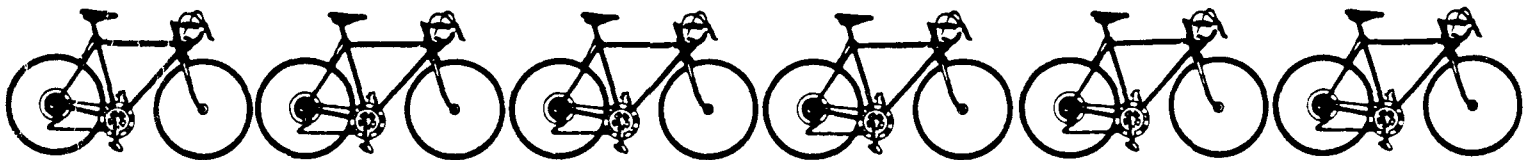


Lowell - Sudbury Bicycle Path Feasibility Study

October, 1987



A joint effort of the Central Transportation Planning Staff, Metropolitan Area Planning Council, and the Northern Middlesex Area Commission.

LOWELL - SUDBURY BICYCLE PATH
FEASIBILITY STUDY

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10/1/87

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Cover illustration courtesy of the League of American Wheelmen.

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SUMMARY

The Central Transportation Planning Staff (CTPS), the Metropolitan Area Planning Council (MAPC), and the Northern Middlesex Area Commission (NMAC) were commissioned to do a feasibility study to determine whether the railroad right-of-way running from near Route 20 in Sudbury to Route 3 in Lowell could be converted into a bicycle/hiking trail. The purpose of this feasibility analysis is to answer two major questions. First, is it feasible to build a bicycle path from Sudbury to Lowell? Second, if it is feasible, how much will it cost to build, maintain, and police, and which parties are most likely to pay? The feasibility study did not determine specific design of the facility. This would be done as part of a subsequent preliminary design phase, if the project continues.

This analysis consists of an examination of the ownership of the right-of-way, a survey of existing conditions, an examination of nearby land use to determine potential trip generators, an initial estimate of construction, maintenance and police costs, and recommended actions.

The conclusions of the analysis are as follows:

- It is feasible to build a bicycle/hiking trail along the Lowell - Sudbury railroad right-of-way.
- The right-of-way is currently owned by the Executive Office of Transportation and Construction (EOTC), which has indicated that they support the proposed bicycle/hiking trail, and may be willing to lease the right-of-way to the Department of Environmental Management (DEM) or the towns.
- Construction costs range from \$45,000 to \$95,000 per mile. If this project were approved for construction, it would be eligible for funding by the Massachusetts Department of Public Works (MDPW).
- Maintenance costs would vary depending upon the design of the facility and the agreed level of maintenance. Maintenance costs could be the responsibility of the Department of Environmental Management (DEM), the towns, or both. The DEM has indicated that it would be willing to maintain the facility, with the support and assistance of the towns, if a line item for this cost could be inserted into its budget. This would require cooperation from the towns and the legislature.
- Policing the right-of-way is an existing cost to the towns. It may also be a cost that is reimbursable to the towns under the "Cherry Sheet" formulas of state aid

-vi-

for state-owned facilities, if the right-of-way is leased to DEM rather than the towns.

If a town is interested in pursuing this project further, a letter to that effect should be sent to the Commissioners of the DEM and the MDPW. If such interest is shown, the state would then decide whether to proceed to preliminary design.

A. INTRODUCTION

The Central Transportation Planning Staff (CTPS), the Metropolitan Area Planning Council (MAPC), and the Northern Middlesex Area Commission (NMAC), under contract with the Massachusetts Department of Public Works (MDPW), and in cooperation with the Massachusetts Department of Environmental Management (DEM), present this feasibility study to determine if it would be possible to build a bicycle path on the Lowell Secondary railroad right-of-way (see Figure 1). The study also provides a brief historic background of the right-of-way, discusses the existing corridor, including current uses and ownership, and briefly describes existing grade crossings. The study describes the proposed use of the right-of-way, the physical treatment, the impacts, and the costs of construction, maintenance, and policing of the new facility. This feasibility study is not meant to be a comprehensive plan, but a general overview to put forth the potential of the bike trail and identify areas which will require further work.

