direct and indirect economic benefits to the five communities. An example of a direct economic benefit to the community might be that on hot summer days, trail users passing through Maynard could diverge from the trail for a quarter mile and access the old-fashioned ice cream parlor to get a cold drink and ice cream cone at "Erikson's Ice Cream Creamery." Additionally, trail users passing through Hudson will be able to access the commercial area along Washington Street (Route 85) to get a cold drink, and as the trail winds through Hudson, trail users will be able to access another ice cream shop within a quarter-mile of the trail, "P.C Creams." The additional revenue experienced by these businesses

1 National Bicycle and Pedestrian Clearinghouse Technical Brief. September 1995. Distributor of Case Studies that were previously documented by the Federal Highway Administration – National Bicycling and Walking Study.
2 National Bicycling and Walking Study. Final Report. 1993. Produced by Federal Highway Administration.

resulting from an increase in pedestrian traffic could, in turn, have a positive effect on employment rates and household income.

Along the 12.5 miles of rail trail, the trail-user will be able to find many sites of historic significance adjacent to or within a half-mile of the trail. Two noteworthy sites are on the National Historic Register. One site in Hudson is the house of Colonel Adelbert M. Mossman, a civil war veteran who organized Hudson's first military unit[3]. It is listed with the National Historic Register for the historical significance of its inhabitant and Victorian architecture.

The other site, Exchange Hall, is in Acton. When Acton began to thrive as a community in the mid 1800's, Exchange Hall was the centerpiece for the community. It had many roles for the community, including a social entertainment center and the home to community meetings, the local post office and a general store. Exchange Hall was considered a great place to dance because it had a spacious dance floor that was not directly tied to the floor supports, which the historical users described as a "spring" floor.

Today, Exchange Hall continues as a woodworking shop on the first two floors, an art gallery on the third floor, and a Karate studio in the old meeting hall on the fourth floor.

[3] http://www.ultranet.com/~Hudson/history.htm Viewed on May 8th 2001.

Natural Resources and Recreation

As the name of the new rail trail indicates, the Assabet River Rail Trail (ARRT) will travel within sight and over parts of the Assabet River. This will be very important for the five communities of Marlborough, Hudson, Maynard, Stow and Acton, because the Assabet, along with the Sudbury and Concord Rivers, were recently designated as '*Wild and Scenic Rivers*' under the federal government on March 4, 1999[1]. This designation will protect the waterway and the abutting land, and will allow the Department of the Interior, in cooperation with a local group known as the SUASCO River Stewardship and the National Park Service, to continue to protect the river from development and promote its "wild" and scenic" characteristics. Additionally, the federal designation of '*Wild and Scenic*' will promote the recreational use of the river.

As one travels north, the ARRT will cross the Assabet River in Hudson and follow the river for approximately 7 miles to Maynard, where the rail trail and the Assabet River will diverge. By Maynard, the Assabet River Rail Trail will have crossed the Assabet River five times. One of the river crossings will use a historic railroad bridge that passes 40 feet over the Assabet River. It will provide rail trail users a spectacular view of the Assabet River and the surrounding area. Possibly the most scenic section of rail trail will be in Stow where the trail parallels the river along Track Road. It is a quiet, wooded section of trail with many opportunities for fishing and bird watching. During this stretch of parallel use along the Assabet River, the rail trail users will be able to enjoy wetland flora and fauna; some representative wetland bird species may be the Belted Kingfisher, Red-tailed Hawk, Great Blue Heron and Black-crowned Night-Heron, Mallard Ducks and the Northern Flicker. Other types of wildlife the public can expect to encounter include the Eastern Box Turtle, Painted Turtle and Gray Squirrel.

The U.S. Fish and Wildlife Service in 1993 recorded that, "In 1991, hunting, fishing and wildlife viewing resulted in $5.3 billion of annual spending in California. Of the 9.2 million people participating in wildlife-related recreation, 32 percent fished, 6 percent hunted and 71 percent pursued wildlife viewing[2]." With the recent federal designation for protecting the waterway and abutting land, the Assabet River Rail Trail will be a very significant asset for the towns to promote to visitors to enjoy the New England outdoors.

Within the 3.3 miles that the Assabet River Rail Trail passes through Stow, the trail passes along pockets of wooded swamp and marsh to the south. This area is part of a 7-acre habitat listed with the Natural Heritage and Endangered Species program, and therefore has special significance. The rail trail will also pass along the U.S. Fish and Wildlife property (ARNWR) for 1.5 miles. This is significant because it could provide wildlife with opportunities to expand to other existing open spaces, which may have been prevented previously due to vehicular and human traffic. For families and adolescents in Marlborough, the rail trail will provide a safe transportation route to Kelleher Field, which provides recreational playing fields.

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[1] *Sudbury, Assabet, and Concord Wild and Scenic River Act.* 106th Congress, 1st Session. Published by the Committee on Energy and Natural Resources – U.S Congress. March 17th 1999.

[2] Economic Impact of Protecting Rivers, Trails, and Greenways Corridors. www.nps.gov/pwro/rtca/econ_index.htm. 1995. 4th Edition, Revised.

In Acton, the rail trail will pass over wetlands using a newly constructed boardwalk so that trail-users can be close to nature. The many wildlife-viewing spots along the 12.5-mile rail trail provide several opportunities for the communities to provide interpretive centers describing the history and nature of the area for the public.

An additional recreational facility adjacent to the rail-trail for the public use is the Stow municipal recreational fields, which provide soccer fields and a town beach. Within Hudson, the adjacent or nearby municipal recreational uses provided access by the rail trail include the South Street Park, Cherry Street Park, and the Wood Park and Apsley Park. Municipal parks within Maynard and Acton are Tobin Park and Great Hill Park, respectively.

Section 2: Communities

SECTION 2 – COMMUNITIES

This section provides an in-depth discussion of each community's section of the ARRT.

Marlborough

Location and Description

Please refer to the Marlborough maps on pages 21 and 22.

The Marlborough section begins at the intersection of Lincoln, Cashman and Highland Streets. The trail follows the abandoned railroad alignment northerly crossing Hudson Street, Ash Street and Fairbanks Boulevard. At Fairbanks Boulevard, the project connects to a recently completed segment of the trail and continues to Fitchburg Street. After crossing Fitchburg Street at grade, the next segment will be constructed by an abutting office development to the Town Line at the Route 85 Connector. The location will generally follow the Railroad Right of Way (ROW) and may be adjusted as part of the abutting site development.

Ownership

The ROW in Marlborough is owned by the City. The City purchased the ROW from the MBTA with Public Works Economic Development Funding (PWED) in 1997.

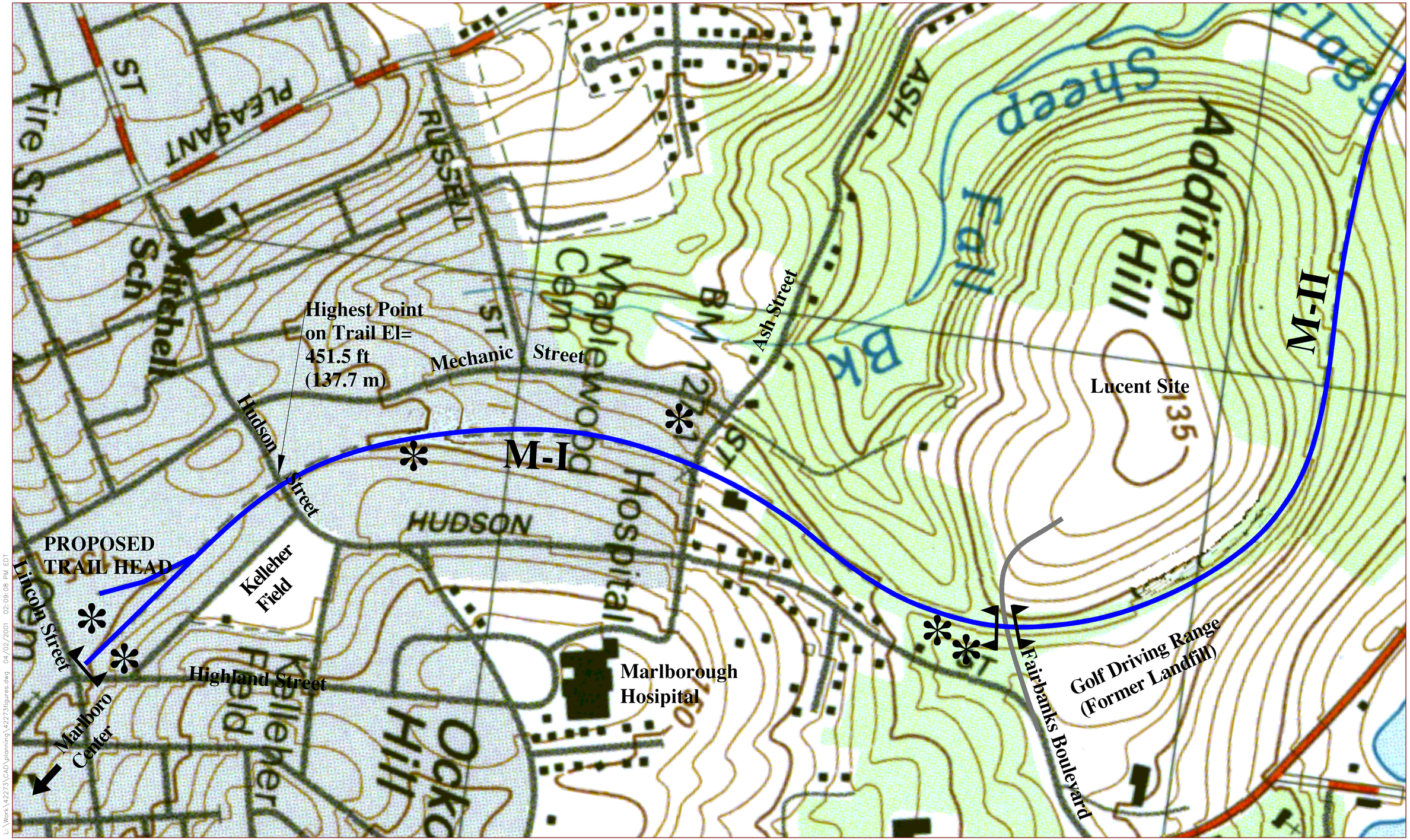
Segments

The Marlborough section is divided into three Segments as indicated on pages 21 and 22.

These Segments are defined as:

Segment	Length	Limits
M-I	1 mile (1.6 km)	Lincoln Street to Fairbanks Boulevard
M-II*	0.75 miles (1.2 km)	Fairbanks Boulevard to Fitchburg Street
M-III	0.5 miles (0.8 km)	Fitchburg Street to the Hudson Town Line
	Total = 2.14 miles (3.6 km)	
M-IV	2 Acres (0.8 hectares)	Trail Head/Park at Lincoln Street limit, trail amenities and connections.

* Opened on May 17, 2001



EARTH TECH
A tyco INTERNATIONAL LTD. COMPANY

✻ Municipal Parcel

Segment Limit

Z-# Abutting Feature

N

MARLBORO SHEET 1 OF 2
SCALE 1:5000
ASSABET RIVER RAIL TRAIL

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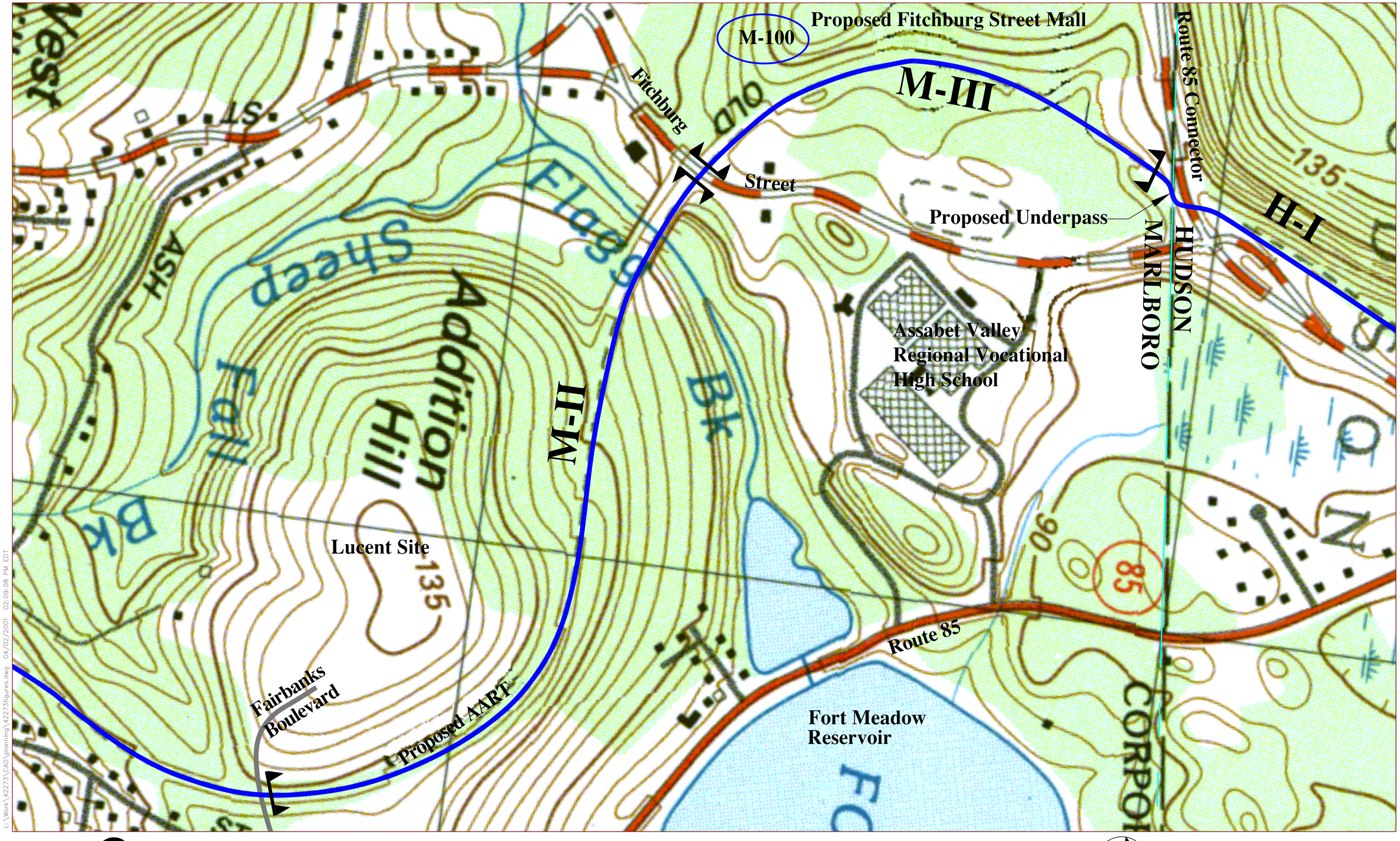

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✻ Municipal Parcel [Segment Limit Z-# Abutting Feature

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MARLBORO SHEET 2 OF 2
SCALE 1:5000
ASSABET RIVER RAIL TRAIL

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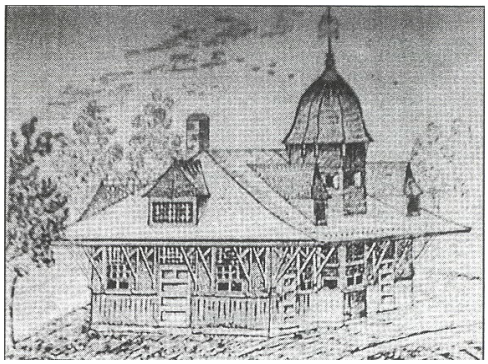
Design Issues

The Marlborough portion of the project does not have any exceptional design issues.

