

Maureen G. Valente  
Town Manager

**TOWN OF SUDBURY**  
*Office of the Town Manager*

278 Old Sudbury Road  
Sudbury, Massachusetts 01776-1843  
Tel: (978) 443-8891, x385  
Fax: (978) 443-0756  
E-mail: valentem@town.sudbury.ma.us

October 11, 2006

Community Preservation Committee  
c/o of Director of Planning and Community Development  
Flynn Building  
278 Old Sudbury Road  
Sudbury MA 01776

RE: Bruce Freeman Rail Trail Development Related Projects

Dear CPC Members:

The Office of the Town Manager/Board of Selectmen hereby requests the Community Preservation Committee recommend for Town Meeting approval the enclosed Rail Trail related projects, all of which are next steps in continuing the process of studying how and when the Town might be able to convert the former Penn Central right-of-way into a recreational rail trail for the Town of Sudbury.

In brief, the three projects are:

1. Conducting a full title review to trace the title from when the railroad originally acquired the land, forward in time to the present.
2. Documenting the existing wildlife species utilizing the rail right of way (ROW) and adjacent areas and performing an analysis of the rare and endangered species habitats along the ROW.
3. Creating an existing conditions base map of the entire rail corridor. The project includes a wetland resource delineation, field survey and preparation of a base map for the rail corridor.<sup>1</sup>

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<sup>1</sup> NOTE: The Rail Trail Conversion Advisory Committee did not vote to include the wetland resource delineation as part of the existing conditions base map project at this time, noting that such flagging is good for only three years and thus might need to be updated given the length of time it will probably take to develop this project further. Staff feel, however, that it is important to get this information recorded now, to aid in design decisions and that an update to the delineation can be done later, with the approval of the Conservation Commission. We are submitting the more expanded project now, and will have further discussions with the Commission and the RTCAC over the next month.

Each of these planned projects is considered part of the 25% design process that is necessary, IF the creation of a recreational rail trail is done, to meet the required design and construction standards for state and federal agencies that grant funding for such projects (See Attachment A, Overview of Mass Highway 25% Design Process). And whether the Town of Sudbury seeks such outside funding or chooses other options for financing, these studies will reveal critical information that the Town needs in order to make the best design decisions as this overall project moves forward. All of these projects will count toward the 25% design threshold. (Please note: Town staff have investigated whether there are outside grant funds to assist with these three projects. See Attachment B, letter from Assistant Planner Jennifer Burney addressing this issue).

Although we have submitted these as three separate projects to you, the Board of Selectmen and I hope that all three are given equal consideration and that if the CPC recommends, all could be submitted to Town Meeting as one project.

### **Progress to date on Rail Trail Conversion Activities**

Two major efforts have been occurring on this project in the past year. First, a consultant, hired through CPC \$25,000 funding approved at the 2005 Town Meeting, has been working on producing a feasibility study, which will be presented to the Town in final version in November. Attached to this letter, as Attachment C, is an excerpt from the draft Environmental & Engineering Assessment report developed by Fay, Spofford & Thorndike, the consultant retained by the Town. I direct your attention to the Table of Contents, so that you can see what the final report will cover, to the cost estimates beginning on page 16-1, and to the list of next steps in Table X on page 17-2. Note that the full title review (1<sup>st</sup> project) and wildlife habitat evaluation study (2<sup>nd</sup> project included) are listed among the next steps for post-feasibility study. Developing the corridor base map, the 3<sup>rd</sup> project requested here, was deemed by the RTCAC to be necessary to any other further design discussions and so they voted to submit the project now to gain the information this project will generate.

The Rail Trail Conversion Advisory Committee (RTCAC) has been meeting and working on a variety of efforts and tasks and Attachment B is from a presentation which the RTCAC made to the community on September 14 which summarizes the activities and progress of the committee. Attachment D to this letter is a written version of their power point presentation.

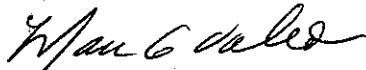
### **Order of these Projects and Administrative Funds Possibility**

While the RTCAC feels that all three project need to be initiated next, the Board of Selectmen feels that the title review work should be begun before significant further Town funds are spent on this project. Therefore, the Selectmen voted at their meeting on October 3<sup>rd</sup> that funds for the second and third projects are only to be released upon completion of a satisfactory title review.

*Thus, if FY06 administrative funds were to be available, the Board would respectfully suggest that the title review project be undertaken now with those funds so that the results would be known by Town Meeting 2007.* This would insure that legal title issues are fully known, and if any title work would substantially affect the further development of the rail trail project the Town is made aware of this as early as possible. Neither Town staff nor our consultant FS & T anticipates any major title problems as the state has railbanked the rail corridor and not allowed parts of it to be sold. Nevertheless, now that the feasibility/engineering assessment study is nearing completion, this is the next task that should be completed before further dollars are invested in this project. The Board and I leave the question of using administrative funds to begin the \$15,000 title search project now up to the Community Preservation Committee.

Additionally, the RTCAC environmental subcommittee has also noted that, if administrative funds were available, the four season wildlife study could be initiated before next summer.

Respectfully submitted,



Maureen G. Valente  
Town Manager

Attachments

TOWN OF SUDBURY COMMUNITY PRESERVATION COMMITTEE

PROJECT SUBMISSION FORM

Submitter: Town Manager/Board of Selectmen

Submission Date: October 11, 2006

Group or Committee Affiliation (if any): Town of Sudbury

Submitter's address and phone number:

278 Old Sudbury Road

978-443-8891 ext 382

Purpose (please select all that apply):

Open Space

Community Housing

Historic

Recreation

Submitter's email address: *valentem@town.sudbury.ma.us*

Project Name. *Rail Trail Title Search*

Project Description: *This project requests funding to conduct a full title review to trace the title from when the railroad originally acquired the land, forward in time to the present. The nature of the rights of various interests in the right-of-way, including the legality of private crossings, will be clarified in the context of this title review.*

Costs:

Fiscal Year	Total Project Cost	CPC Funds Requested	Other Funding Sources (amount and source)
2007			
2008	\$15,000	\$15,000	
2009			
2010			
2011			
Total			

*Please note: To bring the Bruce Freeman Rail Trail in Sudbury to completion, at some point additional design and construction funds will be needed. Those additional funds may be substantially available through outside funding, or they may not, depending on information we will learn through these requested projects and design decisions made after we receive the resulting information from these projects. Please see construction cost estimates from our consultants FS&T, included herein as Attachment C, beginning page 16-1.*

How does this project meet the General Criteria and Category Specific Criteria for CPC projects (see attached)?