B. BACKGROUND

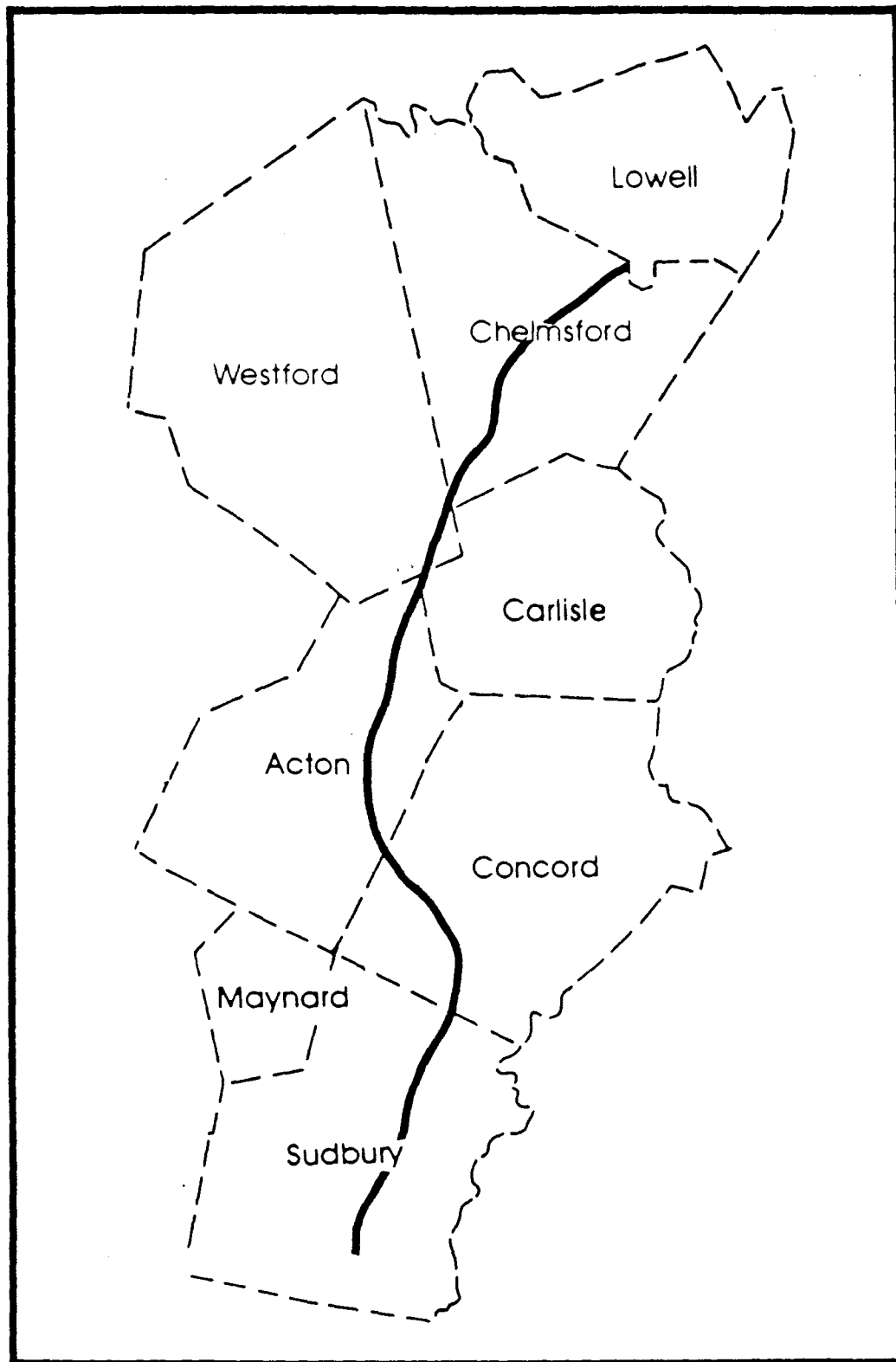
1. History of the Lowell Secondary Right of Way

The Lowell Secondary rail line was chartered in 1870 as the Framingham and Lowell (F&L) Railroad, and opened in November 1871. Like most Massachusetts railroads built in the 1870's, the F&L failed to meet traffic projections. It was sold at foreclosure in 1881, and reorganized as the Lowell & Framingham Railroad. This company was subsequently merged into the Old Colony Railroad, and became part of the New Haven Railroad system in 1893.