The trail will cross local roadways at-grade with a collapsible bollard proposed on the trail, preventing unauthorized motor vehicles from entering. Trail users will be required to stop at the local roadway crossings, as there will be stop signs for both approaches. Advanced warning signs will be placed on the local roadway approaches as well to alert drivers of the crossing. There will be a 9.8-foot (3 m) wide crosswalk, the vegetation will be trimmed back and some grading will be performed to improve the intersection sight distance. There will be additional street lighting provided at these crossings.

The City is pursuing a secondary project which involves recreating the original train depot at Lincoln Street. An artist's rendering of this structure appears to the right. This would become the focal point of a trailhead at the southerly limit of the ARRT. The two-acre (0.8 hectares) site would also include landscaping, benches, and other amenities to become an urban park as well as a trailhead. A brownfields grant is being used to investigate any past contamination on this site. The City wishes to purchase and develop this site, and negotiations are proceeding. Future funding sources to accomplish this goal are being sought, as well.



A Screening for Oil and Hazardous Materials was performed along Segment M-I. The purpose of this screening was to review Massachusetts DEP oil and hazardous materials (OHM) release site databases, inquire with the Marlborough fire department and board of health regarding known releases of OHM along the ARRT route, and perform a visual site reconnaissance. The intent of the assessment was to seek to identify visual evidence of OHM releases or threats of releases to soil and groundwater along the ARRT route, and to assess the potential impact to rail trail construction. The screening found that the risk associated with the identified sites along M-I is low and not significant given the future intended use of the rail bed as a rail trail. The intent is to mitigate these locations, if required, during the construction process.

Adjacent Use

Schools and Recreation

Fisher College is located two blocks from the beginning of the trail on Main Street. A Catholic school is also located two blocks from the trailhead on Prospect Street. Located one block to the northeast is Kelleher Field, a neighborhood park with a football field, bleachers and a children's play area.

North of Ash Street and before reaching Fairbanks Boulevard, a nature trail system will head west to meander along Sheepfalls Brook and connect back with the ARRT trail near Fitchburg Street. (This trail has not yet been built.)

After passing Fairbanks Boulevard, the trail abuts the western side of a large parcel owned by the City of Marlborough. This had formerly been the site of a landfill and is now part of a golf driving range. An overlook clearing area provides a beautiful view of Ft. Meadow Reservoir in the valley below.

Down Fairbanks Boulevard across Rte. 85 (Bolton Street) is the regional DEM Navin Skating Rink, which is also next to the Marlborough High School and Middle School complexes. These sites are within easy access of the trail.

To the north of Fitchburg Street, the trail abuts the Assabet Valley Regional Vocational High School, with athletic fields directly to the east. As shown on the following pages, there are over 10,000 students enrolled in various programs at the Assabet Valley Regional Vocational Technical High School. The students come from Berlin, Hudson, Marlborough, Maynard, Northboro, Southboro and Westboro. Over the last seven years, the majority of students, by a wide margin, come from Marlborough and Hudson.

Abutting the Assabet Valley Regional Vocational High School across Rte. 85 is the City's Grove Conservation Land. This site abuts Ft. Meadow Reservoir and is an appealing destination point.

Employment and Commercial Centers

The southerly trailhead is approximately ¼-mile (500 meters) from Marlborough City Hall and the cities commercial center. There are 3,000 employees and visitors to these retail, financial, and restaurant facilities each day.

The staff of the Assabet Valley Regional Vocational Technical High School consists of 229 professionals, and the enrollment is detailed on the following pages.

Some smaller local type businesses are in proximity to the trail.

Located one block east of Hudson Street is the Marlborough Hospital. There are 620 employees of this medical facility.

The trail passes along the east edge of Lucent Technologies site. This site employs 3,154 people.

Labeled as M-100 on page 22 is the site of a future development. The development, as required by City Council permit, will construct the portion of the ARRT from Fitchburg Street to the Route 85 connector underpass.

ASSABET VALLEY REGIONAL VOCATIONAL SCHOOL DISTRICT

~ADDITIONAL PROGRAM ENROLLMENTS~

PROGRAMS	BERLIN	HUDSON	MARLBORO	MAYNARD	NORTHBORO	SOUTHBORO	WESTBORO	OTHER	TOTAL
ADULT EDUCATION	133	881	1387	165	601	219	534	4742	8662
AZTEC ADVENTURE CAMP	11	18	22	12	68	26	52	119	328
PRE- NURSING	0	5	9	3	2	1	4	13	37
ADULT DAY	2	9	13	0	1	2	3	0	30
COLLABORATIVE SCHOOL	2	4	5	4	0	0	1	4	20
SUMMER SCHOOL	3	29	43	8	16	11	4	84	198
G. E. D. PROGRAM	1	18	56	7	8	2	6	104	202
ESL CLASSES	0	12	49	0	2	0	3	9	75
SNOOP TROOP	0	0	0	0	0	0	27	0	27
HUDSON YOUTH CENTER	7	43	6	0	0	0	0	7	63
BASKETBALL CAMP	0	9	33	1	0	0	1	38	82
FOOTBALL CAMP	0	17	9	0	4	4	10	40	84
M.O.V.E. PROGRAM	0	0	2	0	5	6	7	2	22
EXTENDED DAY	0	1	4	4	0	1	1	5	16
CERTIFIED NURSES AID	1	2	2	0	0	0	0	0	5
ADULT COMPUTER CLASS	0	4	7	1	0	0	0	0	12
MCAS SUMMER CAMP	0	24	31	10	2	0	7	23	97
CHILDCARE	0	2	13	0	1	0	0	0	11
ADULT BASIC ED / GED	0	11	42	1	1	1	0	18	74
TOTAL	160	1,089	1,733	216	711	273	660	5,210	10,052

ENROLLMENT

			BUDGET	YEAR	BUILDING			
ENROLLMENT AS OF:	10/1/99	10/1/98	10/1/97	10/1/96	10/1/95	10/1/94	10/1/93	7 YR. AVE
CITY / TOWN	FY- 01	FY-00	FY-99	FY-98	FY-97	FY-96	FY-95	AVE
BERLIN	17	15	16	14	15	13	17	15
HUDSON	178	181	191	230	243	230	217	210
MARLBORO	317	335	325	316	327	282	276	311
MAYNARD	68	53	53	47	41	51	65	54
NORTHBORO	47	48	45	43	36	43	46	44
SOUTHBORO	17	13	15	16	21	15	19	17
WESTBORO	47	50	47	58	56	45	51	51

BERLIN	HUDSON	MARLBORO	MAYNARD	NORTHBORO	SOUTHBORO	WESTBORO
13.33%	-1.66%	-5.37%	28.30%	-2.08%	30.77%	-6.00%
FR.	8%	TOTAL	1.93%			

Municipal Property

The City of Marlborough owns five (5) parcels of land directly abutting the trail from Lincoln Street to Fairbanks Boulevard.

Location	Map/Parcel	City's Designated Use
Lincoln St./Highland St.	56/158	Undesignated
Hudson St.	56/141A	Undesignated. Can be used for parking area or another access point to the trail.
Ash St.	43/4	Has been conveyed to City for open space and recreation.
Hudson St./Fairbanks	30/6 30/4A	Undesignated

Housing

Within ½ mile of each side of the trail, there are 1,491 single-family homes. Bolton Manor Nursing Home is within one block, and the Marlborough Senior Center is within three blocks of the ARRT.

Nature

The highest point along the ARRT is at Hudson Street, with an elevation of approximately 451.5 feet above mean sea level. This marks the divide between the Sudbury and Assabet watersheds. Beyond Hudson Street, the trail goes through an excavated cut, revealing the western shoulder of Okoocanganset Hill and Mt. Wachusett can be glimpsed 20 miles to the northwest.

Continuing to the north, the trail crosses a drainage swale of the headwaters of Sheep Fall Brook. Vegetated wetlands and the buffers along Sheep Fall Brook are home to a diverse range of plant and animal species. Entering the more natural area near Sheep Fall Brook, transitional plant species, such as black raspberry, poison ivy and gray birch, can be seen. Oaks dominate the tree canopy, and red-tailed fox, woodchuck, raccoon, skunk, red squirrel, porcupine and rabbit will be hiding beneath the vegetation. These woods are also home to birds such as cardinal, mourning dove, downy woodpecker, tufted titmouse, owls, purple finch, robins and woodcock.

Downhill slightly from Fairbanks Boulevard is a scenic overlook of the Fort Meadow Reservoir to the northeast.

Approaching Fitchburg Street, the trail traverses Flagg Brook, which flows to the east into Fort Meadow Reservoir marsh. Vegetated wetlands border Flagg Brook, and during times of heavy rainfall, flooding occurs along each bank. This wildlife corridor includes canopy trees of red oak, white oak, red maple, black birch, white pine, white ash and shagbark hickory. A healthy understory of small trees includes common witchhazel,

speckled alder, highbush blueberry and spicebush. This wooded corridor is one of the most wild and natural sites along the ARRT, and beavers have been active in this area.

North of Fitchburg Street, abutting the Assabet Valley Regional Vocational High School, a wooded swamp wetland area exists. To the west of the trail is Hager Hill.

Within the Marlborough locus of the ARRT, there are no known rare or endangered species listed by the Natural Heritage and Endangered Species Program maps.

Connections

Connections to the abutting recreation sites and schools are proposed in a future phase. These will include some or all of the following as amenities and additions to the recreational and commuting aspect of the trail. At Lincoln Street there is a spur line that can be incorporated into the trailhead park currently being pursued. All at-grade roadway crossings provide connections to the neighborhoods, commercial areas and roadway network. A parking area just north of Hudson Street, behind the existing print shop and hairdressing complex, will be reviewed to provide access to the trail at this location. A nature trail just south of Fairbanks Boulevard, which will meander along Sheepfalls Brook, connect with Flagg Brook and connect back into the ARRT, is proposed as part of the Stratus (now Lucent Technologies) future expansion plans. An expanded recreation facility is proposed at the Assabet Valley Vocational School, which may include a skating rink and additional recreational fields, as well as a trail connection from the school site. Some of these projects will be incorporated into future development plans as part of the development approvals. Others will be pursued by the City, as needed.

Status

To date, the status of the Marlborough segments are as follows:

M-I	Lincoln Street to Fairbanks Boulevard is part of the design project underway with MassHighway and currently proceeding towards a 75% design phase submittal;
M-II	Fairbanks Boulevard to Fitchburg Street was opened for use on May 17, 2001;
M-III	Fitchburg Street to the Town Line is currently in the design phase by an abutting developer and is anticipated to be constructed by January 2002; and
M-IV	Lincoln Street Trail Head Park, Depot reconstruction and connections to other locations is in the conceptual development stage.

Estimated Costs - DRAFT

Estimated costs are for budgetary purposes, based on 2000 dollars, and should be reviewed and refined prior to any Grant Applications.

Segment	Description	Estimated Costs Construction	Design[1]
M-I	Lincoln St. to Fairbanks Blvd. [2]	$375,000	Funded
M-II	Fairbanks Blvd to Fitchburg St.	[3]	[3]
M-III	Fitchburg Street to the Town Line	[4]	[4]
	Marlborough Totals	**$375,000**	**-0-**
M-IV	Trail Head Park, Depot Restoration, and Amenities [5]	$1,000,000	$120,000
	MassHighway 25% Design Submittal		**$48,000**

Notes:

[1] Estimated design costs for base trail are estimated as 12% of the estimated construction cost. Estimate design costs for Amenities are estimated as 15% of the estimated construction cost. Estimate design costs for MassHighway 25% design submittal are estimated as 40% of the estimated design cost. Prior to any grant applications these figures should be reviewed and adjusted for scope, limits, inflation, and other factors.

[2] M-I is currently in the design stage with H-I, and scheduled for 2002 construction.

[3] Segment opened for use on May 17, 2001.

[4] Segment M-III is currently being designed and constructed by others for completion in January 2002, by City Council Permit.

[5] The final Segment in each community consists of amenities, specialty signage, linear park type features, and specific improvements. For Marlborough a restoration of the old train depot, a trailhead park, and amenities along the trail are planned.

Hudson

Please refer to the Hudson maps on pages 31, 32 and 33.

Location and Description

The Hudson section begins at the Marlborough/Hudson Town Line (Route 85 Connector), and continues north, crossing under the Route 85 Connector. The underpass of the Route 85 Connector will be by way of a new precast concrete structure.

The trail will follow the railroad alignment to where it crosses Washington Street (Route 85), at grade.

Continuing north, the trail crosses the Assabet River by constructing a new deck on the existing railroad trestle. The trestle was constructed around 1889 and provides a spectacular view of the Assabet River from almost 50 feet (15 meters) above the river. The two-girder, five-span bridge is constructed of wrought iron and is 150-feet (45.7 meters) long. The piers are braced wrought iron bents bearing on stone masonry foundations. One pier is within the river and another is at the edge of the riverbank. The Assabet River through the bridge reach is approximately 59 feet (18 meter) wide. This structure was analyzed and accepted by MassHighway as suitable to support the new deck of the ARRT.

The trail then crosses Broad Street at the intersection of Broad Street with South Street and Vila Do Porto Boulevard. The trail continues adjacent to Vila Do Porto Boulevard to the Tower Street intersection. Crossing Vila Do Porto at the intersection of Vila Do Porto, Main Street and Tower Street the trail follows the railroad alignment to the Main Street (Route 62) Bridge. MassHighway is replacing the Main Street Bridge structure under a separate project. MassHighway has agreed to accommodate the ARRT into the design of the bridge. In turn, Hudson will provide the ROW needed for the bridge project.

The ARRT crosses Main Street (Route 62) east of the Main Street Bridge, as shown on page 32. Once across Main Street, the ARRT will follow the alignment of the railroad, cross Cox Street at-grade, and continue to Wilkins Street (Route 62). At this location a trailhead and a small parking lot are anticipated, as shown on page 35.

Ownership

Currently the Massachusetts Bay Transit Authority (MBTA) owns the majority of the Hudson ROW. The MBTA is in the process of transferring the ownership to the Town of Hudson. The section from Wilkins Street to the Stow Line is privately owned. Initial contact with these owners revealed that they are not interested at this time.