**General Criteria.** *The overall rail trail development project is consistent with the Master Plan and Open Space and Recreation Plan. The project will link open space and recreation areas. Cost/benefit value: This part of the overall project will provide leverage for state and federal funding for the construction of the rail trail path if the Town seeks such funding. The original feasibility study for this project was endorsed by the Planning Board and the Park and Recreation Commission.*

**Specific Criteria – Recreation.** *The project will support walkers, bikers, joggers, cross-country skiers, snow shoeing and other non-motorized activities. The rail trail path will serve residents of all ages and provide a safe access to recreation land, conservation land, and to the existing walkway network.*

Does this project fall within the jurisdiction or interest of other Town Boards, Committees or Departments? If so, please list the boards, committees or departments, whether applications and/or presentations have been made, and what input or recommendations have been given.

*This overall project falls under the jurisdiction of the Rail Trail Conversion Advisory Commission, which voted to request that the Town Manager/Board of Selectmen submit this project proposal. Park and Recreation Commission, the Planning Board, the Conservation Commission, the Engineering Department, Parks and Grounds division of the DPW, as well as the Board of Selectmen, all have some interest and/or jurisdiction on this project.*

For Community Preservation Committee Use:

Form Received on: \_\_\_\_\_

Project Presented to CPC on: \_\_\_\_\_

Reviewed by: \_\_\_\_\_

Determination: \_\_\_\_\_

TOWN OF SUDBURY COMMUNITY PRESERVATION COMMITTEE

**PROJECT SUBMISSION FORM**

Submitter: *Town Manager/Board of Selectmen*

Submission Date: *October 11, 2006*

Group or Committee Affiliation (if any): *Town of Sudbury*

Submitter's address and phone number:

*278 Old Sudbury Road*

*978-443-8891 ext 382*

Purpose (please select all that apply):

Open Space

Community Housing

Historic

Recreation

Submitter's email address: *valentem@town.sudbury.ma.us*

Project Name: *Rail Trail Wildlife Study*

**Project Description. *This application requests funds to hire a consultant to document the existing wildlife species utilizing the rail right of way (ROW) and adjacent areas through a four season (12 month) wildlife tracking survey, as well as perform an analysis of the rare and endangered species habitats along the ROW. The project consultant will work with the Sudbury Conservation Commission as well as other environmental entities, and will produce a report that suggests design options that could mitigate the impact of the Rail Trail on wildlife. Development of the RFP will be a combined effort of the environmental subcommittee of the RTCAC, the Conservation Commission and the Town Manager and/or her designee.***

Costs:

Fiscal Year	Total Project Cost	CPC Funds Requested	Other Funding Sources (amount and source)
2007			
2008	\$25,000	\$25,000	
2009			
2010			
2011			
Total			

***Please note: To bring the Bruce Freeman Rail Trail in Sudbury to completion, at some point additional design and construction funds will be needed. Those additional funds may be substantially available through outside funding, or they may not, depending on information we will learn through***

*these requested projects and design decisions made after we receive the resulting information from these projects. Please see construction cost estimates from our consultants FS&T, included herein as Attachment C, beginning page 16-1.*

How does this project meet the General Criteria and Category Specific Criteria for CPC projects (see attached)?

***General Criteria.*** *The overall project is consistent with the Master Plan and Open Space and Recreation Plan. The project will link open space and recreation areas. Cost/benefit value: This study will provide leverage for state and federal funding for the construction of the rail trail path. The original project request for feasibility study was endorsed by the Planning Board and the Park and Recreation Commission in 2005.*

***Specific Criteria – Recreation.*** *The project will support walkers, bikers, joggers, cross-country skiers, snow shoeing and other non-motorized activities. The rail trail will serve residents of all ages and provide a safe access to recreation land, conservation land, and to the existing walkway network.*

Does this project fall within the jurisdiction or interest of other Town Boards, Committees or Departments? If so, please list the boards, committees or departments, whether applications and/or presentations have been made, and what input or recommendations have been given.

***The overall project to develop recommendations for the best way to develop the rail trail as a recreational asset to the town falls under the jurisdiction of the Rail Trail Conversion Advisory Commission, which voted to request that the Town Manager/Board of Selectmen submit this project proposal to the CPC. The Park and Recreation Commission, the Planning Board, the Conservation Commission, the Engineering Department, Parks and Grounds division of the DPW, as well as the Board of Selectmen, all have some interest and/or jurisdiction on this project.***

For Community Preservation Committee Use:

Form Received on: \_\_\_\_\_

Project Presented to CPC on: \_\_\_\_\_

Reviewed by: \_\_\_\_\_

Determination: \_\_\_\_\_

**TOWN OF SUDBURY COMMUNITY PRESERVATION COMMITTEE**

**PROJECT SUBMISSION FORM**

Submitter: *Town Manager/Board of Selectmen*

Submission Date: *October 11, 2006*

Group or Committee Affiliation (if any):

Submitter's address and phone number:

*278 Old Sudbury Road*

*978-443-8891 ext 382*

Purpose (please select all that apply):

Open Space

Community Housing

Historic

Recreation

Submitter's email address: *valentem@town.sudbury.ma.us*

Project Name: *Rail Trail Existing Conditions Base Map*

Project Description: *This application requests funding to hire a consultant(s) to create an existing conditions base map of the entire rail corridor in advance of any design effort. This project has two components: wetlands resources delineation and a field survey.*

*The consultant will be required to perform an Environmental Resource Delineation of the wetland resources within the area of the EOT right of Way. These wetland resources will be flagged in accordance with state and federal guidelines. All flagged locations will be surveyed and plotted on the base map survey. An Abbreviated Notice of Resource Area will be prepared by the consultant and filed with the Sudbury Conservation Commission to get concurrence on the limits of the wetland resource areas. The cost of this part of the project is estimated to be approximately \$25,000.*

*The consultant will also conduct a field survey and preparation of a base map for the rail corridor. The consultant will prepare 1"=40' base maps with 1-foot contours in AutoCAD format in accordance with Mass. Highway standards. The map shall be stamped by a registered land surveyor. The base map will be developed by an aerial photogrammetric mapping or other approved method. Elevations should be obtained along the center of the existing railroad track to an accuracy of 1/10' at 100-foot intervals to supplement the aerial mapping. No individual trees will be surveyed other than those captured by the aerial photogrammetric mapping along the corridor. Detailed field topographic survey will be performed at all roadway and waterway crossings. The base map will include the location of all visible utility structures and invert elevations of drainage and sewer structures along the railroad corridor. Utility agencies and companies will be contacted to obtain record information. Underground utility lines will be shown based on available utility records and*



**field survey information. Approximate right-of-way lines, approximate property lines and abutters' names along the rail corridor will be shown based on the Town Assessor's Maps. This part of the project is estimated to cost \$80,000.**

**Together, these two projects are estimated to cost \$105,000.**

**Costs:**

Fiscal Year	Total Project Cost	CPC Funds Requested	Other Funding Sources (amount and source)
2007			
2008	\$105,000	\$105,000	
2009			
2010			
2011			
Total			

**Please note: To bring the Bruce Freeman Rail Trail in Sudbury to completion, at some point additional design and construction funds will be needed. Those additional funds may be substantially available through outside funding, or they may not, depending on information we will learn through these requested projects and design decisions made after we receive the resulting information from these projects. Please see construction cost estimates from our consultants FS&T, included herein as Attachment C, beginning page 16-1.**

How does this project meet the General Criteria and Category Specific Criteria for CPC projects (see attached)?

**General Criteria. The project is consistent with the Master Plan and Open Space and Recreation Plan. The overall project will link open space and recreation areas. Cost/benefit value: This study will provide leverage for state and federal funding for the construction of the rail trail if such funding is sought. The original project request for feasibility study was endorsed by the Planning Board and the Park and Recreation Commission in 2005.**

**Specific Criteria – Recreation. The project could potentially support walkers, bikers, joggers, cross-country skiers, snow shoeing and other non-motorized activities, depending in final design decisions. The rail trail path will serve residents of all ages and provide a safe access to recreation land, conservation land, and to the existing walkway network.**

Does this project fall within the jurisdiction or interest of other Town Boards, Committees or Departments? If so, please list the boards, committees or departments, whether applications and/or presentations have been made, and what input or recommendations have been given.

**The overall project to help the Town determine the best plans for developing the Rail Trail falls under the jurisdiction of the Rail Trail Conversion Advisory Commission, which voted to request that the Town Manager/Board of Selectmen submit this project proposal. The Park and Recreation Commission, the Planning Board, the Conservation Commission, the Engineering Department, Parks**

*and Grounds division of the DPW, as well as the Board of Selectmen, all have some interest and/or jurisdiction on this project.*

For Community Preservation Committee Use:

Form Received on: \_\_\_\_\_

Project Presented to CPC on: \_\_\_\_\_

Reviewed by: \_\_\_\_\_

Determination: \_\_\_\_\_

# Attachment A

## Overview of MassHighway 25% Design Process

The first step in the project design process is referred to as preliminary design and results in the submission of 25% Design plans. In general, the 25% Design phase includes the preparation of a complete topographic survey, including delineation of environmental resources, as well as the development of preliminary alignment plans, profiles and typical cross sections. The 25% Design allows for the determination of actual impacts, if any, that the proposed rail trail would have upon environmental, cultural and historic resources. Based on this information, early coordination is initiated with the applicable local and state regulatory agencies from which permitting and project approvals will be required. The 25% Design actually comprises about 40% of the total design effort, with the remaining 60% going towards the final design phases.

After the 25% Design is completed and approved by MassHighway, a Design Public Hearing is held in the community. The project can then advance to the final design phases (75% Design → 100% Design → Final Plans, Specifications & Estimates). All necessary permits are secured before the project is put out to bid for construction.

The following listing provides an overview of the Scope of Work items typically included in the 25% Design.

The major activities included as part of a 25% Design include:

- **Prepare Base Plans**  
The base plans include a complete topographic survey, delineated environmental resource areas and approximate right of way limits and property lines.
- **Request / Compile Necessary Traffic Data**  
The compiled traffic data will document the operational characteristics of the project area.
- **Develop Horizontal and Vertical Geometrics**  
The rail trail alignment, stationing and profile are developed based on the survey plans and an understanding of environmental constraints and drainage characteristics, for example.
- **Develop Typical Cross-Sections**  
The typical cross-sections are developed based on design requirements and show design elements such as trail width, shoulders and side clearances, railing and fence locations and vegetative clearing limits.
- **Coordination with Landscape Design**  
The landscape design elements typically included with the preliminary design plans include locations of vegetative screening, as requested by or recommended for the privacy of abutters.
- **Develop Draft Traffic Signal Plan (as needed)**  
The need for traffic signal plans will depend upon the findings of the traffic signal warrant analysis to be conducted at each of the major roadway crossings.
- **Develop Preliminary Pavement Design**  
A pavement design typical section is developed to show the proposed depth and type of surface material and underlying base course.

# Attachment B



## Town of Sudbury

Planning and Community Development Department

Jody A. Kablack, Director

Flynn Building  
278 Old Sudbury Rd  
Sudbury, MA 01776  
978-443-2209, x1387  
Fax: 978-443-0756

<http://www.sudbury.ma.us/services/planning>  
[kablackj@town.sudbury.ma.us](mailto:kablackj@town.sudbury.ma.us)

October, 6, 2006

To: Rail Trail Conversion Advisory Committee  
Community Preservation Committee  
Maureen Valente, Town Manager

From: Jennifer Burney, Assistant Planner

Re: Rail Trail Funding

Dear Members:

I researched the potential outside funding for the rail trail field survey and preparation of a base map, and was told that because it is not for actual construction but rather for a planning and feasibility study it would not qualify for funding at this time.

I spoke to Paul Jahnige, the Director from DCR and was told that there is funding under a DCR Greenways Trail Grant in the amount of \$2,000 - \$50,000, but it is for construction and management and that we could apply once we move forward in our plans. I also spoke to Craig Dellapenna who is a rail trails advocate and is very knowledgeable about rail trails. He claims that at this early stage in planning, most towns will use their own funds or funding from a CPA.

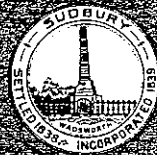
There is a very informative conference coming up on October 18<sup>th</sup> sponsored by Baystates Roads Program and entitled "Get Moving" which will be held at the Boston Marriot Courtyard. Call 413-545-2604 to register. The cost is \$35.00. Various stakeholders and advocates for rails trails get together to discuss everything you want to know about rail trails.

I have collected information on other grants both state and federal that would be applicable to this project as it moves beyond the point of planning. I would be happy to research and assist in any future grant proposals and will continue to gather information.

Attachment C  
Excerpt from  
Feasibility Draft  
Report

**Bruce Freeman  
Rail Trail  
Environmental &  
Engineering Assessment**

**Town of Sudbury, MA**



**FAY, SPOFFORD & THORNDIKE**  
Engineers - Planners - Scientists

August 2006



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# 1 Introduction

The purpose of this Section is to provide an overview of the Bruce Freeman Rail Trail project from a regional, local and study perspective.

## 1.1 Regional Overview

The Bruce Freeman Rail Trail (BFRT) is a proposed 25-mile rail trail between Lowell and Framingham along the former Lowell Secondary Track right-of-way of the Old Colony Rail Road. The proposed facility is a rail trail which is a shared use path created along a former railroad right of way. Depending on the trail surface and width, these non-motorized facilities can support a variety of uses including, for example, bicycling, walking, inline skating, cross-country skiing, and wheelchairs.

The rail trail is named in remembrance of the late State Representative Bruce Freeman, a Republican from Chelmsford, who served from 1969 until he passed away from cancer in 1986. Freeman was a key supporter for the creation of the trail during his term. His successor and fellow supporters continued to promote the project and were successful in obtaining the endorsement of the State Legislature in the Spring of 1987.