1/2 mile to:
Hudson High School
Wood Park
Apsley Park
Loureiro Park

Brigham Circle
Housing for the
Elderly

(Route 85)

Houghton Street

Proposed ARRT

Glasson Street

Masson Street

H-100

Proposed Brigham Hill III Subdivision

Commercial
Area

Washington Street

H-1

Highest point
in Hudson

Route 85
Connector

Proposed Underpass

HUDSON
MARLBORO

Shaw's Plaza

Forestvale
Cem

Broad St
Sch

Intel
Site

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EARTH TECH
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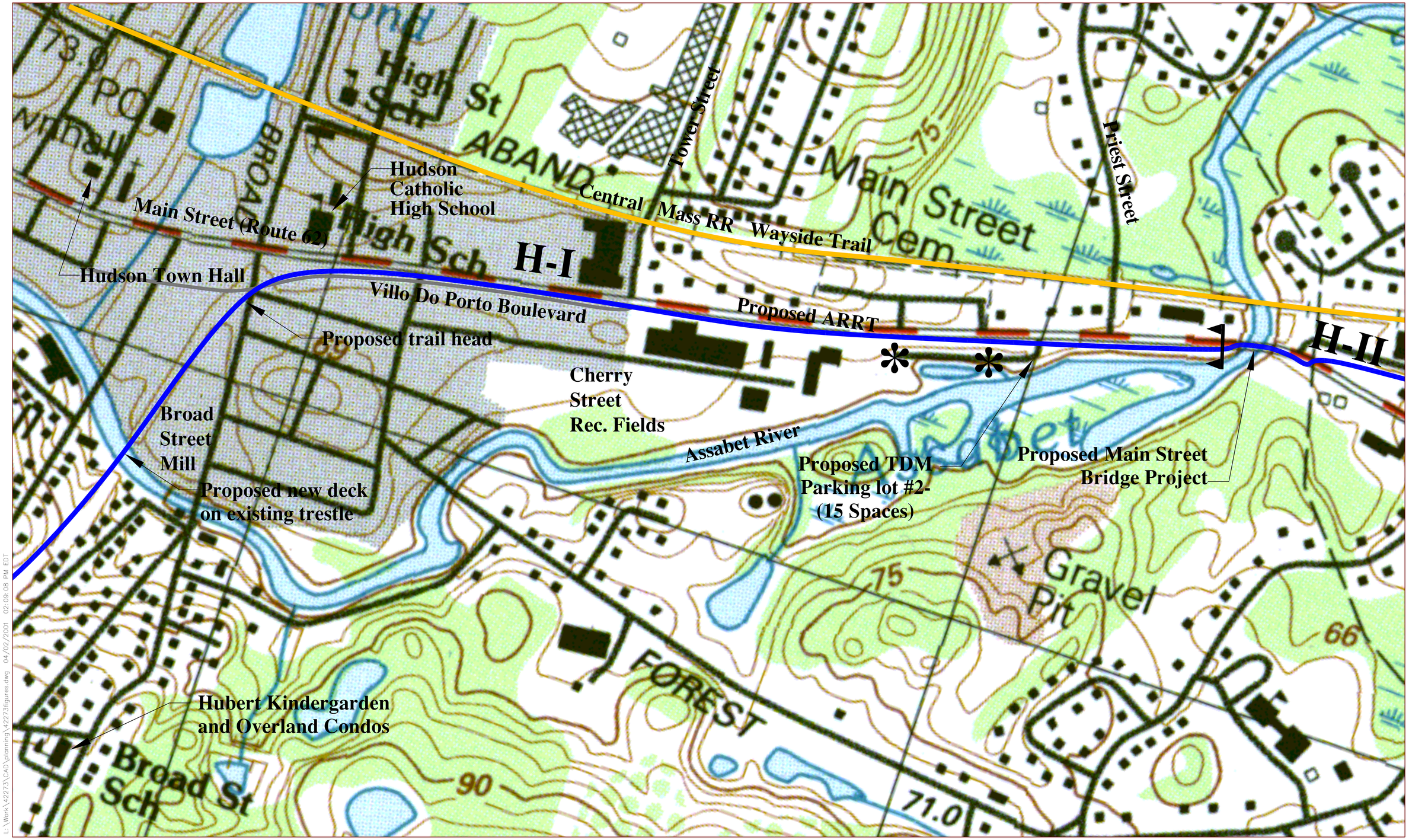
✻ Municipal Parcel Segment Limit Z-# Abutting Feature

HUDSON SHEET 1 OF 3
SCALE 1:5000
ASSABET RIVER RAIL TRAIL



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✻ Municipal Parcel Segment Limit Z-# Abutting Feature

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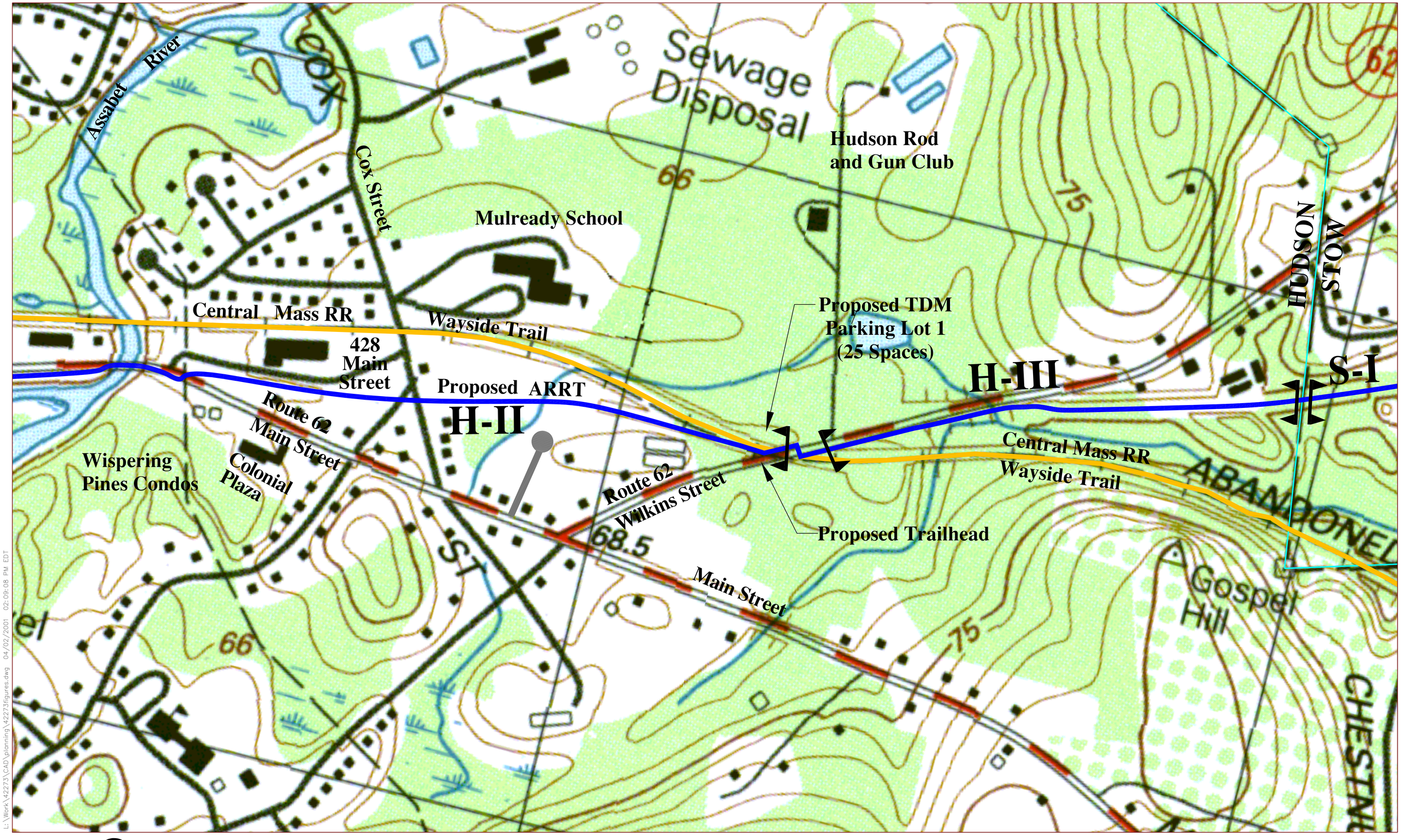
HUDSON SHEET 2 OF 3
SCALE 1:5000
ASSABET RIVER RAIL TRAIL



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EARTH TECH
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Municipal Parcel | Segment Limit | Z-# Abutting Feature

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HUDSON SHEET 3 OF 3
SCALE 1:5000
ASSABET RIVER RAIL TRAIL

Segments

The Hudson section is divided into three Segments as indicated on pages 31, 32 and 33.

These Segments are defined as:

Segment	Length	Limits
H-I	2 miles (3.2 km)	Marlborough Town line to Main Street
H-II	2/3 mile (1 km)	Main Street to Wilkins Street
H-III	1/2 mile (0.8 km)	Wilkins Street to the Stow Town line
	Total = 3.17 miles (5.1 km)	
H-IV	Entire Trail in Hudson, trail amenities and connections.	

Design Issues

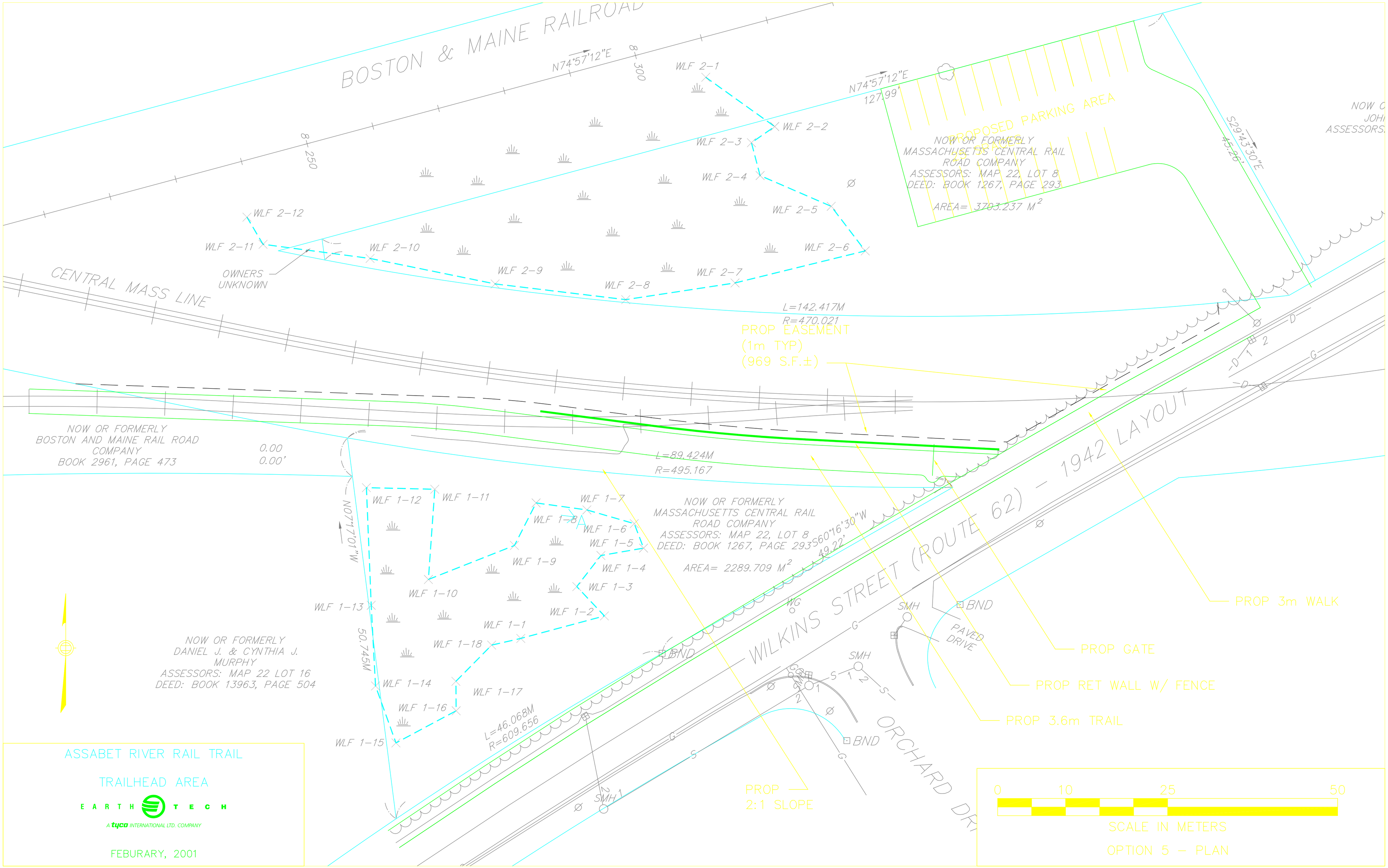
The trail will cross under the Route 85 Connector (The Argeo R. Cellucci Jr. Highway) by way of a new concrete underpass. This will have lighting and provide a grade separated crossing between the trail and the vehicular traffic.

The crossing of Washington Street (Route 85) will be by way of an at-grade crossing, with collapsible bollards on the trail preventing unauthorized motor vehicles from entering. Trail users will be required to stop at the local roadway crossings, as there will be stop signs for both approaches. Advanced warning signs will be placed on the local roadway approaches as well to alert drivers of the crossing. There will be a 9.8-foot (3 m) wide crosswalk, the vegetation will be trimmed back and some grading will be performed to improve the intersection sight distance. There will be additional street lighting provided at this crossing. At this time a pedestrian crossing signal is not anticipated.

The existing traffic signals at the intersection of Broad Street with South Street and Vila Do Porto Boulevard, as well as the intersection of Tower Street, Main Street and Vila Do Porto Boulevard will be rehabilitated to better accommodate the increased pedestrian activity at these locations. Trail users will be required to observe the pedestrian signals to cross at these locations.

The sidewalk along the easterly side of Vila Do Porto Boulevard will be replaced with a wider facility to accommodate the trail. ROW and access issues will need to be resolved with the abutters in this location.

At Wilkins Street (Route 62), the ARRT ROW is interrupted by the Central Mass Line (Wayside Trail) of the MBTA. The Town of Hudson has been working with the MBTA to accommodate the trail through this area. The Town of Hudson is also working with the B+M Railroad to obtain ownership of two remnant parcels abutting the trail at this location. These two parcels will become a trailhead and parking lot, as shown on page 35.



ASSABET RIVER RAIL TRAIL

TRAILHEAD AREA

EARTH TECH

A tyco INTERNATIONAL LTD. COMPANY

FEBURARY, 2001

A Screening for Oil and Hazardous Materials was performed along the Hudson Segment. The purpose of this screening was to review Massachusetts DEP oil and hazardous materials (OHM) release site databases, inquire with the Hudson fire department and board of health regarding known releases of OHM along the ARRT route, and perform a visual site reconnaissance. The intent of the assessment was to seek to identify visual evidence of OHM releases or threats of releases to soil and groundwater along the ARRT route, and to assess the potential impact to rail trail construction. The screening found that the risk associated with the identified sites along the trail is low and not significant, given the future intended use of the rail bed as a rail trail. The intent is to mitigate these locations, if required, during the construction process.

Adjacent Use

Schools and Recreation

The ARRT is located near the Hudson Catholic High School and Saint Michael's Grammar School on Main Street in Downtown Hudson.

The Cox Street at-grade crossing is in proximity to the Mulready School (formerly called the Cox Street School), Hudson High School, and Hubert Kindergarten.

Town owned parks are nearby on South Street, Cherry Street, and at the Mulready School. Within one-half mile of the ARRT is Riverside Park, Wood Park, Apsley Park, and Louriero Park.

Hudson is where the ARRT connects with the Proposed Wayside Trail (Central Mass RR).

The Hudson Rod & Gun Club abuts the ARRT at Wilkins Street.

America's Pastime batting cages and golf driving range abut the trail on Broad Street.

The following tables on the following page provide typical schedules for high school and Little League baseball, as well as adult soccer, in Hudson.

Typical Spring Sports Schedule

	Riverside Est. Attendance		Morgan Bowl Est. Attendance		Boutwell 1,2 & 3 Est. Attendance	
Mon 2 – 6 pm	HHS* game	=60	HHS practice	=15	HHS practice	=16
Mon 6 – dusk	HYB** practice	=15			HYB games	=150
Tues 2 – 6 pm	HHS game	=60	HHS meet	=32	HHS game	=45
Tues 6 – dusk	HYB practice	=15			HYB games	=150
Wed 2 – 6 pm	HHS game	=60	HHS practice	=15	HHS practice	=16
Wed 6 – dusk	HYB game	=40			HYB games	=150
Thu 2 – 6 pm	HHS practice	=20	HHS practice	=15	HHS practice	=16
Thu 6 – dusk	HYB game	=40			HYB games	=150
Fri 2 – 6 pm	HHS game	=60	HHS meet	=32	HHS practice	=16
Fri 6 – dusk	HYB practice	=15			HYB games	=150
Sat 8 - noon	HHS practice	=20			HYB games (8-2 pm)	=150
Sat 12 - dusk	HYB practice	=15			HYB practice (2 – dusk)	=42
Sun 12 – 2 pm	HYB game	=40			HYB games (noon - dusk)	=150
Sun 2 – 6 pm	HHS practice	=20				

* HHS = Hudson High School
** HYB= Hudson Youth Baseball

Typical Fall Sports Schedule

	Riverside Est. Attendance		Morgan Bowl Est. Attendance	
Mon 2 – 6 pm	HHS* 2 games	=100		
Mon 6 – dusk	HYS** practice	=30		
Tues 2 – 6 pm	HHS practice	=40		
Tues 6 – dusk	HYS practice	=30	HHS 2 games	=300
Wed 2 – 6 pm	HHS practice	=40		
Wed 6 – dusk	HYS practice	=30		
Thu 2 – 6 pm	HHS game	=50		
Thu 6 - dusk	HYS practice	=30		
Fri 2 – 6 pm	HHS 2 games	=100		
Fri 6 - dusk	HYS practice	=30	HHS game	=600
Sat 8 - noon	HYS games	=100		
Sat 12 - dusk	HYS games	=100		
Sun 12 – 2 pm	AS game	=25		
Sun 2 – dusk	HYS games	=100		

* HHS = Hudson High School
** HYS = Hudson Youth Soccer
*** AS = Adult Soccer

Employment and Commercial Centers

The ARRT passes through the Washington Street (Route 85) commercial area where numerous businesses are located. Further to the east, the current land uses in the vicinity of the Assabet River Bridge are commercial and light industrial. The trail passes through the downtown Hudson Business District at the Broad Street intersection.

The table on page 39 provides a listing of key commercial, residential, and destination points in Hudson.

Municipal Property

From the intersection of Broad Street to the Main Street Bridge, the Town of Hudson owns the abutting property. This includes Vila Do Porto Boulevard, the existing Vila Do Porto linear park and the ROW of Main Street.

Housing

The Brigham Circle Housing for the Eldery (126 units), the Broadwinsor Condominium development (72 units), the proposed Brigham Hill Subdivison (55 additional homes), the Whispering Pines Condominium development (104 units), and the Overland Park Condominium development (32 units) are all located within one-half mile of the ARRT.

The following summarizes key Commercial, Residential, and Public destination points in Hudson:

Property	Description
Mulready Elementary School	295 students, 50 employees
Colonial Plaza 439 Main Street	Retail businesses, convenience store & restaurants
428 Main St.	Imaging Technology Corp. – Manufacturing, 130 employees
Whispering Pines	104 Condos, 143 residents
Cherry St. Fields	Municipal playing fields, 3 seasons
Paradise Gym	Health Club, retail & deli
Hudson Catholic High School & St. Michael's Grammar Schools	41 Employees, 400 Students + After-school programs
Hudson Downtown	Main Street area – retail, financial, restaurant/service, Town Hall, Post Office, Boys & Girls Club, Senior Center, 2000 employees/visitors and visitors weekdays, 1000 weekend days
Hudson Public Library	16 employees, 175 visitors daily
43 Broad St. Mill	Industrial, manufacturing, service businesses, including baseball batting cages & Golf driving ranges
Washington Street Retail	Retail & restaurant including Brooks drug store and Victory grocery store, TJ Maxx, Burger King, CVS, etc. 500 employees per day, 1000 visitors
Shaws Plaza	Retail, grocery, service, & restaurant, 200 employees, 1,500 visitors daily
Intel	Manufacturing and R&D, large employee base
International Corporate Park	Office space under construction, between 500-2000 employees anticipated, figure used in calculations = 1000 employees
Brigham Circle Elderly Housing	126 Units
Broadwinsor Condominiums	72 Units
Brigham Hill Subdivision	55 additional units planned
Overland Park Condominiums	32 units
Lucent Technologies	3,154 employees

The table above provides a picture of the area of Hudson through which this segment of the ARRT will traverse. Only larger facilities were mentioned and many small businesses are not included.

Nature

Entering the town of Hudson, the trail nearly disappears into a world of trees along the base of a steep rocky slope to the west. This hill is the highest point in Hudson. To the right of the trail are areas of shrub swamp, a favorite home for birds such as red-winged blackbird and marsh wren. To the right (or east) of the trail, there is a wooded swamp about 8 acres in size. This wetland resource is the headwaters for a small, unnamed brook that flows to the northwest. The brook crosses under the trail, and then parallels the trail

on the left for approximately 900 feet (274 m) before disappearing into a relatively new residential subdivision and subsequently joining the Assabet River.

The next significant natural landmark is the Assabet River. This is the first occasion to cross the River. By the time we reach the Commuter Rail Station in South Acton, the ARRT will cross the river a total of five times. The river at this point is fairly fast flowing and relatively rich in oxygen due to turbulence and aeration provided by the river's 10-foot (3 meter) plunge over the dam 1,600 feet (488 m) upriver at Washington Street.

The Assabet River is home to reptiles such as the snapping turtle and the northern water snake. Fish, including largemouth bass and white sucker, sometimes inhabit the river at this point. Though the water quality has been improving in recent years, this stretch of river is not yet clean enough to support populations of more demanding fish such as brook trout.

Further to the east is the second Assabet River crossing, which offers a pleasant view up and down the river. It is the site of persistent river clean-up efforts by members of the community who work each spring to clear branches, logs, car tires, shopping carts and other debris from the piers that support Main Street and the railroad bridges. After crossing Cox Street, wetland areas are present both north and south of the trail. These merge with broader wooded swamplands to the east. Red maple and white pine are the dominant canopy trees. Outflow from a pond within the Hudson Rod and Gun property to the north combines (near Wilkins Street) with a tributary draining wooded swampland from the south, and gives rise to a small, unnamed stream that flows east into Stow along the trail. East of Wilkins Street the land along the ARRT becomes more wild and natural than any other trail segment in Hudson. At about this point, the Trail has entered the Zone II wellhead protection area associated with the Chestnut Street municipal well fields. The Trail has also entered an area listed with the Natural Heritage and Endangered Species Program as home to rare plant and/or wildlife species. This estimated habitat is roughly 75 acres in area, extending south to the former Central Massachusetts Railroad line, north to High Street in Stow and east to the Assabet River.

Connections

The first connection to/from the trail is at the utility easement from Washington Street at the proposed Brigham Hill III subdivision (H-100 on page 31).

The Washington Street crossing provides a connection to the commercial properties along this area. Also, there is a utility easement from Washington Street to the ARRT approximately opposite the driveway to the Intel site.

In the area of Cox Street, the potential to connect to the Mulready School exists.

Status

As of this report, the status of the Hudson segments are as follows:

H-I	Marlborough Line to the Main Street Bridge is part of the design project underway with MassHighway and currently entering the 75% design phase.
H-II	Main Street to Wilkins Street is awaiting Notice to Proceed on the TDM grant and sign off from MBTA on the easement over the Central Mass ROW.
H-III	Wilkins Street to the Stow Line is in the conceptual development stage.
H-IV	Entire Trail in Hudson, trail amenities and connections is in the conceptual development stage.

Estimated Costs - DRAFT

Estimated costs are for budgetary purposes, based on 2000 dollars, and should be reviewed and refined prior to any Grant Applications.

Segment	Description	Estimated Costs Construction	Design(1)
H-I	Marlborough Town Line to Main Street [2]	$1,625,000	Funded
H-II	Main Street to Wilkins Street [3]	$540,000	$65,000
H-III	Wilkins Street to the Stow Line [4]	$200,000	$24,000
	Hudson Totals	**$2,930,000**	**$157,000**
	MassHighway 25% Design Submittal		**$48,000**
H-IV	Trail amenities in Hudson [5]	$565,000	$85,000
	MassHighway 25% Design Submittal		**$48,000**

Notes:

(1) Estimated design costs for base trail are estimated as 12% of the estimated construction cost. Estimate design costs for Amenities are estimated as 15% of the estimated construction cost. Estimate design costs for MassHighway 25% design submittal are estimated as 40% of the estimated design cost. Prior to any grant applications these figures should be reviewed and adjusted for scope, limits, inflation, and other factors.

(2) M-I is currently in the design stage with H-I, and scheduled for 2002 construction.

(3) Segments H-I and H-II abut the Main Street Bridge Project being performed by MassHighway. The Main Street Bridge Project costs include accommodating the ARRT within the bridge structure.

(4) Segment H-III includes a traffic signal to cross Wilkins Street (Route 62), and will likely have to be combined with S-I.

(5) The final Segment in each community consists of amenities, specialty signage, linear park type features, and specific improvements. For Hudson amenities along the trail consist of specialty signage, parking areas, and traffic signals at Washington Street and at Main Street.

Stow

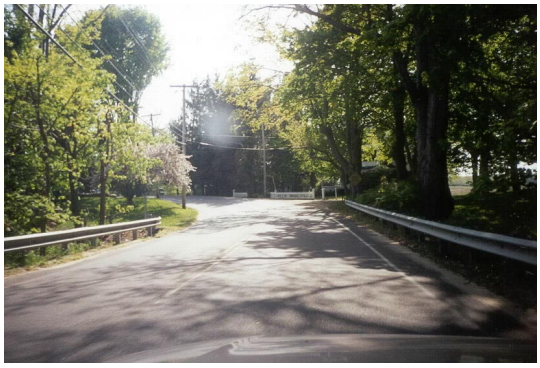
Please refer to the Stow maps on pages 44, 45 and 46.

Location and Description

From the Hudson Town Line, the ARRT is intended to follow the historic RR ROW to the Maynard Town Line. The Segment of the ARRT designated S-II, from Marlboro Street to Sudbury Road, will require three new bridge structures to cross the Assabet River. There are no usable remains of the previous railroad structures.

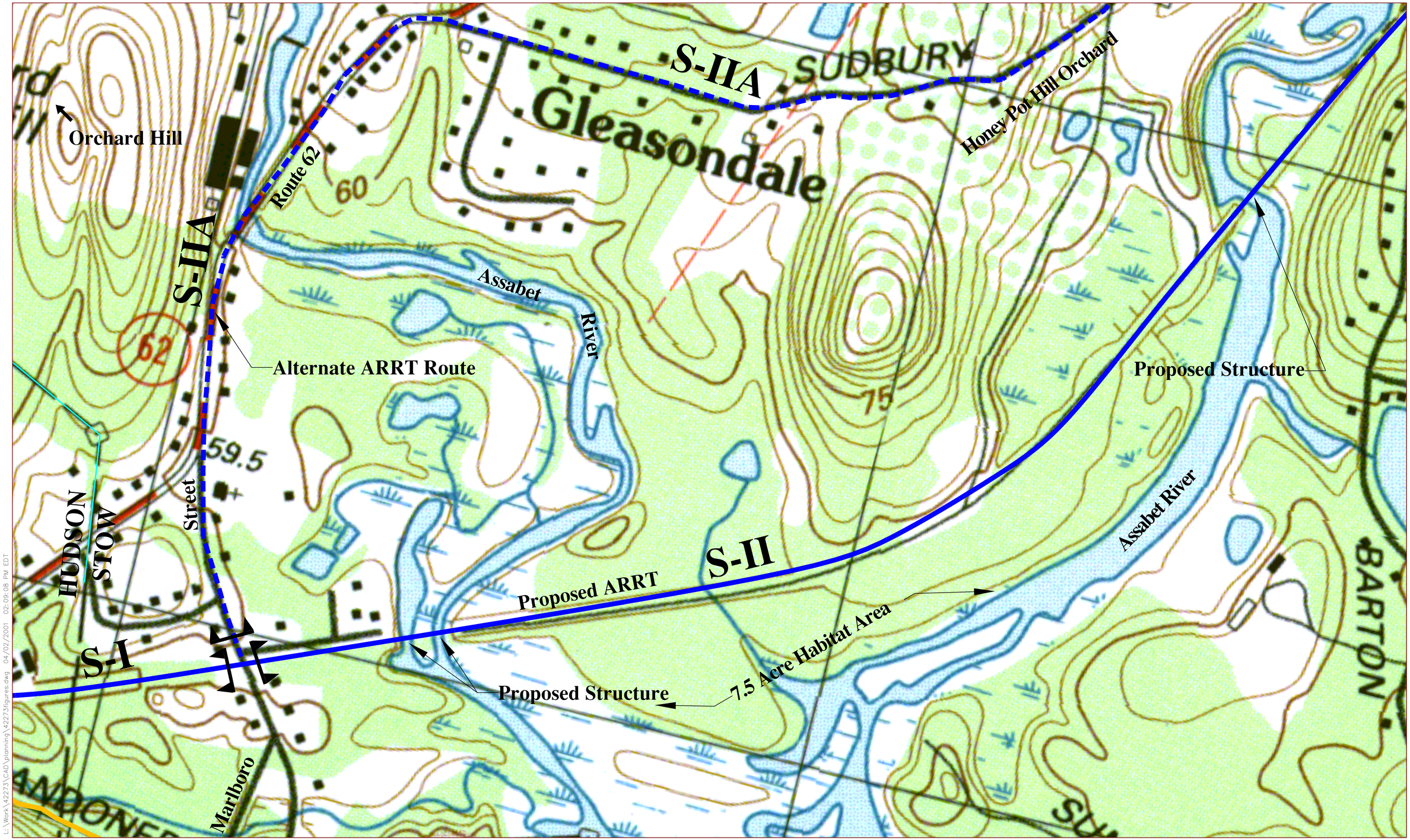
Segment S-II is along ROW currently owned by Honey Pot Hill Orchard. Conversations to date indicate an unwillingness to provide an easement for the ARRT. Segment S-IIA indicates an alternate alignment that follows existing roadways from Marlboro Road to Sudbury Road. This alternate alignment utilizes Marlboro Road, Gleasondale Road (Rte 62), and Sudbury Road. Marlboro Road and Sudbury Road are local roadways with low speeds and light vehicular traffic. Gleasondale Road is a section of Route 62 that is a fairly heavily traveled roadway with narrow shoulders (see photo). The Central Transportation Planning Staff (CTPS) prepared a study of the ARRT dated January 1997. The study found that:

> *"Local roads in the Stow-Maynard area were evaluated to determine if an on-road connection could work. While local roads are fine for adept, adult bicyclists, they are not desirable for others with less experience. This evaluation is based on the width of the roads, sight distances, and the speed of motor vehicles."*



This alternate route was reviewed for this Implementation Plan. S-IIA will require extensive signage, pavement markings, widening, and right of way acquisition. It appears that in order to provide a separate reservation for the ARRT, a right of way taking of approximate 15 feet (4.5m) would be required for the majority of this segment. The alternate route to avoid the Honey Pot Hill Orchard property is a detour of about 1-¼ miles (2 km), with about 25 percent on Gleasondale Road (Rte. 62). The RR ROW from Sudbury Road to Marlboro Road is approximately 1 mile (1.6 km). The alternate route adds about ¼ mile (.4km) to the ARRT along a less desirable route.

Continuing to the northeast from Sudbury Road, the ARRT follows the RR ROW and parallels the Assabet Rive National Wildlife Refuge (ARNWR, former Fort Devens Annex) property for about 1.5 miles (2.4 km). The trail continues to the Maynard Town Line along Track Road with the Assabet River to the north and the ARNWR to the south.



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EARTH TECH
A tyco INTERNATIONAL LTD. COMPANY

✻ Municipal Parcel Segment Limit Z-# Abutting Feature

N

STOW SHEET 1 OF 3
SCALE 1:5000
ASSABET RIVER RAIL TRAIL

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A tyco INTERNATIONAL LTD. COMPANY

Municipal Parcel | Segment Limit | Z-# Abutting Feature

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STOW SHEET 2 OF 3
SCALE 1:5000
ASSABET RIVER RAIL TRAIL

Assabet Country Club

Golf Course

ASSABET

Crow Island

Gravel Pit

Assabet River

S-III

Track Road

Proposed ARRT

STOW

MAYNARD

Gravel Pit

64.0

West Gate # 14 Entrance

"Assabet River Wildlife Refuge"

(Former Fort Devens Annex)

75

BM 92.6

Radio Facility

Radio Tower

75

White Pond Road

EARTH TECH

A tyco INTERNATIONAL LTD. COMPANY

Municipal Parcel

Segment Limit

Z-#

Abutting Feature

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STOW SHEET 3 OF 3
SCALE 1:5000
ASSABET RIVER RAIL TRAIL

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Ownership

The vast majority of the ROW in Stow is privately owned.