The rail trail project is at various stages of development along the corridor -- concept, study, design and pre-construction. The project has been segmented into three phases based on corridor ownership and level of development.

**Phase 1** - Extends from the Lowell / Chelmsford line near Cross Point Towers / Route 3 south to Route 225 in Westford (7 miles). This phase has been designed and funded and construction will begin in the near future. This section of right of way is jointly managed by the MA Executive Office of Transportation (EOT), MA Department of Conservation and Recreation (DCR), and the towns of Chelmsford and Westford.

**Phase 2** - Extends from Route 225 in Westford south through Carlisle, Acton, Concord and Sudbury to a point just north of Route 20 near Chiswick Park (13 miles). The project is currently advancing on a town-by-town basis; permitting individual towns to proceed forward independently of adjacent communities. Acton, Carlisle and Westford have hired a consultant to begin preliminary design on their 4.5-mile section of rail trail. MassHighway has hired a consultant to prepare the necessary environmental documentation and preliminary design plans for the redesign of the Concord rotary. This project will study design options for the rail trail crossing at Route 2 at the Acton / Concord town line. A detailed rail trail assessment report has been completed for the Town of Concord and they are currently drafting a request for proposals for preliminary design. This section of right of way is owned by the Commonwealth of Massachusetts, under the care and control of the EOT.

**Phase 3** - Extends from a point just north of Route 20 in Sudbury, south to Route 9 in Framingham (5 miles). The Central Transportation Planning Staff (CTPS) of the Boston Metropolitan Planning Organization (MPO) will be releasing a study on this section of right of way that will discuss the major issues and opportunities related to potential rail to trail conversion. This section of right of way is owned by CSX Corporation. CSX removed the tracks and ties from the railroad corridor and indicated that it will no longer be used for rail service. The EOT is engaged in aggressive conversations with CSX regarding the purchase of multiple properties, and this corridor extension has been identified as one of the assets on the agency's priority list.

## **1.2 Local Perspective**

The portion of rail corridor included in this Assessment extends from South Sudbury north to the Sudbury / Concord Town line. This portion of rail corridor is owned in its entirety by the Commonwealth of Massachusetts, under the care and control of the EOT. According to the Old Colony Rail Road Valuation Maps, the length of State-owned corridor within Sudbury is approximately 4.6 miles.

The study area begins where the east-west Massachusetts Bay Transportation Authority (MBTA) rail corridor crosses the north-south Old Colony Rail Road corridor. This crossing is located in South Sudbury, near Crumble Station and the entrance drive to Sudbury Lumber and Chiswick Park. The Town specifically excluded the portion of rail corridor south of this crossing from the Assessment. Though this rail line is continuous, each segment is owned by a different entity. The southern extension is privately owned by CSX Corporation and the status of negotiations between EOT and CSX to purchase this segment is pending at this time.

A locus map of the project area on the Maynard and Framingham USGS Quad Maps is included on the following page.

## **1.3 Assessment Purpose**

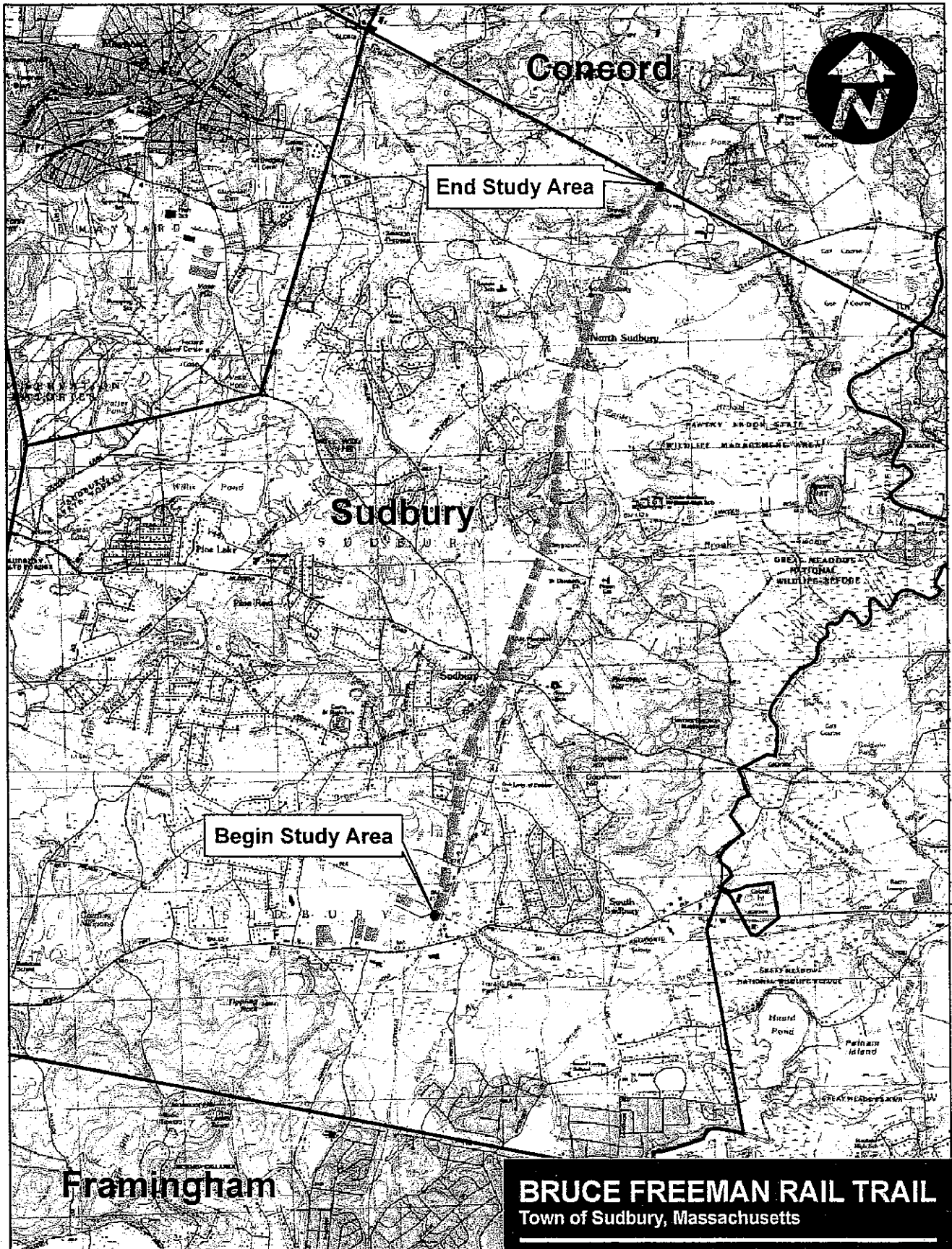
The purpose of this assessment is to determine the environmental and engineering feasibility of developing a rail trail along the Sudbury portion of the former rail corridor.