The section from Marlboro Street to the Hudson Town Line is currently privately owned. The owners have indicated they are not interested in providing for the ARRT at this time.

Conversations to date with the Owners of the Honey Pot Hill Orchards have indicated an unwillingness to allow the trail to utilize the former RR ROW. This dialogue should continue in an effort to determine an acceptable design scenario that will allow Honey Pot Hill to provide an easement along or near the historic RR ROW. It appears that the Honey Pot Hill property is classified as Chapter 61A-Forestry. As long as the property remains in Chapter 61A, the Town has the right of first refusal to purchase the property, should it come up for sale and development. The Town should continue to observe the status of this property. Adding the trail segment to the list of priority purchases in the Town's Open Space Plan can enhance eligibility for acquisition funding assistance from the Executive Office of Environmental Affairs (EOEA).

An alternate route has been designated along public roadways and is designated S-IIA on page 44. This is not a preferred location, as it needs to acquire an approximate 15-foot (4.5m) portion of right of way abutting the existing roadways, as well as utilize a section of Route 62 that is heavily traveled by vehicular traffic.

The Stow Conservation Trust and Sudbury Valley Trustees are currently in discussions with the owners the Track Road parcel, as well as with the U. S. Fish and Wildlife Service, owners of the ARNWR. The goal of these discussions is the acquisition of the Track Road parcel by the U. S. Fish and Wildlife Service, with an easement for the ARRT.

Segments

The Stow section is divided into three main Segments and one alternate Segment, as indicated on pages 44, 45 and 46.

These Segments are defined as:

Segment	Length	Limits
S-I	0.16 miles (0.26 km)	Hudson Town Line to Marlboro Street (RR ROW)
S-II	1 mile (1.6 km)	Marlboro Street to Sudbury Road (RR ROW)
S-III	2 mile (3.2 km)	Sudbury Road to Maynard Line (RR ROW)
	Total = 3.16 miles (5.1 km) – on RR ROW	
S-IIA	1.25 miles (2.0 km)	Marlboro Street to Sudbury Road (Roadways)
	Total = 3.41 miles (5.5 km) – off RR ROW	
S-IV	3.16 miles (5.1 km)	Entire trail, amenities, connections

Design Issues

Perhaps the single most important design issue in Stow is the location of the trail in the southerly end of Town. An alignment along the RR ROW is safer, shorter, and more natural. An alignment that utilizes existing roadways will require the acquisition of right of way, utilize town roadways, traverse a greater distance, mix trail users with vehicular traffic and avoid the scenic river vistas.

Constructing the trail on the RR ROW requires three new structures over the Assabet River (see photo). A site visit was made for two of the locations. There are no usable remnants from the previous railroad structures. These locations will require new abutments and bridge decks designed to support an emergency vehicle.

The trail will cross local roadways at grade with a collapsible bollard proposed on the trail to prevent unauthorized motor vehicles from entering. Trail users will be required to stop at the local roadway crossings, as there will be stop signs for both approaches. Advanced warning signs will be placed on the local roadway approaches, as well to alert drivers of the crossing. There will be a 9.8-foot (3 m) wide crosswalk, the vegetation will be trimmed back and some grading will be performed to improve the intersection sight distance. There will be additional street lighting provided at these crossings.

Adjacent Use

Schools and Recreation

Near Lake Boon, about 1,300 feet (400 meter) from the ARRT, is the entrance to Town of Stow recreation land (soccer fields, town beach). This recreation area borders the new Assabet River National Wildlife Refuge.

Heading west on Sudbury Road about 330 feet (100 meter) from the intersection of the ARRT is the Sudbury Road Bridge over the Assabet River. This area is a popular fishing spot.

Probably the most scenic section of the ARRT is Track Road. It starts and ends immediately adjacent to the Assabet River. There are a number of fishing spots, and it is a quiet, natural setting for fishing, walking and bird watching.

Employment and Commercial Centers

The Lower Village shopping plaza on Great Road (Route 117), as well as The Honey Pot Hill Orchard, are the only commercial areas in proximity to the trail in Stow.

On Thursday, April 5, 2001, there were 28 vehicles parked at Gleasondale Mill at 8:15 AM. These vehicles probably all belonged to employees of the various businesses located there. The Gleasondale Mill is the closest employment center to the ARRT.

From the intersection of Track Road with Sudbury Road, it is about 3-½ miles (6 km) to the center of Hudson, and about 3 miles (5 km) to the center of Maynard. These are relatively easy trips by bicycle. This is especially so, since there is little elevation change on the way to Hudson and the Maynard stretch is relatively flat.

The ARRT would provide an excellent way for residents in the densely populated areas of Hudson and Maynard to reach the tranquil section of the ARRT near the Assabet River, and it would provide the neighborhoods nearby with convenient alternative access to the stores in Hudson and Maynard.

A survey of merchants in the Lower Village shopping plaza on Great Road (Route 117) in Stow was performed. The table below lists the merchant and the number of customers per week. These businesses are within 2.5 miles (4 km) of the ARRT.

Merchant	**Customers per Week**
Star Market	12,000 -13,000
Ace Hardware	1,200
Colonial Liquors	1,500
Video Signals	1,100
Fast Lanes Bowling	850
Stow Photo	300
Pet Source	150
Papa Ginos	800
Total Customers/week =	**17,900 - 18,900**
Approx. # of employees	*50*

An approximate traffic count was performed at the intersection of Route 117 and 62 in the center of Stow. Going "clockwise" around the Assabet River National Wildlife Refuge (ARNWR) from the Sudbury/Track Road intersection, a vehicle uses Route 62. A conclusion may be drawn that, with the Lower Village data, some of these vehicular trips can be replaced by the ARRT. The procedure used was to count the number of vehicles passing through the intersection traveling along Route 62 in both the east and west directions. The results are in the table below.

Sat. 2/17/01 and Tues. 4/17/01*	**10 minute Direction Count times 6 = approx. # / hr**
11:15 to 11:25 AM	Rt 62 East = 29 x 6 = 174/hour
11:25 to 11:45 AM	Rt 62 West = 28 x 6 = 168/hour
1:05 to 1:15 PM	Rt 62 East = 21 x 6 = 126/hour
1:15 to 1:25 PM	Rt 62 West = 27 x 6 = 162/hour
7:36 to 7:46 PM*	Rt 62 West = 32 x 6 = 192/hour
7:46 to 7:56 PM*	Rt 62 West = 54 x 6 = 324/hour

The Track Road portion of the ARRT provides a convenient 'short cut' to the problem of getting from the Sudbury Road to the center of Maynard, as shown below:

- North to the center of Stow, then east on Great Road (117&62) = 5 miles (8 km);
- Sudbury/Hudson/Fairbanks Road, then Route 27 = 6.8 miles (11 km); and
- The distance along the ARRT is about 3 miles (5 km).

Municipal Property

There are no known municipal parcels that abut the ARRT.

Housing

Continuing on Sudbury Road, from the intersection of Boon and Whitman Road, there are about 18 houses.

Forest Road is about ½ mile (.9 km) from the ARRT, where a small residential development of about 12 homes is located. There are also about 30 homes on Gleasondale Road in proximity to the ARRT.

Approximately 1.3 miles (2 km) southeast of the ARRT intersection of Track Road and Sudbury Road is the Dawes development of 67 housing units currently under construction. Sudbury Road is a relatively lightly traveled road that is suitable for walking and bicycling from the Assabet River National Wildlife Refuge. Signs and pavement markings should be added along this roadway as well. Marlboro Street, from the intersection with the ARRT, is a lightly traveled road suitable for walking and bicycling, and connects to Chestnut Street in Hudson, by which one can easily get through Hudson to Marlboro on back roads. On Marlboro Street and Chestnut Street there are about 18 homes. Ferjullians Farm Store is about 1 km from Railroad Avenue, where there are three homes. High Street intersects Marlboro Street near the ARRT and has nine homes.

From the intersection of Sudbury/Boon Whitman Road:

- 650 feet (200 m) to Apple Blossom Lane, a cul-de-sac development with approximately 15 homes;
- 980 feet (300 m) to Roberts Road, a development with approximately 33 homes;
- 1640 feet (500 m) to Birch Hill Rd, a cul-de-sac development with approximately 25 homes; and
- 2/3 of a mile (1 km) to Whitman Road there are 23 homes.

There is no known retirement housing within one-half mile of the ARRT.

To summarize, from the intersection of the ARRT (Track Rd.) with Sudbury Rd., within approximately one mile, the following residential housing inventory exists:

Location	# of Units
Barton Road	59
Pine Point Road	37
Lakewood Road	28
Sudbury Rd	18
Sudbury Rd/Dawes Develop.	67
Apple Blossom Lane	15
Roberts Rd	33
Birch Hill Rd	25
Whitman Rd	23
Gleasondale Rd	30
Marlboro Rd./Chestnut St	18
High St / Railroad Rd	12
Total Units =	**365**

Nature

Northeasterly of the Hudson-Stow line, the ARRT skirts pockets of wooded swamp and marsh to the south. This area is part of a 7-acre habitat listed with the Natural Heritage and Endangered Species program. After crossing Marlborough Street the ARRT follows Railroad Avenue to its end at the Assabet River. This is the third river crossing. Actually, the railroad had two bridge spans that used a small island midway for crossing the river.

The river, its banks and adjoining landscape in this vicinity are the most natural encountered on the ARRT. The river valley is alive with healthy marsh, shrub swamp, wooded swamp and a diverse range of habitat for the abundant wildlife. Amphibians, including a variety of species of frog and red-spotted newts, inhabit the river's banks. The river valley serves as an important corridor for waterfowl migration.

The Trail is within a Water Resource Protection District. This zoning classification is to protect a potential well site roughly 1,000 feet (300 m) to the north, where exceptionally high groundwater yields have been documented. This zoning district also protects the Chestnut Street well field, about 1,200 feet (366 m) to the south in Hudson.

The RR ROW next passes through the back land of the Honey Pot Hill Orchards. This area includes a third Assabet River crossing in Stow. The land along the ARRT continues to be fully natural, with a diverse mix of riverine and upland habitats and associated wildlife.

At Sudbury Road, the Assabet River has grown with the addition of flows from Fort Meadow Brook and Lake Boon. The water quality has improved during its slow, meandering passage through the marshlands south of the Honey Pot Hill Orchards.

After crossing Sudbury Road, the ARRT follows what is locally known as Track Road. This is a private gravel road, approximately 1-3/4 miles (2.8 km) in length, extending between Sudbury Road and White Pond Road at the Stow-Maynard line. To the north, is the Assabet River, complete with healthy deep marsh and wooded wetland riparian buffer zones.

Status

The Stow Segments need to obtain an acceptable Right of Way. Once that is accomplished, then design/construction funding can take place.

Estimated Costs - DRAFT

Estimated costs are for budgetary purposes, based on the railroad ROW, year 2000 dollars, and should be reviewed and refined prior to any Grant Applications.

Segment	Description	Estimated Costs Construction	Design [1]
S-I	Hudson to Marlboro St [2]	$40,000	$5,000
S-II	Marlboro St to Sudbury Rd (3 new structures) [3]	$1,600,000	$240,000
S-III	Sudbury Rd to Maynard (RR ROW)	$510,000	$61,200
	Total Stow ON RR ROW	**$2,150,000**	**$306,200**
	MassHighway 25% Design Submittal		**$122,480**
S-IIA	Marlboro St to Sudbury Rd (Roadways) [3]	$200,000	$24,000
	Total Stow OFF RR ROW	**$200,000**	**$24,000**
	MassHighway 25% Design Submittal		**$10,000**
S-IV	Entire Trail, Amenities, Connections [4]	$160,000	$24,000
	Total Stow Amenities	**$200,000**	**$24,000**
	MassHighway 25% Design Submittal		**$10,000**

Notes:

(1) Estimated design costs for base trail are estimated as 12% of the estimated construction cost. Estimate design costs for Amenities are estimated as 15% of the estimated construction cost. Estimate design costs for MassHighway 25% design submittal are estimated as 40% of the estimated design cost. Prior to any grant applications these figures should be reviewed and adjusted for scope, limits, inflation, and other factors.

(2) Segment S-I will likely have to be combined with H-III.

(3) The cost for the three Assabet River Crossing Structures anticipate three new structures and foundations, designed for emergency vehicle loading, to MassHighway standards. The cost of Segment S-II and IIA, to reconstruct the ARRT along the former RR alignment, is costly due to the three new structures that are required. Further investigation into the exact location, make up, and cost of these structures needs to occur. An alignment that limits the number of river crossings and the amount of right of way to be acquired can greatly reduce these estimated costs. S-IIA utilizes existing roadways by way of a 15 foot right of way acquisition. The estimated costs above do not include the cost of acquiring this right of way (approximately 100,000 SF or 2.3 acres).

(4) The final Segment in each community consists of amenities, specialty signage, linear park type features, and specific improvements. For Stow amenities along the trail consist of specialty signage, landscaping features, and minor connections to abutting parcels.

Maynard

Please refer to the Maynard maps on pages 55 and 56.

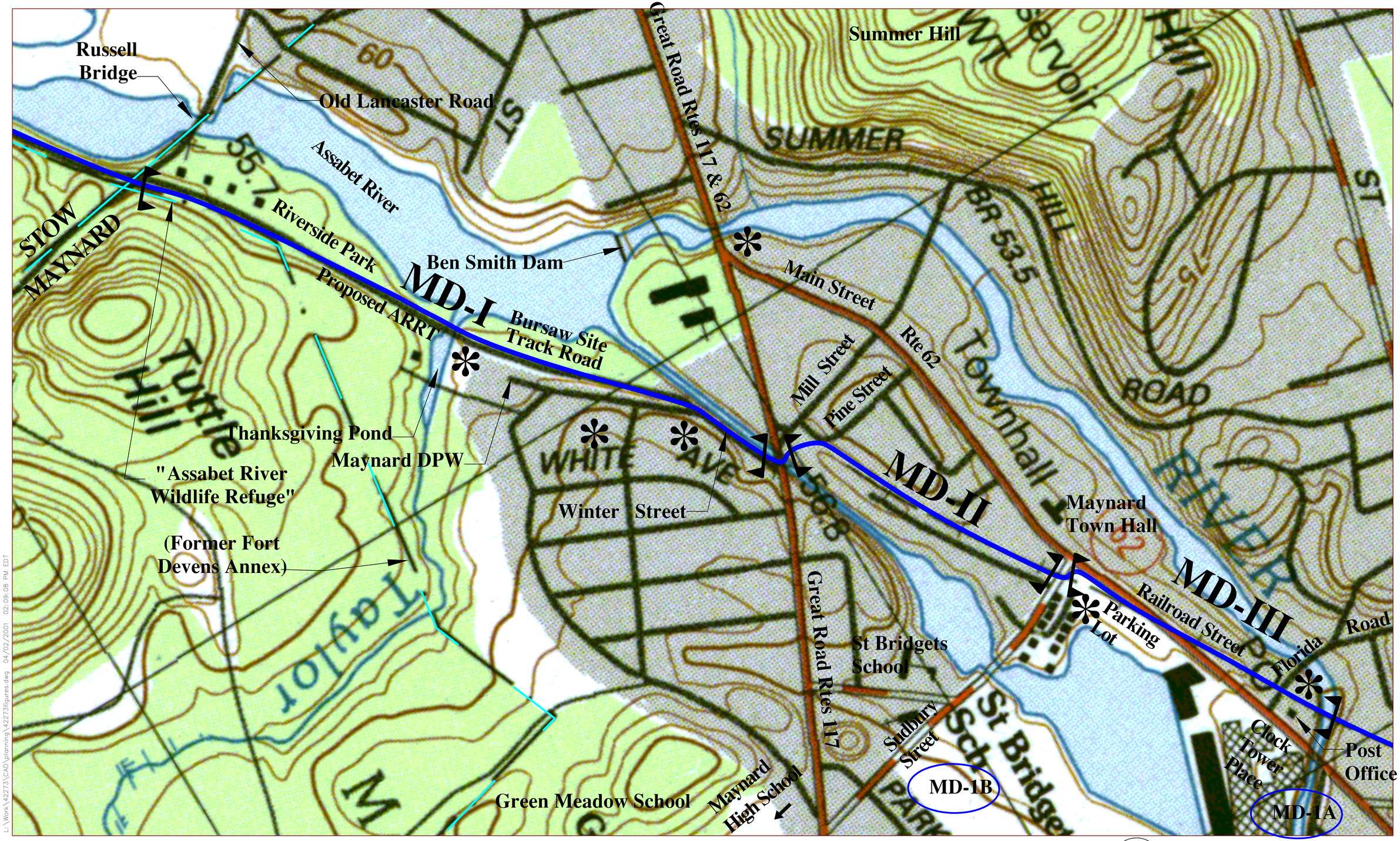
Location and Description

The Maynard portion of the ARRT begins at the Stow line and ends at the Acton line. The southerly limit of the Maynard portion abuts the River and the northern limit is within a residential neighborhood. The central segments are through the downtown area.

Segment MD-I starts at the Stow line, at Track Road and the west gate to the Assabet River National Wildlife Refuge (ARNWR), former Fort Devens Annex, now owned by the U.S. Fish and Wildlife Service. There is an 18-foot (5.5 m) wide cleared gravel base, which has over the years been used as a trucking road. There is a stream crossing of "Thanksgiving Pond," and the structure appears to be in good condition. The ARRT proceeds approximately 2,800 feet (850 m) along the RR ROW where it connects to Winter Street. A former railroad bridge crossing of the stream is no longer in place, so the trail will utilize the northwesterly limit of the Winter Street ROW. The ARRT will proceed 500 feet (150 m) along Winter Street to where it intersects Great Road (Route 117).

Segment MD-II starts with a pedestrian crossing of Great Road (Route 117), and then connects to the RR ROW at Mill and Pine Streets. Great Road (Route 117) is a heavily traveled roadway, with good site distance to the west and a crest hill to the east. This pedestrian crossing would be at grade, with appropriate signs, markings and advance warnings. Traffic levels on Great Road (Route 117) would have to be reviewed to determine if a pedestrian signal is warranted. The ARRT will then follow the RR ROW to Sudbury Street at Main Street (Route 62). The RR ROW widens to approximately 50 feet (15 m) where it parallels High Street. Access and parking may be provided at this location. This segment is approximately 1,500 feet (457 m) in length.

Segment MD-III starts by crossing Sudbury Street and proceeds along the northerly edge of the Clocktower Place parking lot. There is a "triple track" across Sudbury Street and the rails and ties appear to still be in place for a large portion of this section. The Sudbury Street and Main Street Intersection is currently in design for traffic improvements. The RR ROW has been developed as parking for Clocktower Place, and will require some reconfiguration to accommodate the ARRT. The ARRT then crosses Main Street (Route 62) at an existing pedestrian crosswalk at Railroad Street. This crosswalk would be modified to become a trail crossing. Railroad Street was reconstructed during the summer of 2000. A corridor was maintained for the ARRT to proceed along Railroad Street. The trail then will cross Florida Road, continue through the parking lot to Tobin Park. At grade crossings of Sudbury Road, Main Street, and Florida Road with appropriate signs, markings, and advance warnings will be required.



EARTH TECH
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✻ Municipal Parcel Segment Limit Z-# Abutting Feature

MAYNARD SHEET 1 OF 2
SCALE 1:5000
ASSABET RIVER RAIL TRAIL

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EARTH TECH
A tyco INTERNATIONAL LTD. COMPANY

✻ Municipal Parcel Segment Limit Z-# Abutting Feature

MAYNARD SHEET 2 OF 2
SCALE 1:5000
ASSABET RIVER RAIL TRAIL

Segment MD-IIIA consists of Tobin Park and the structure crossing the Assabet River. The existing bridge (dedicated in 1989) is a single-span, pressure-treated timber structure, with a span length of 45 feet (14 m) and a width of 6 feet (1.8 m). To accommodate the ARRT, the proposed structure should have a 14-foot wide clear path. It is anticipated that there would be bollards placed at each end of the structure to prevent general vehicular use of the bridge.

Segment MD-IV starts on the northerly side of Tobin Park and continues through the Commercial/Municipal Parking Lot to Summer Street, approximately 800 feet (245 m). This is an existing metered parking lot with parking on both sides of a center aisle. The lot is dead-ended at Tobin Park with access from Summer Street and Nason Street. Vehicular speeds are relatively low, with multiple movements for both pedestrians and vehicles. It appears deliveries are made to the business from this location. There is a steep slope approaching Summer Street. The most likely place to locate the trail is along the westerly edge. This will limit conflicts with business, pedestrian and vehicular access. If that is not possible, the trail can terminate at Tobin Park and start up again at Summer Street.

Segment MD-V starts with a pedestrian crossing of Summer Street and proceeds along the RR ROW to the intersection of Concord Street and Brown Street (Route 27), currently under construction for traffic improvements. An at-grade crossing of Summer Street at Brooks and Maple Street with appropriate signs, markings and advance warnings will be required.

Segment MD-VI starts by crossing Concord Street at Haynes Park and then proceeds along the RR ROW to the intersection of Acton Street. Haynes Park is being reconfigured to improve the green space. Further along MD-VI, an area appears to be a stormwater collection point and, as a result, may have environmental issues (wetlands) to coordinate. An at-grade crossing of the Route 27 intersection, with appropriate signs, markings and advance warnings will be required.

Segment MD-VII starts with a crossing of Acton Street and proceeds along the RR ROW to the Acton Town Line. There is an existing sewer force main located along this section from the "Beacon" Building in Acton. An at-grade crossing of Acton Street with appropriate signs, markings and advance warnings will be required.

Ownership

For the Maynard portion of the ARRT, either Maynard or private entities own the ROW.

Maynard Sand and Gravel owns Segment MD-I and an abutting parcel. Discussions are underway for the Town to acquire this portion and the abutting parcel.

The Town owns Winter Street and Great Road in Segment MD-I, the triangle park at Pine and Mill Street, and the rail line to just southwest of Sudbury Street in MD-II. At Sudbury Street, the abutting commercial business (gas station/mechanic) owns the ROW for Segment MD-II.

Portions of Segment MD-III, from Sudbury Street to Main Street, and then along Railroad Street, are owned by the Town and by Clock Tower Place.

The Town owns Segment MD-IV, consisting of Tobin Park and the Commercial/Municipal Parking Lot.

The Town owns Segment MD-V, with the exception of a parcel near Route 27 that is owned by Emerald Acres. Conversations with Emerald Acres to date indicate they are receptive to granting the ARRT an easement.

Segment MD-VI is Town-owned and includes a 5-foot easement on a small parcel at Concord Street owned by the abutting mechanic shop. A portion of the ROW at Acton Street is owned by an abutter.

Wedgewood Realty is the owner of Segment MD-VII from Acton Street to the Acton Line.

Segments

The Maynard section is divided into multiple Segments as indicated on pages 56 and 56. These Segments are defined as:

Segment	Length	Limits
MD-I	2,800 ft (850 m)	Stow line to Great Road
MD-II	1,500 ft (457 m)	Great Road to Sudbury Street
MD-III	1,600 ft (488 m)	Sudbury Street to Tobin Park
MD-IIIA*	150 ft (46 m)	Tobin Park and structure crossing
MD-IV	800 ft (245 m)	Tobin Park to Summer Street
MD-V	1,400 ft (425 m)	Summer Street to Concord/Brown St
MD-VI	2,700 ft (823 m)	Concord/Brown St to Acton St
MD-VII	700 ft (213 m)	Acton Street to Acton Town Line

* MD-IIIA consists of rebuilding Tobin Park and the bridge. This is not a critical early action item.

Total = 11, 650 feet (3122 m)
= 2 ¼ miles (3.1 km)

MD-VII Entire Trail, Ameneties, Connections in downtown, rest areas, water fountains, bike racks, etc.

Design Issues

The existing concrete culvert at Thanksgiving Pond will need to be analyzed for emergency vehicle traffic and have railings designed.

The abutting section along Winter Street will need to have a railing and potentially some slope work.

The roadway crossings will need to be analyzed for vehicular traffic, especially Great Road, Main Street, Summer Street and Concord Street. The typical standard for ARRT crossings of local roadways at grade includes a collapsible bollard on the trail preventing unauthorized motor vehicles from entering. Trail users will be required to stop at the local roadway crossings, as there will be stop signs for both trail approaches. Advanced warning signs will be placed on the local roadway approaches as well to alert drivers of the crossing. There will be a 9.8-foot (3 m)

wide crosswalk, the vegetation will be trimmed back and some grading will be performed to improve the intersection sight distance. There will be additional street lighting provided at these crossings.

The existing bridge at Tobin Park can remain. This would result in all riders having to dismount and walk across the six-foot (1.8 m) wide structure. A new structure with a 14-foot (4.3 m) wide deck could be installed later, after the ARRT use increases.

Adjacent Use

Along Segment MD-I, there is Maynard Sand & Gravel, the ARNWR owned by the U.S. Fish and Wildlife Service, Riverside Park, the Maynard DPW Facility, the Bursaw parcel, and other residential properties along Winter Street.

Along Segment MD-II, Sudbury Street is a small Town-owned pocket park and then mostly residential with some commercial at Main Street.

Along Segment MD-III from Sudbury Street to Summer Street, there is Clocktower Place (MD-1A+1B), Railroad Street residents, U.S. Post Office and the general commercial area of Downtown Maynard (MD-3).

Clock Tower Place (MD-1A+1B) is in the process of constructing a five-story parking garage for 420 vehicles. This facility will serve both public use and employees of Clock Tower Place. Clock Tower Place is also looking to construct an additional building on site. This structure is still in the planning stages.

From Summer Street to Acton, there is the parcel under renovation at the corner of Nason and Summer Street (MD-4), the Emerald Acres parcel, a day care center, limited commercial, mostly residential, and the golf course and auto dealer at Acton Street.

The owner of a 3.07-acre (1.2 hectares) industrially zoned parcel just south of Acton/Brown Street is planning (1981 site plan) a new industrial project. The project will add 375,000 sf (34,840 sm) of office space on the parcel.

<u>Schools and Recreation</u>

Along Segment MD-I the ARRT abuts the “Bursaw” parcel (recently acquired by the Town) to be utilized by the Town for riverfront recreation.

Tobin Waterfront Park, Maple Brook Park and other Town-owned pocket parks exist along the trail. There is a small park behind Town Hall, as well as landscaped areas along Clock Tower Place, and a park on Maple Street.

Emerson Umbrella is a regional non-profit organization housing artists and galleries. They will be moving into the Fowler School in 2001.

The Golf Course is located along Route 27, near Acton Street.

Employment and Commercial Centers

Maynard Sand & Gravel, the Maynard DPW Facility, Halas Gas Station, Russell's Convenience Store, The Quarterdeck Restaurant and Amory's Restaurant are all located on the ARRT.

Clock Tower Place, Downtown Maynard and the Quirk Project are the three major employment centers.

Clock Tower Place (MD-1A+1B) is 1.1 million sf (102,200 sm) of industrial/commercial space in the historic Assabet Mill. Approximately 2,500 to 3,000 employees are projected for this location.

Maynard Center houses approximately 100 businesses and employs between 300 to 400 people. It is an appealing destination because it has several retail and restaurant clusters. Some of these include The Maynard Outdoor Store, J&S Sports, U.S. Post Office, CVS various Banks and Cumberland Farms.

On the north end of Town is the Quirk property (MD-6). This is presently a 375,000-sf (34,840 sm) site that houses Sea Change International. This is a high-growth company with about 200 employees, located less than one mile (1.6 km) from the South Acton MBTA Commuter Rail Station.

There are various retail establishments as well. Some of these are:

- Ray and Son Cyclery located on the trial
- Grappa's Restaurant
- Foley's
- Erikson's Ice Cream within one mile (1.6 km) of the trail
- Over 10 restaurants within a ¼ mile (0.4 km) of the trail
- Fine Arts Cinema on the trail and
- The entire Downtown Commercial District of Maynard

The ARRT provides direct access to industrial and commercial employers that employ over 3,500 people in Maynard.

Municipal Property

The Town recently acquired the Bursaw parcel for waterfront recreation.

The Maynard DPW facility and the Municipal Parking Lot are potential locations to park vehicles and access the ARRT.

Tobin Park is Town owned, and a great spot to stop within Downtown Maynard. Veteran's Park is located on Nason Street, across the street from the ARRT.

There is a section of Town owned Conservation Land near Acton Street.

A Historical Museum will be developed over the next four years to house Maynard's collection of local memorabilia. This will be located in the paymaster's building on Main Street in the Clock Tower Place complex.

Housing

There are approximately 2,000 housing units within ½ mile of either side of the ARRT. Summer Hill Glen, a senior housing development, is underway ½ mile from the ARRT on Summer Street.

Nature

From the Stow town line, about ½ mile (.8 km) along Track Road is the ARNWR (former Fort Devens Annex), now owned by the U. S. Fish and Wildlife Service. With over 2,000 acres (809 hectares), the Annex is by far the largest protected open space adjacent to the ARRT. Most of the ARNWR is forested, with white pine, oak, ash, red maple, black birch and cherry making up the majority of tree species. Wetlands occur on about 20 percent of the annex and include small streams, ponds, bogs, emergent wetlands (i.e., dominated by herbaceous plants rather than shrub- or forest-dominated) and vernal pools. The Annex is home to a wide range of wildlife species and provides a rest stop to many others in migration. Annex lands continue as far east as White Pond Road and a few hundred feet beyond into Maynard. These federal lands are a tremendous natural resource.

To the west, there are extensive wetlands along the Assabet River. The only connection to Track Road is a driveway to the west that leads to Crow Island. The island hosts a small, private airport and runway, which also has been a soccer field. Crow Island was mined for sand and gravel deposits, as were other sites along the river. North of the river is a large, Town-owned open-space parcel containing a Town well and the Town forest.

Elizabeth Brook joins the Assabet River close to the Stow-Maynard line. Labeled as Assabet Brook on the USGS topo-map, it drains most of central Stow and is the largest tributary to the Assabet River.

The combination of these pristine, wooded lands, the river and the Annex to the south makes this a very wild and natural place along the ARRT.

Connections

Conversations are underway to allow for connections from the ARRT to the ARNWR.

Multiple connections to the Downtown area are possible.

Status

As of this report, the status of the Maynard segments are as follows:

Segment MD-I	Requires ROW transfer and design and construction funding.
Segment MD-II	Requires easements/design/construction funding.
Segment MD-III	Requires ROW agreement with Clock Tower Place.
Segment MD-IIIA	Requires design/construction funding. Note that this is not required for the base trail construction.
Segment MD-IV	Requires design/construction funding.
Segment MD-V	Coordination required within the abutting project at Nason and Summer, the Emerald Acres property, and the ongoing construction at Concord/Acton Street. Design/construction funding required.
Segment MD-VI	Requires easements/design/construction funding.
Segment MD-VII	Owned by Wedgewood Realty. They also own the segment in Acton and are receptive to working with the ARRT. MD-VII and A-I should be combined into one funding/design/construction phase.

Estimated Costs – DRAFT

Estimated costs are for budgetary purposes, based on the railroad ROW, year 2000 dollars, and should be reviewed and refined prior to any Grant Applications.