The primary goals of this Assessment are to:

- Assess existing conditions along the corridor
- Evaluate and document potential project impacts
- Discuss key design and constructability related issues
- Identify means and ways to mitigate project impacts, if practicable
- Develop design and construction cost estimates

Ultimately this Assessment will assist Town officials and residents to determine their willingness, readiness and fiscal ability to proceed with the rail trail project.

The funds for the Assessment were approved at the 2005 Sudbury Town Meeting under the Community Preservation Act (CPA).



Data Source: Office of Geographic and Environmental Information (MassGIS) Commonwealth of Massachusetts  
 Executive Office of Environmental Affairs

**BRUCE FREEMAN RAIL TRAIL**  
 Town of Sudbury, Massachusetts

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*Locus Map*

**Figure 1**

#### 1.4 Assessment Oversight

This Assessment effort has been guided by input from Town staff and officials, with the assistance of the Town's Rail Trail Conversion Advisory Committee (RTCAC).

Town staff and officials include the Town Manager and Board of Selectman, Town Engineer / Public Works Director, Conservation Coordinator and the Town Planning and Community Development Director. RTCAC membership includes representation by Town staff and at-large positions filled by Town residents appointed by the Board of Selectman.

For further information about the work of the RTCAC, including documents available for downloading and meeting minutes, visit the Town's website at:

<http://www.town.sudbury.ma.us/committees/railtrail>

## 16 Cost Estimates

The purpose of this Section is to provide a budgetary estimate of anticipated construction and design costs for a 4.6-mile rail trail in Sudbury, as well as outline typical funding responsibilities.

### 16.1 Construction Costs

The preliminary construction cost estimates are based on:

- Bids received from contractors on other MassHighway advertised rail trail projects across the state (as published in the CIM Construction Journal)
- Current MassHighway Weighted Average Bid Prices
- Similar work recently designed by the Consultant

The estimates presented below consider both a 10-foot and 5-foot surface width for the following types of trail surfaces:

- Paved surface (hot mix asphalt)
- Granular surface (stone dust)
- Stabilized granular surface (Stabilizer Solutions<sup>®</sup>)

The construction cost for each surface width and material assumes:

- Construction of 2-foot shoulder along each side of the rail trail surface
- Use of prefabricated bridges at Hop Brook and Pantry Brook crossings (See Section 12 of this report)
- Installation of a new concrete box culvert at the stream crossing located south of Hudson Road
- Implementation of recommended intersection improvements (See Section 11 of this report)
- Implementation of recommended parking area improvements (See Section 13 of this report)
- Root barrier is needed along *approximately* 50% of the 4.6-mile rail trail alignment or 12,200 linear feet
- Removal of existing tracks and ties by others

A contingency cost has been included to account for specific items of work that will be determined during the preliminary design phase. Also, the estimated cost has been escalated using a flat inflation rate (3%) and compounded annually to estimate for expected increases in the cost of construction before the rail trail may actually be built (a five year timeframe was assumed).

Each construction cost estimate has been broken down by major items of work and presented in tabular form. This estimate is based on 2006 construction costs and does not include design costs. A more accurate estimate would need to be developed during the preliminary design stages of the project in order to program the necessary funding.

As shown in each construction estimate table, many of the major work items do not vary depending on the surface material or trail width including, for example, bridge construction, signal installation, wood rail fence locations, etc.

Figure X: Paved Surface Construction Cost Estimate

Item	Work Description	Unit	Unit Price	10 Foot Width		5 Foot Width	
				Quantity	Cost	Quantity	Cost
1	Clearing and Grubbing	Acre	\$15,000	3.3	\$49,500	2.7	\$40,500
2	Excavation	CY	\$20	14,000	\$280,000	8,000	\$160,000
3	Gravel Borrow for Shoulders (8")	CY	\$30	4,400	\$132,000	3,000	\$90,000
4	Hot Mix Asphalt Surface (3.5") with Gravel Borrow Base Material (8")	SF	\$3.00	240,000	\$720,000	120,000	\$360,000
5	Prefabricated Bridge Over Hop Brook	LS	\$91,000	1	\$91,000	1	\$91,000
6	Prefabricated Bridge Over Pantry Brook	LS	\$81,000	1	\$81,000	1	\$81,000
7	Concrete Box Culvert at Stream Crossing	LS	\$35,000	1	\$35,000	1	\$35,000
8	Pedestrian Signal at Hudson Road <sup>1</sup>	LS	\$65,000	1	\$65,000	1	\$65,000
9	Pedestrian Signal at North Road (Route 117)	LS	\$50,000	1	\$50,000	1	\$50,000
10	Roadway Intersection Improvements <sup>2</sup>	EA	\$17,000	6	\$102,000	6	\$102,000
11	Driveway Intersection Improvements <sup>3</sup>	EA	\$9,000	4	\$36,000	4	\$36,000
12	Parking Lot Improvements at TI-Sales Field	LS	\$200,000	1	\$200,000	1	\$200,000
13	Parking Lot Improvements at Davis Field	LS	\$300,000	1	\$300,000	1	\$300,000
14	Wood Rail Fence	LF	\$30	19,000	\$570,000	19,000	\$570,000
15	Root Barrier	LF	\$5	12,200	\$61,000	12,200	\$61,000
16	Loam Borrow for Shoulders (4")	CY	\$40	2,200	\$88,000	1,500	\$60,000
17	Drainage	LS	\$20,000	1	\$20,000	1	\$20,000
18	Landscaping & Amenities	LS	\$100,000	1	\$100,000	1	\$100,000
19	Wetlands Protection	LS	\$30,000	1	\$30,000	1	\$30,000
Subtotal					\$3,010,500		\$2,451,500
Contingencies (15%)					\$452,000		\$370,000
Inflation Adjustment (5 years)					\$551,500		\$449,500
Total				Total	\$4,014,000	Total	\$3,271,000
				SAY	\$4.0M	SAY	\$3.3M

Notes:

- This cost includes coordination with the Town Center signal. The cost of installing a full intersection signal at Peakham Road (including coordination with the Town Center) is estimated to be \$135,000.
- The roadway intersection improvement cost includes wooden access control gate, Imprint® approach treatment, Imprint® crosswalk, signs & pavement markings and barrier boulders.
- The driveway intersection improvements cost include wooden access control gate, Imprint® approach treatment signs and pavement markings and barrier boulders.