Segment	Description	Estimated Costs Construction	Design[1]
MD-I	Stow line to Great Road	$130,000	$16,000
MD-II	Great Road to Sudbury Street [2]	$80,000	$10,000
MD-III	Sudbury Street to Tobin Park	$110,000	$13,200
MD-IV	Tobin Park to Summer Street	$70,000	$8,400
MD-V	Summer St to Concord/Acton St	$71,000	$8,500
MD-VI	Concord/Acton St to Acton St	$143,000	$17,200
MD-VII	Acton Street to Acton Town Line[3]	$47,000	$5,700
	Maynard Total	**$1,392,700**	**$168,000**
	MassHighway 25% Design Submittal		**$67,000**

Consideration should be given to combining the Segments listed above into 1 or 2 construction contracts.

MD-IIIA	Tobin Park and structure crossing [4]	$181,000	$22,000
	MassHighway 25% Design Submittal		**$9,000**
MD-VIII	Entire Trail, Ameneties and Connections [5]	$710,000	$85,200
	MassHighway 25% Design Submittal		**$34,000**

Notes:

[1] Estimated design costs for base trail are estimated as 12% of the estimated construction cost. Estimate design costs for Amenities are estimated as 15% of the estimated construction cost. Estimate design costs for MassHighway 25% design submittal are estimated as 40% of the estimated design cost. Prior to any grant applications these figures should be reviewed and adjusted for scope, limits, inflation, and other factors.

[2] This does not include a traffic signal on Great Road. If one is required add $50,000 to the 2000 construction figures.

[3] MD-VII should be combined with A-I.

[4] This is not required as part of the basic trail construction.

[5] The final Segment in each community consists of amenities, specialty signage, linear park type features, and specific improvements. For Maynard, amenities along the trail consist of specialty signage, landscaping features, minor connections to abutting parcels, a pedestrian traffic signal at Great Road, and public rest rooms at three locations.

Acton

Please refer to the Acton map on page 65.

Location and Description

The alignment of the ARRT will generally follow the RR ROW from the Maynard Town line to the "Beacon" Building currently owned by Wedgewood Properties. From Maynard to the Wedgewood parking lot, there is wetland abutting the trail, an existing culvert crossing of Pratts Brook and a sewer force main.

A while back, the "Beacon" Building (now Wedgewood Realty) was expanded across the historic RR ROW. Conversations with the owner and site visits reveal that an adequate corridor through the existing parking lot to accommodate the ARRT does not exist. This report suggests that the ARRT traverse the wetland conservation area by way of a proposed 14 feet clear (4.3 m) wide by 800 +/- feet (243.8 m) long timber boardwalk. See page 67 for a sketch of this.

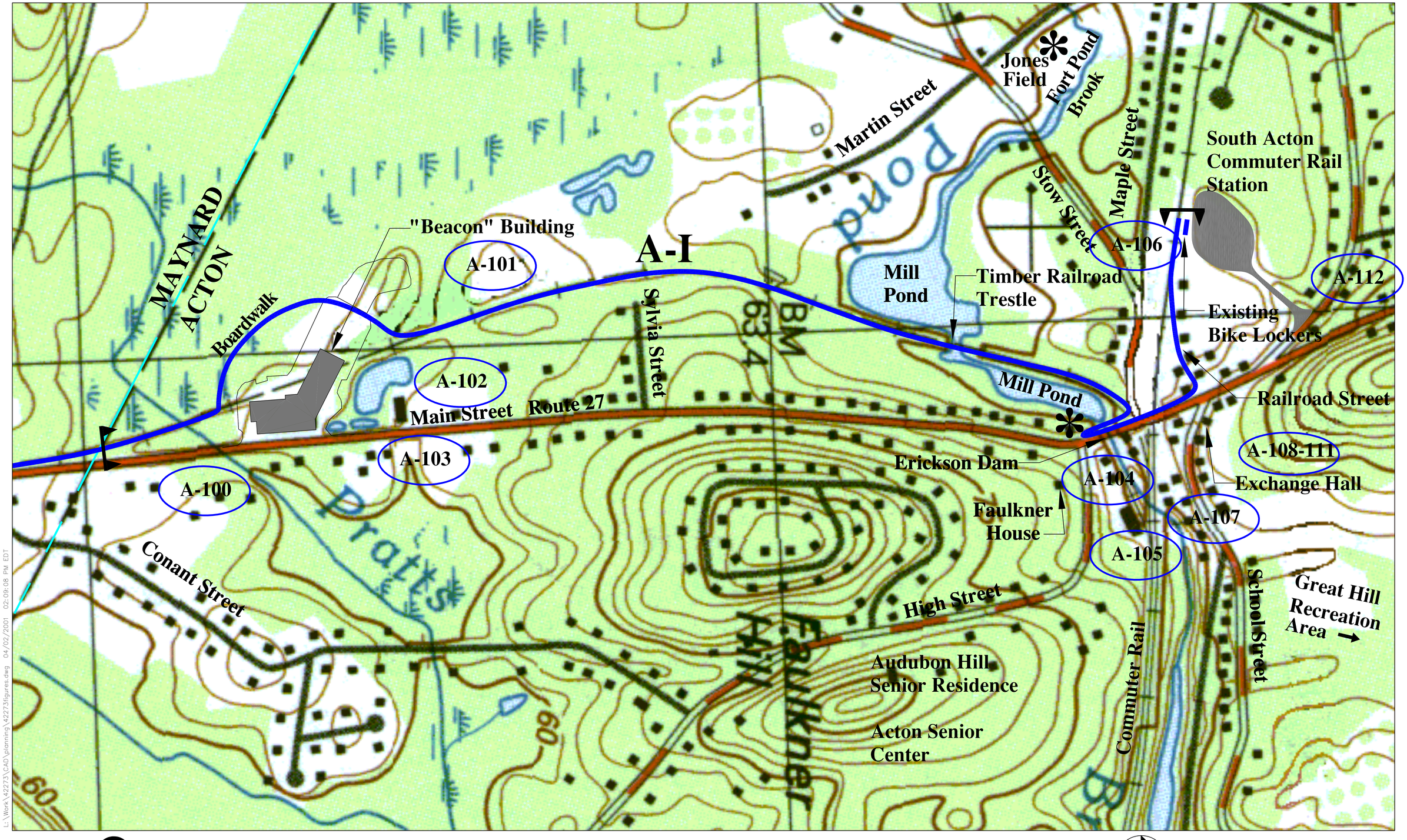
Once across the wetland area, the ARRT will cross the rear portion of the Wedgewood parking lot, at the SAAB overflow parking lot. The ARRT will be fenced off between the Wedgwood/SAAB lots and include a double gated system.

To locate the ARRT within the parking lot in place of the boardwalk will require relocating parking and widening the lot. As the lot is abutting the wetland system currently, the impacts to the wetland system will likely be larger than with the boardwalk option. Lastly, to locate the trail along Main Street is not feasible due to the ROW width of Main Street, the heavy vehicular flow and the high speeds on Main Street.

The boardwalk concept was presented to the Acton Conservation Commission on May 2, 2001. The Conservation Commission agrees in concept that the ARRT should be located on a boardwalk in this area. The actual final location will be determined with the Conservation Commission as part of the easement development, currently underway.

Once across the Wedgewood parcel, the ARRT will rejoin the RR ROW and continue. This section passes the rear of residential lots and the ROW connects to Sylvia Street. The residential properties may require landscape screening, and Sylvia Street has the potential to be an emergency access point. Continuing to the north the ARRT abuts and then crosses Mill Pond until it reaches Main Street.

There is an existing timber trestle that allowed the railroad to cross Mill Pond. The trestle is approximately 75-feet (23 m) long. The granite block abutments are wide enough for a double rail, but only a single rail crossing is in place. The trestle is five to six feet (1.5 to 1.8 m) above the water.



EARTH TECH
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✻ Municipal Parcel Segment Limit Z-# Abutting Feature

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ACTON
SCALE 1:5000
ASSABET RIVER RAIL TRAIL

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After the trestle crossing the ARRT emerges from the woods at the foot of the Maple Street embankment. The ARRT will "switch back", climbing about 10 to 15 feet (3-3.4 meters) between Main Street and the Mill Pond Bridge headwall. This is required to reach the elevation of the Main Street sidewalk across from High Street. There is currently a crosswalk of Main Street at High Street. The existing headwall of Mill Pond will have to be extended vertically to support the trail. At the narrowest point, there is about six to seven feet (1.8 to 2.1 m) between the existing headwall and the back of the existing sidewalk.

This, in effect, will be the limit of the formal ARRT in the South Acton Village. The trail users will then proceed by way of the existing sidewalk over the Main Street Bridge, down Railroad Street to the South Acton Commuter Rail Station where bike lockers exist, as shown in the photo to the left.

Ownership

Ownership of the ROW is by the MBTA, with the exception of the portion from Maynard to and including the Wedgewood site. Main Street, Railroad Street and the MBTA South Acton Commuter Rail Station are publicly used facilities.

Discussions are underway with Wedgewood to create an easement for the ARRT.

Discussions are also underway with the MBTA for transfer of the ROW.

Segments

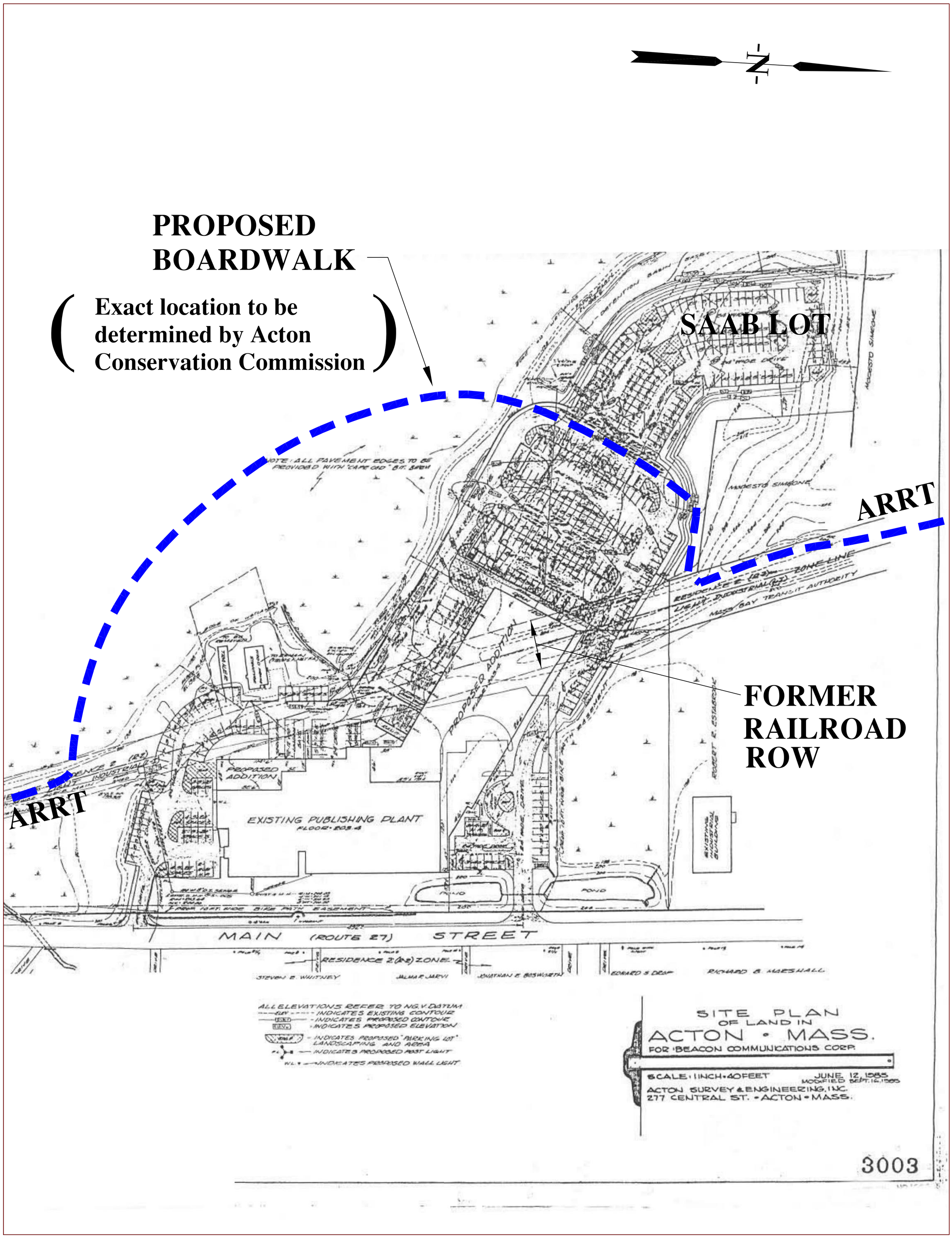
The Acton section of the ARRT consists of one Segment as indicated on page 65.

This is defined as:

Segment	Length	Limits
A-I	1.31 miles (2.1 km)	Maynard Line to S. Acton Commuter Station

Design Issues

The Pratts Brook culvert is a granite block structure that will need to be reviewed and a railing system designed. There is a flood gauge at this point and the water levels in relation to the trail (and boardwalk) will have to be reviewed, as well.



EARTH TECH

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CONCEPTUAL BOARDWALK LOCATION

SCALE 1: 2000

The location, make-up and construction methods for the boardwalk were presented to the Acton Conservation Commission on May 2, 2001. The proposed boardwalk over the wetlands to the south of the "Beacon" Building will be approximately 800-feet (244 m) long with a 14-foot (4.3 m) wide deck. The deck would be approximately five feet (1.5 m) above the wetland surface. The deck would be designed for pedestrian loads and also a 20 kip load (8 kip wheel load) that represents an "H-10" emergency/maintenance vehicle. It is anticipated that the deck would have glued-laminated or pressure treated deck panels with girders spanning 10 to 15 feet (3 to 4.5 m) to piers. These panels are constructed off site and then installed once the framework is in place.

In order to minimize permanent and temporary impacts to wetlands, the use of helical screw anchors in lieu of timber piling would be studied. The use of these anchors may allow for lighter equipment for installation, therefore minimizing temporary wetland impacts from construction equipment, assuming accessibility to wetland is possible. The number and spacing of foundation piers will be dependent on soil conditions as well as anchor capacities for resisting gravity and lateral loads. Soil borings will be required and it is anticipated that skid mounted soil boring equipment can be utilized to minimize impacts. The Conservation Commission, as part of the on-going easement development, will determine the exact location of the boardwalk and supports.

The existing timber trestle crossing Mill Pond is approximately 75-feet (23 m) long. There are four timber bents in the water forming the substructure support system. The existing timber ties are approximately 12-feet (3.6 m) long. Existing abutments are granite stone, and timber beams span between the timber bents. It is proposed to utilize the existing substructure with a new deck installed for the ARRT. The existing ties may need replacement with new deck panels in order to support the H-10 maintenance/emergency vehicle design load. The new deck will be approximately 15-feet (4.6 m) wide.

The connection to meet Main Street will require some work to extend vertically the headwall of Mill Pond.

The final connection to the South Acton Commuter Rail Station will likely be by way of existing sidewalks and roadways. Extensive signage and pavement markings will be required.

Adjacent Use

Schools and Recreation

Schools are located at Kelley's Corner.

Great Hill Recreation Area and skating pond is located nearby, off School Street behind the South Acton fire station.

The Acton Children's Museum and Science Discovery Museum are located on Main Street ¼ mile north of South Acton Village.

Exchange Hall in the South Acton Village is on the National Historic Register. Also in South Acton Village are the Faulkner homestead, at the beginning of High Street, and

Jones Tavern on Main Street at the corner of Railroad Street. These structures are listed on the National Historical Register as well, and operated as historic museums.

Jones Field (ball field and playground) is located nearby, off Stow Street.

Employment and Commercial Centers

A survey of adjacent business use was performed. The following businesses are all located within 150 yards (137 m) of the ARRT:

Map Designation	Business	# of employees
A-100	A. Gregory – Attorney	1
A-101	"Beacon" Building	56
	- Burkart-Phelan Inc.	
	- BBL	
	- Bio-energy Correction Instruments	
	- AGA	
	- Otec	
	- Flex-Head Industries	
	- Splitrock	
	- McLeod USA	
A-102	Saab Auto Sales	10
A-103	Buscemi Convenience Store	2
A-104	Erikson Grain & Feed	5
A-105	Waitco Machine Inc.	10
A-106	Gordon Richards Concrete Forms	10
A-107	School Street Garage	2
A-108	Woodworks	10
A-109	Art Exchange Gallery	3
A-110	Karate Studio	1
A-111	Merriments	1
A-112	Acton Music Store	3
Other	India Palace	2
	Nuttings Body & Frame	5
	Acton Auto Express	5
	Ant USA Inc.	1
	Visible Changes Hair Salon	2
	Feathers Hair Salon	2
	Total Number of Employees	**131**

The number of customers using these facilities is not known. A conservative estimate of 50 to 100 per day can be made.

Municipal Property

There are two abutting municipal parcels (63 & 65) at the north end where the ARRT meets Main Street. Also, the South Acton commuter station vehicle parking lot and the existing bike lockers are Town owned.

Housing

A count of single family residences, from available aerial mapping, reveals 600 within ½ mile (0.8 km) each side of the ARRT.

The Audubon Hill Senior Residence and the Acton Senior Center are located within ½ mile (0.8 km) of the ARRT. There are 71 units at Audubon Hill.

Nature

The southernmost portion of the ARRT in Acton is flanked on each side by Red Maple Swamp. These wooded wetlands give rise to a brook that flows under the trail, under Route 27, and eventually joins Pratt's Brook. The section of the ARRT is within a Groundwater Protection District Zone 3, and the 100-year flood plain.

Proceeding north on the ARRT, passing commercial properties, then homes on the right, the trail rises gently out of the flood plain and wetlands and becomes surrounded by second-growth forest. Trees include red and white oaks, white pine, black birch, hemlock, red maple, white ash, and northern red cedar.

A special attribute for the proposed trail is the hay field to the left, and other agricultural lands to the west of Fort Pond Brook and Mill Pond. These are the only actively farmed areas along the ARRT. Fields and their wooded edges are important for wildlife such as rabbits, moles, mice, woodchuck, pheasant, and a variety of songbirds.

In the vicinity of Sylvia Street we pass through a cut created by the railroad to ease the grade. The soils of the Stonefield Farm to our west are classified as “Prime Farmland” and State or locally important farmland. These good soils vary with poorly draining areas of glacial till that were deposited by the glacier's retreat 10,000 years ago.

Soon the trail is once again flanked by wetlands. These provide the natural transition to Mill Pond, which was created by damming Fort Pond Brook. The Mill Pond and its surroundings are strikingly beautiful. A trestle crosses the pond, offering a pleasant resting point. Fish such as largemouth bass and perch reside in the pond, and waterfowl including great blue heron, wood duck, osprey, and mallards are occasionally observed. Beaver activity has been reported in the Fort Pond Brook drainage basin. The brook that enters Mill Pond to our west is an important wildlife corridor. The Town's Open Space Action Plan proposes the establishment of a greenbelt along Fort Pond Brook. White-tailed deer and eastern coyote travel along these types of corridors. The area around the Mill Pond, with its wetlands and floodplain, is part of the Groundwater Protection

District Zone 3. Fort Pond Brook ultimately provides water that goes into the aquifer that supplies the Lawsbrook well field a few miles to our east.

Connections

There is the potential to connect from the South Acton Commuter Rail lot to the "Bruce Freeman Trail" (Former Lowell to Sudbury Rail Trail), the other trail being planned in Acton.

Status

As of this report, the status of the Acton Segment is as follows:

A-I The initial costing has been completed. Conversations are underway for transfer of the ROW. The Conservation Commission has endorsed the boardwalk concept. Right of Way acquisition/easements is underway. The Town anticipates applying for design and construction funding in 2001.

Estimated Costs – DRAFT

Estimated costs are for budgetary purposes, based on the railroad ROW, year 2000 dollars, and should be reviewed and refined prior to any Grant Applications.

Segment	Description		Estimated Costs Construction	Design[1]
A-I	Trail		$275,000	$33,000
A-I	Boardwalk [2]		$931,000	$112,000
A-I	Trestle [3]		$120,000	$14,400
		Acton Total	**$1,326,000**	**$159,000**
		MassHighway 25% Design Submittal		**$64,000**
A-I	Ameneties [4]		$100,000	$12,000
		MassHighway 25% Design Submittal		**$5,000**

Notes:

[1] Estimated design costs for base trail are estimated as 12% of the estimated construction cost. Estimate design costs for Amenities are estimated as 15% of the estimated construction cost. Estimate design costs for MassHighway 25% design submittal are estimated as 40% of the estimated design cost. Prior to any grant applications these figures should be reviewed and adjusted for scope, limits, inflation, and other factors.

[2] Boardwalk costs are based on 800 linear feet, and subject to actual location by Conservation Commission who will establish length. Also $931,000 is estimated for a boardwalk design to support an emergency vehicle. A pedestrian-only design is estimated at $600,000.

[3] Trestle costs anticipate reuse of existing substructure.

[4] The final Segment in each community consists of amenities, specialty signage, linear park type features, and specific improvements. For Acton this consists of specialty signage, landscaping features, minor connections to abutting parcels, a pedestrian traffic signal at Great Road, and public rest rooms at three locations.

Section 3: Phasing

SECTION 3 – PHASING

The purpose of this section is to provide an order of phasing for the various segments to bring the ARRT to completion.

Each phase has a two (2) year schedule.

The phases are defined as follows:

- Phase 1 – Present to December 31, 2002
- Phase 2 – January 1, 2003 to December 31, 2004
- Phase 3 – January 1, 2005 to December 31, 2006
- Phase 4 – January 1, 2007 to December 31, 2008
- Phase 5 Amenities* – Overlays all phases

  * Phase 5 consists of amenities to the trail, connections to abutting features, and trailheads, parking, pedestrian traffic signals, and landscaping. This is an opportunity dependant phase and will seek out ways to create linkage with abutting projects as well. Phase 5 can occur with other phases or directly after the base trail is constructed.

The following spreadsheet provides a conceptual phasing for the completion of the ARRT. The major milestones (and abbreviations used) in this phasing consist of the following:

- Route Selection (RS) – Defining the route the ARRT will take;
- Right of Way (ROW) – Obtaining the ROW required for the ARRT;
- Local Match (LM) – Appropriating the Local Match for Grant Funding;
- Grant Application (GA) – Applying for and obtaining funding for ROW, Design, and Construction, by one or more sources;
- Design (DES) – Field survey, permitting, design, and review elements;
- Bid (BID) – Public bid process for the construction project; and
- Construction (CNSTR) – Construction of the ARRT.

Some of the potential funding sources include MassHighway enhancements funding, CMAQ Transportation Demand Management (TDM) funding, Public Works Economic Development (PWED) funding, and public/private partnerships.

ARRT Potential Project Phasing

Segment	Description	Phase 1 Pres-12/31/02	Phase 2 1/1/03-12/31/04	Phase 3 1/1/05-12/31/06	Phase 4 1/1/07-12/31/08
	Marlborough				
M-I	Lincoln St. to Fairbanks Blvd.	DES CNSTR			
M-II	Fairbanks Blvd. to Fitchburg St.	OPENED			
M-III	Fitchburg St. to Hudson Line	Open 02 by others			
M-IV	Trail Head/Amenties	LM GA	DES BID CNSTR		
	Hudson				
H-I	Marlboro Line to Main St.	DES CNSTR			
H-II	Main St. to Wilkens St.	DES CNSTR			
H-III	Wilkins St. to Stow Line (1)		ROW	LM GA	DES BID CNSTR
H-IV	Ameneties		LM GA	DES BID CNSTR	
	Stow				
S-I	Hudson Line to Marlboro St. (1)		ROW	LM GA	DES BID CNSTR
S-II	Marlboro St. to Sudbury Rd.	ROW	ROW LM GA	DES BID CNSTR	
S-III	Subury Rd. to Maynard Line	ROW	LM GA DES	BID CNSTR	
S-IV	Ameneties			LM GA DES	BID CNSTR
	Maynard				
MD-I	Stow Line to Great Rd.	ROW LM GA	DES BID	CNSTR	
MD-II	Great Rd. to Sudbury St.	ROW LM GA	DES BID	CNSTR	
MD-III	Sudbury St. to Tobin Park	ROW LM GA	DES BID	CNSTR	
MD-IIIA	Tobin Park and Bridge (2)			LM GA DES	BID CNSTR
MD-IV	Tobin Park to Summer St.		DES BID	CNSTR	
MD-V	Summer St. to Concord St.	ROW LM GA	DES BID	CNSTR	
MD-VI	Concord St. to Acton St.	ROW LM GA	DES BID	CNSTR	
MD-VII	Acton St. to Acton Line (3)	ROW LM GA	DES BID CNSTR		
MD-VIII	Ameneties			LM GA DES	BID CNSTR
	Acton				
A-I	Maynard Line to S. Acton Sta (3)	ROW LM GA	DES BID CNSTR		
A-II	Ameneties		LM GA	DES BID CNSTR	

(1) H-III and S-I should go together, as neither has a destination point alone.
(2) This is not requied for the basic trail construction.
(3) MD-VII should be advanced with A-I. MD-VII doesn't have a destination point.

RS = Route Selection
ROW = Obtain Right of Way
LM = Local Match for funding
GA = Grant Applications
DES = Survey, Permitting, Design, and Review
BID = Public Bid Process for Construction
CNSTR = Construction

Phase 5 to occur as opportunities arise, with other phases, or after construction.

This phasing scenerio was last printed (updated) on 7/3/2001

ARRT Estimated Project Funding

Segment	Description	Est Des Cnstr 2000 $	Phase 1 Pres-12/31/02	Phase 2 1/1/03-12/31/04	Phase 3 1/1/05-12/31/06	Phase 4 1/1/07-12/31/08
M-I	Lincoln St. to Fairbanks Blvd.	$ 375,000.00	$ 375,000.00			
M-II	Fairbanks Blvd. to Fitchburg St.	$ -	$ -			
M-III	Fitchburg St. to Hudson Line	$ -	$ -			
M-IV	Trail Head/Amenties	$ 1,120,000.00		$ 1,164,800.00		
	Marlborough Total =	$ 1,495,000.00	**$ 375,000.00**	**$ 1,164,800.00**	$ -	$ -
H-I	Marlboro Line to Main ST.	$ 1,625,000.00	$ 1,625,000.00			
H-II	Main St. to Wilkens St.	$ 605,000.00	$ 605,000.00			
H-III	Wilkens St to Stow Line	$ 224,000.00				$ 250,880.00
H-IV	Ameneties	$ 650,000.00			$ 702,000.00	
	Hudson Total =	$ 3,104,000.00	**$ 2,230,000.00**	$ -	**$ 702,000.00**	**$ 250,880.00**
S-I	Hudson Line to Marlboro St.	$ 45,000.00				$ 50,400.00
S-II	Marlboro St To Sudbury Rd.	$ 1,840,000.00			$ 259,200.00	$ 1,792,000.00
S-III	Sudbury Rd. to Maynard Line	$ 571,200.00		$ 63,648.00	$ 550,800.00	
S-IV	Ameneties	$ 184,000.00			$ 25,920.00	$ 179,200.00
	Stow Total =	$ 2,640,200.00	$ -	**$ 63,648.00**	**$ 835,920.00**	**$ 2,021,600.00**
MD-I	Stow Line to Great Rd.	$ 146,000.00		$ 16,640.00	$ 140,400.00	
MD-II	Great Rd. to Sudbury St.	$ 90,000.00		$ 10,400.00	$ 86,400.00	
MD-III	Sudbury St. to Tobin Park	$ 123,200.00		$ 13,728.00	$ 118,800.00	
MD-IIIA	Tobin Park and Bridge	$ 203,000.00			$ 23,760.00	
MD-IV	Tobin Park to Summer St.	$ 78,400.00		$ 8,736.00	$ 75,600.00	
MD-V	Summer St. to Concord St.	$ 79,500.00		$ 8,840.00	$ 76,680.00	
MD-VI	Concord St. to Acton St.	$ 160,200.00		$ 17,888.00	$ 154,440.00	
MD-VII	Acton St. to Acton Line	$ 52,700.00		$ 5,928.00	$ 50,760.00	
MD-VIII	Ameneties	$ 795,200.00			$ 92,016.00	$ 795,200.00
	Maynard Total =	$ 1,728,200.00	$ -	**$ 82,160.00**	**$ 818,856.00**	**$ 795,200.00**
A-I	Maynard Line to S. Acton Sta.	$ 1,485,000.00		$ 1,544,400.00		
A-II	Ameneties	$ 112,000.00			$ 120,960.00	
	Acton Total =	$ 1,597,000.00	$ -	**$ 1,544,400.00**	**$ 120,960.00**	$ -
	Total =	$ 10,564,400.00	**$ 2,605,000.00**	**$ 2,855,008.00**	**$ 2,477,736.00**	**$ 3,067,680.00**

Funds include design and construction estimates.
Funds are show in the time frame when they will be spent.
Estimates are in Year 2000 dollars.
Year 2000 dollars were held through 2002 and are increased by 2% per year beyond that.
This is only a guide to the schedule and amount of funding.
All funding needs will have to be reviewed prior to applying for funding
as costs, scope, and existing conditions may change.

This Funding Scenerio was last printed (updated) on 7/3/2001

Funding Commitment/Long-Range Plan

MassHighway has committed to putting the construction of the ARRT out to bid as a MassHighway project. The project is supported by MHD District 3. The trail construction is currently listed on the Transportation Improvement Plan (TIP) as a Supplemental Project. We are told by MassHighway Planning Department that actual construction funding will be programmed under the Congestion Mitigation and Air Quality (CMAQ) fund. In statements made publicly at an ARRT briefing, Commissioner Matt Amorello expressed a desire to see the project constructed in FY02. We are hoping to incorporate the design of the TDM funded sections with the ongoing ARRT design. Ideally, the parking lots and final section of trail in Hudson will be constructed along with the main section of the ARRT currently under design. If this is not possible, the Town will continue to seek funding through the Enhancement Program, TDM Funds, or other grant or local funding.

As part of the development of the ARRT, the five participating communities have committed to assuming responsibility for the ongoing maintenance and policing of the trail once it is built. This commitment was made by the Chief Elected Officials of all five communities and is a permanent obligation which the communities have embraced. In addition, the four towns have approved warrant articles authorizing matching funding for the various grant applications that have been submitted, and the City Council and Marlborough have similarly appropriated funds.

The communities, together with the volunteers now incorporated as the Assabet River Rail Trail, Inc. (ARRT, Inc.), are actively pursuing any and all grant programs, private partnerships, local funding, and other creative sources of financing for this project. ARRT, Inc. has been very successful at obtaining grants from the Department of Environmental Management from its Greenways and Trails Demonstration Program. Over the past years, they have submitted four grant applications which were funded for a total of $16,000 and have another application currently pending, which could result in an additional $10,000 of funding. The City of Marlborough and the Town of Maynard have obtained PWED grants that have paid for significant portions of the trail's development and have incorporated the design of the trail into several contiguous roadway projects. The Friends of the ARRT are considering preparing an Urban Self Help Grant, if there is a spring funding round for that Executive Office Environmental Affairs program.

In general, since the City of Marlborough's segment of the trail got a boost from the private partners of Lucent Technologies and International Technology Corporation, portions of its trail have advanced faster than the rest of the trail. As a strategy, the five towns have been moving the project along from the southwestern most point in Marlborough, capitalizing on early successes there, towards Hudson. Concurrently, ARRT project managers will be seeking to apply for design funding from Tea-21 and other sources for the Acton-Maynard section.