Figure X: Granular Surface (Stone Dust) Construction Cost Estimate

Item	Work Description	Unit	Unit Price	10 Foot Width		5 Foot Width	
				Quantity	Cost	Quantity	Cost
1	Clearing and Grubbing	Acre	\$15,000	3.3	\$49,500	2.7	\$40,500
2	Excavation	CY	\$20	14,000	\$280,000	8,000	\$160,000
3	Gravel Borrow for Shoulders (6")	CY	\$30	3,300	\$99,000	2,200	\$66,000
4	Stone Dust Surface (4") with Gravel Borrow Base Material (6")	SF	\$2.00	240,000	\$480,000	120,000	\$240,000
5	Prefabricated Bridge Over Hop Brook	LS	\$91,000	1	\$91,000	1	\$91,000
6	Prefabricated Bridge Over Pantry Brook	LS	\$81,000	1	\$81,000	1	\$81,000
7	Concrete Box Culvert at Stream Crossing	LS	\$35,000	1	\$35,000	1	\$35,000
8	Pedestrian Signal at Hudson Road <sup>1</sup>	LS	\$65,000	1	\$65,000	1	\$65,000
9	Pedestrian Signal at North Road (Route 117)	LS	\$50,000	1	\$50,000	1	\$50,000
10	Roadway Intersection Improvements <sup>2</sup>	EA	\$17,000	6	\$102,000	6	\$102,000
11	Driveway Intersection Improvements <sup>3</sup>	EA	\$9,000	4	\$36,000	4	\$36,000
12	Parking Lot Improvements at Ti-Sales Field	LS	\$200,000	1	\$200,000	1	\$200,000
13	Parking Lot Improvements at Davis Field	LS	\$300,000	1	\$300,000	1	\$300,000
14	Wood Rail Fence	LF	\$30	19,000	\$570,000	19,000	\$570,000
15	Root Barrier	LF	\$5	12,200	\$61,000	12,200	\$61,000
16	Loam Borrow for Shoulders (4")	CY	\$40	2,200	\$88,000	1,500	\$60,000
17	Drainage	LS	\$20,000	1	\$20,000	1	\$20,000
18	Landscaping & Amenities	LS	\$100,000	1	\$100,000	1	\$100,000
19	Wetlands Protection	LS	\$30,000	1	\$30,000	1	\$30,000
	Subtotal				\$2,737,500		\$2,307,500
	Contingencies (15%)				\$411,000		\$347,000
	Inflation Adjustment (5 years)				\$501,500		\$423,000
				Total	\$3,650,000	Total	\$3,077,500
					\$3.7M	SAY	\$3.1M

Notes:

- This cost includes coordination with the Town Center signal. The cost of installing a full intersection signal at Peakham Road (including coordination with the Town Center) is estimated to be \$135,000.
- The roadway intersection improvement cost includes wooden access control gate, Imprint® approach treatment, Imprint® crosswalk, signs & pavement markings and barrier boulders.
- The driveway intersection improvements cost include wooden access control gate, Imprint® approach treatment, signs and pavement markings and barrier boulders.



Figure X: Stabilized Granular Surface Construction Cost Estimate

Item	Work Description	Unit	Unit Price	10 Foot Width		5 Foot Width	
				Quantity	Cost	Quantity	Cost
1	Clearing and Grubbing	Acre	\$15,000	3.3	\$49,500	2.7	\$40,500
2	Excavation	CY	\$20	14,000	\$280,000	8,000	\$160,000
3	Gravel Borrow for Shoulders (6")	CY	\$30	3,300	\$99,000	2,200	\$66,000
4	Stabilized Stone Dust Surface (4") with Gravel Borrow Base Material (6")	SF	\$4.50	240,000	\$1,080,000	120,000	\$540,000
5	Prefabricated Bridge Over Hop Brook	LS	\$91,000	1	\$91,000	1	\$91,000
6	Prefabricated Bridge Over Pantry Brook	LS	\$81,000	1	\$81,000	1	\$81,000
7	Concrete Box Culvert at Stream Crossing	LS	\$35,000	1	\$35,000	1	\$35,000
8	Pedestrian Signal at Hudson Road <sup>1</sup>	LS	\$65,000	1	\$65,000	1	\$65,000
9	Pedestrian Signal at North Road (Route 117)	LS	\$50,000	1	\$50,000	1	\$50,000
10	Roadway Intersection Improvements <sup>2</sup>	EA	\$17,000	6	\$102,000	6	\$102,000
11	Driveway Intersection Improvements <sup>3</sup>	EA	\$9,000	4	\$36,000	4	\$36,000
12	Parking Lot Improvements at Ti-Sales Field	LS	\$200,000	1	\$200,000	1	\$200,000
13	Parking Lot Improvements at Davis Field	LS	\$300,000	1	\$300,000	1	\$300,000
14	Wood Rail Fence	LF	\$30	19,000	\$570,000	19,000	\$570,000
15	Root Barrier	LF	\$5	12,200	\$61,000	12,200	\$61,000
16	Loam Borrow for Shoulders (4")	CY	\$40	2,200	\$88,000	1,500	\$60,000
17	Drainage	LS	\$20,000	1	\$20,000	1	\$20,000
18	Landscaping & Amenities	LS	\$100,000	1	\$100,000	1	\$100,000
19	Wetlands Protection	LS	\$30,000	1	\$30,000	1	\$30,000
	Subtotal				\$3,337,500		\$2,607,500
	Contingencies (15%)				\$500,000		\$392,000
	Inflation Adjustment (5 years)				\$612,000		\$478,000
				Total	\$4,449,000	Total	\$3,477,500
					\$4.5M		\$3.5M

Notes:

1. This cost includes coordination with the Town Center signal. The cost of installing a full intersection signal at Peakham Road (including coordination with the Town Center) is estimated to be \$135,000.
2. The roadway intersection improvement cost includes wooden access control gate, Imprint<sup>®</sup> approach treatment, Imprint<sup>®</sup> crosswalk, signs & pavement markings and barrier boulders.
3. The driveway intersection improvements cost include wooden access control gate, Imprint<sup>®</sup> approach treatment, signs and pavement markings and barrier boulders.

The following table provides a magnitude of construction cost comparison summary of each surface material and trail width option.

**Figure X: Construction Cost Comparison Summary**

Surface Material		10 Foot Width	5 Foot Width
1	Paved Surface	\$4.0 Million	\$3.3 Million
2	Granular Surface (Stone Dust)	\$3.7 Million	\$3.1 Million
3	Stabilized Granular Surface	\$4.5 Million	\$3.5 Million

**16.2 Design Costs**

The engineering design fee is typically between 10% and 20% of the construction cost, with the variation being attributed to the complexity of design issues along the corridor, number of bridges and extent of required permitting. A ballpark design fee for the entire 4.6-mile rail trail is \$550,000.

Assuming a MassHighway design process is followed, a 25% MassHighway Design (preliminary design) is typically about 40% of the total design fee. Therefore, the 25% Design fee for the Sudbury Bruce Freeman Rail Trail would be approximately \$220,000. This fee estimate is not based on detailed tasks and related work efforts but rather is a ballpark estimate intended for programming purposes.

The 25% Design phase, according to the 2006 MassHighway Project Development & Design Guide, includes a complete topographic survey including delineation of environmental resource areas, and preparation of preliminary alignment plans, profiles and typical cross sections for the rail trail. Based on this information, it is possible to determine the extent of actual impacts, if any, that a rail trail would have upon adjacent resource areas and private properties. During the 25% Design phase, the designer will determine which permits and approvals will be required for the project, and will initiate early coordination with those local and state agencies.

After the 25% design is completed and approved by MassHighway, the project will advance to the final design phases (75% Design → 100% Design → Final Plans, Specifications & Estimates) and secure the necessary permits before going out to bid for construction. The fee for final design of the Sudbury Bruce Freeman Rail Trail would be approximately \$330,000.

**16.3 Funding**

Once the Town is committed to moving the project forward, the first step is to complete a Project Need Form (PNF) and submit it to the MassHighway District 3 Office. This form should also be forwarded to the Boston Metropolitan Planning Organization (MPO) and the Metropolitan Area Planning Council (MAPC) for their files. MassHighway will review the PNF and evaluate the merits and readiness of the project. They will also provide the Town with advice on how to proceed, both in terms of the design process and available funding sources.

Funding for the design and construction of the rail trail will need to be secured from local, state, and federal sources. The two most commonly used funding programs for rail trail projects are the Transportation Enhancement (TE) Program and Congestion, Mitigation and Air Quality (CMAQ) Program. Both programs were originally funded through the federal Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) and continued via the Transportation Equity Act for the 21st Century (TEA-21). These programs are included in the current reauthorization of the Act, entitled The Safe, Accountable, Flexible, and Efficient Transportation Equity Act of 2003 (SAFETEA).

**Transportation Enhancement Program:** In order for a project to be considered for the TE Program, a Town needs to apply for funding through a two step pre-application / final application administered by the MAPC Transportation Enhancement Selection Committee. The Committee is responsible for selecting which regional projects are eligible for consideration as TE Program funded projects. Selected projects are reviewed for eligibility and preparedness for implementation before a project is forwarded to MassHighway and the State Transportation Enhancement Steering Committee. Under this program, a Town must be prepared to provide a local funding commitment comprised of a cash match in the amount of 10% of the total project construction cost. The remaining project cost is funded 80% federal and 10% state. Most communities fund the engineering design to meet their cash match. At the time a TE Program application is submitted, the Town should have completed or substantially completed the 25% Design phase; or the Town shall have committed in writing to fund the project development and 25% Design phase pursuant to MassHighway design standards.

**Congestion Mitigation and Air Quality Improvement Program:** A rail trail project often fits the eligibility requirements for both the TE Program and the Federal Congestion Mitigation and Air Quality Improvement Program (CMAQ) of SAFETEA. CMAQ is a transportation air quality improvement program that provides funding for both bike and pedestrian facilities that serve to reduce automobile travel. A Town must complete a CMAQ Air Quality Analysis Worksheet for Bicycle and Pedestrian Projects to document a quantifiable reduction in auto emissions and/or congestion to be eligible under this program. Under this program, the project cost is funded 80% federal and 20% state or local match. In some instances, the state has funded the entire 20% match. However, most commonly, Towns are required to provide a cash match in the amount of 10% of the total project construction cost. Most communities fund the engineering design to meet their cash match. Similar to the TE Program, project funded under the CMAQ Program must adhere to MassHighway design standards.

According to the MAPC, most rail trail projects proceed through the TE Program, but sometimes end up being funded under CMAQ depending upon the availability of state and federal funding.

## 17 Project Schedule

The purpose of this Section is to outline a proposed project schedule (implementation timeline) should the Town commit to advance the project forward.

This Assessment report documents the environmental and engineering feasibility of developing the rail trail based on existing conditions along the corridor, anticipated project impacts and design and constructability related issues.

Based on information presented in the Assessment, the Town can assess its willingness, readiness and fiscal ability to proceed with the rail trail from a project impact and design perspective. The decision to proceed will also be based the level of in-Town support for the project, required level of fiscal expenditures (current and future), and the capacity of Town resources to patrol and maintain the rail trail post-construction

On the following page is a list of next steps the Town needs to complete (or coordinate) in order to move forward with the project. This framework will assist the Town to carry out the critical next steps in the process. Some tasks will need to be completed during certain phases of the project whereas others can be ongoing activities. Some tasks will produce tangible results whereas others involve continued coordination and representation to ensure the project progresses in a timely manner.

The Town will need to establish a realistic timeframe over which to advance the project and assign responsibilities and resources to carry out the necessary tasks. Tasks should be undertaken based on their potential to impede the project in the future and then further prioritized based on available fiscal funds and the required Town staff resources to support each activity.

Figure X: Next Steps to Advance Rail Trail Project

Phase	Activity / Task	Responsible Party **
<i>Post-Study</i>	Submit Project Need Form (PNF) to MassHighway, Boston Metropolitan Planning Organization (MPO) and Metropolitan Area Planning Council (MAPC)	Town
	Evaluate municipal financial outlook to provide 10% matching funds	Town
	Conduct a full title review of the corridor	Town, Consultant
	Conduct a wildlife habitat evaluation study as requested by RTCAC	Town, Consultant
	Discuss terms of property agreement with the EOT	Town
	Develop public outreach and participation program	Town
	Continue working with the EOT regarding extension of trail from South Sudbury to Framingham	Town
	Work with state and regional planning entities to ensure that the project is given full consideration in the Boston Metropolitan Planning Organization (MPO) programming process	Town
<i>Pre-Design</i>	Gain consensus on rail trail conceptual design (e.g. surface, width) through public outreach and participation	Town
	Submit Project Initiation Form (PIF) to MassHighway, Boston Metropolitan Planning Organization (MPO) and Metropolitan Area Planning Council (MAPC)	Town
	Enter into property agreement with the EOT for use of the rail corridor (trail design, construction and maintenance)	Town
	Secure municipal funds for design phase	Town
	Hire engineering design consultant	Town
<i>Design</i>	Hold early local issues meeting / visioning workshop	Consultant
	Develop corridor base map (field survey and environmental resource delineation)	Consultant
	Initiate early environmental coordination with state / federal agencies with jurisdiction over the project (e.g. MHC, NHESP)	Consultant
	Prepare engineering plans and documents in accordance with MassHighway design process and standards	Consultant
	Hold public outreach meetings	Consultant
	Apply for state / federal funding	Town
<i>Construction</i>	Rail trail construction	MassHighway
<i>Ongoing</i>	Meet with MassHighway (as needed)	Town, Consultant
	Coordinate with municipal officials in adjacent communities to jointly approach rail trail related issues	Town

\*\* The 'Town' as responsible party means a Town staff member, committee or board, as determined by the Selectmen.

Attachment D

# Process of Converting an Unused Rail Bed into a Rail Trail

Prepared by the Rail Trail Conversion Advisory Committee 9/14/06

# **Process of Converting an Unused Rail Bed into a Rail Trail**

- **Rail banking**
- **Conversion options**
- **Steps in the conversion process**
- **Status in the towns along the Bruce Freeman  
Rail Trail**
- **Design guidelines for shared-use paths**

# **Rail Banking**

**The policy of keeping unused railroad rights of way intact for future use as transportation corridors.**

## **Uses:**

- Shared-use paths (rail trails)**
- Utility corridors**
- Rail or other motorized transportation**



# Conversion Options and Funding

- **Greenway, walking path**
  - Sudbury funds and recreational trail grants
- **Shared-use path with relaxed standards**
  - Sudbury funds and recreational trail grants
- **Shared-use path under Federal Transportation Bill**
  - “Enhancements” or CMAQ\* funding
  - Design and construction
    - 10% Sudbury Funds
    - 90% State and Federal funds
  - Built according to shared-use path guidelines

– \* Congestion Mitigation and Air Quality

# Steps in Rail Trail Development Under State and Federal Transportation Enhancements or CMAQ

- **Optional:** Initial feasibility study by the Central Transportation Planning Staff
- **Feasibility Study (Assessment)\***
- **25 % Design\***
- **Optional:** Additional engineering and environmental studies.
- **Acquisition of right of way (No cost lease from EOT)**
- **Final Design\***
- **Construction Funding**
- **Bidding**
- **Construction**

\*These items are ~10% of total design and construction costs.

# Status of Bruce Freeman Rail Trail

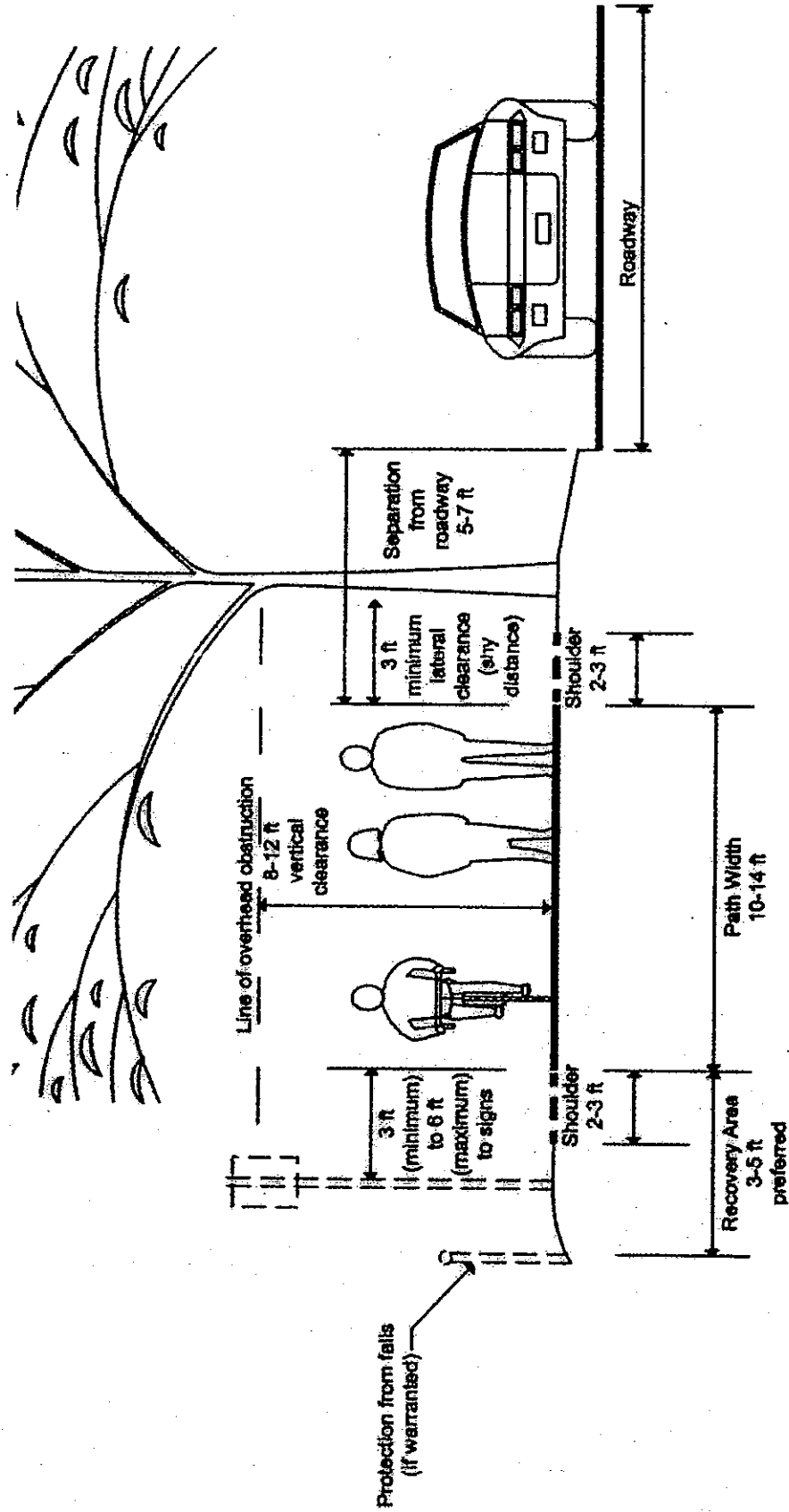
	CTPS Study	Feasibility Assessment	25 % Design	Acquisition of right-of-way	Final Design	Construction Funding	Bidding	Construction
<b>Phase I</b> 7 miles	Chelmsford	1987	none required	No-cost lease from EOT#	Done	Done	Fall 2006	2007
	Westford	"	done	"	Done	Done	"	"
<b>Phase II</b> 12 miles	Westford	"	funded	No-cost lease from EOT# to be negotiated				
	Carlisle	"	funded	"				
	Acton	"	done	"				
	Concord	"	done	"				
	Sudbury	"	underway	"				
<b>Phase III</b> 6 miles	Sudbury	2006		Negotiations with CSX underway.				
	Framingham	"		"				

\*Joining with Acton

#Mass. State Executive Office of Transportation

# Shared-Use Path Guidelines

From Mass. Highway "Project Development and Design Guidebook"



# Shared-Use Path Guidelines

From Mass. Highway "Project Development and Design Guidebook"

## Surfacing

"All paths need to provide a firm, stable, slip-resistant surface in a wide variety of use and weather conditions. In general, surfacing materials for paths in urban areas should be paved or consist of other "hard-surface" materials. Paved pathways function best in areas with high use and those that will be cleared of snow in the winter. "Stone dust" and other unpaved paths may be suitable in areas with lower levels of use, where the mix of users is more suitable for an unpaved path, or where aesthetic or contextual factors suggest that an unpaved treatment is appropriate. Unpaved materials are not suitable for inline skaters or bicyclists who travel at higher speeds."