The line was acquired in 1969 by the Penn Central Transportation Company and renamed the Lowell Secondary. It was used to run a nightly freight train from South Boston to Lowell via Readville, Walpole and Framingham. After the Penn Central declared bankruptcy on June 21, 1970, there was a stepped-up effort to increase the efficiency of the railroad by concentrating through traffic on fewer lines. By 1973 the Lowell Secondary was used only by a local freight train running from Framingham to Lowell.

When the Consolidated Rail Corporation (Conrail) system was implemented in 1976 to take over operations of essential Penn Central lines, traffic density on most of the Lowell Secondary Track was below the standard for inclusion. The only part of the Lowell Secondary acquired by Conrail was the 4.7 miles from Framingham Centre to South Sudbury. The Boston and Maine Corporation purchased the 1.6 miles from Lowell yard to U.S. Route 3 in Chelmsford which still served several customers east of Industrial Avenue.

Most of the traffic in the 1970's on the Lowell Secondary consisted of shipments of building materials to distributors in North Acton and Chelmsford. This traffic had been growing and



LOWELL SECONDARY RIGHT OF WAY

FIGURE

1

further gains were predicted. The Massachusetts Executive Office of Transportation and Construction (EOTC) made a decision to subsidize service from South Sudbury as far as Chelmsford Center. This was initially accomplished by leasing the track from Penn Central and contracting with Conrail to serve it by continuing Conrail trains beyond South Sudbury. Starting in 1979, however, because of a long slump in the building industry, traffic declined sharply, and the Lowell Secondary became the least cost-effective line in EOTC's rail subsidy program.

In April 1982, the agreement between EOTC and Conrail for operation of the Lowell Secondary Track was ended. The segment from the connection with the Boston and Maine Corporation's Fitchburg Route Main Line at West Concord to a point 5.3 miles north in North Acton was purchased by EOTC from the Penn Central Corporation. EOTC then leased the line to the Springfield Terminal Company, a subsidiary of the B&M with more liberal work rules. The Springfield Terminal has served this line since then with no direct subsidy, but EOTC does pay for maintenance of the fixed facilities as needed. Since early 1987, the Bay Colony Railroad has operated this line for the Springfield Terminal Company.

Service on the remainder of the formerly subsidized line was discontinued in 1982. The segment between South Sudbury and West Concord had served strictly as a bridge to the rest of the line with no customers for several years. The segment from North Acton to Chelmsford had served only one customer at Chelmsford Center for several years. In November 1982, EOTC purchased both of these segments, as well as the link between Chelmsford Center and Route 3, unused since 1976, from the Penn Central Corp. It was not expected that rail service would ever be restored on these segments, but it was felt that the right-of-way should be preserved for other public uses.

2. Background of the Study

Use of the abandoned Lowell Secondary railroad right-of-way as a bicycle path was conceived by the Town of Chelmsford in the early 1980's following the termination of railroad service. At that time the concept was limited to local use by Chelmsford, but in 1985 the idea was reformulated to extend from Sudbury to Lowell. Following initial discussions with state officials, a meeting was held in July 1985 for all affected communities in order to gauge interest in the project.

A Rail Trail Advisory Committee was formed in July 1986, with one representative for each of the communities in the study corridor (see Figure 2) and from CTPS, DEM, MDPW, MAPC, and NMAC. Letters from the Towns of Sudbury, Concord, Acton, Carlisle, Westford and Chelmsford requesting that the feasibility study be conducted were subsequently received (see Appendix 1).

C. EXISTING CONDITIONS

1. Physical Characteristics

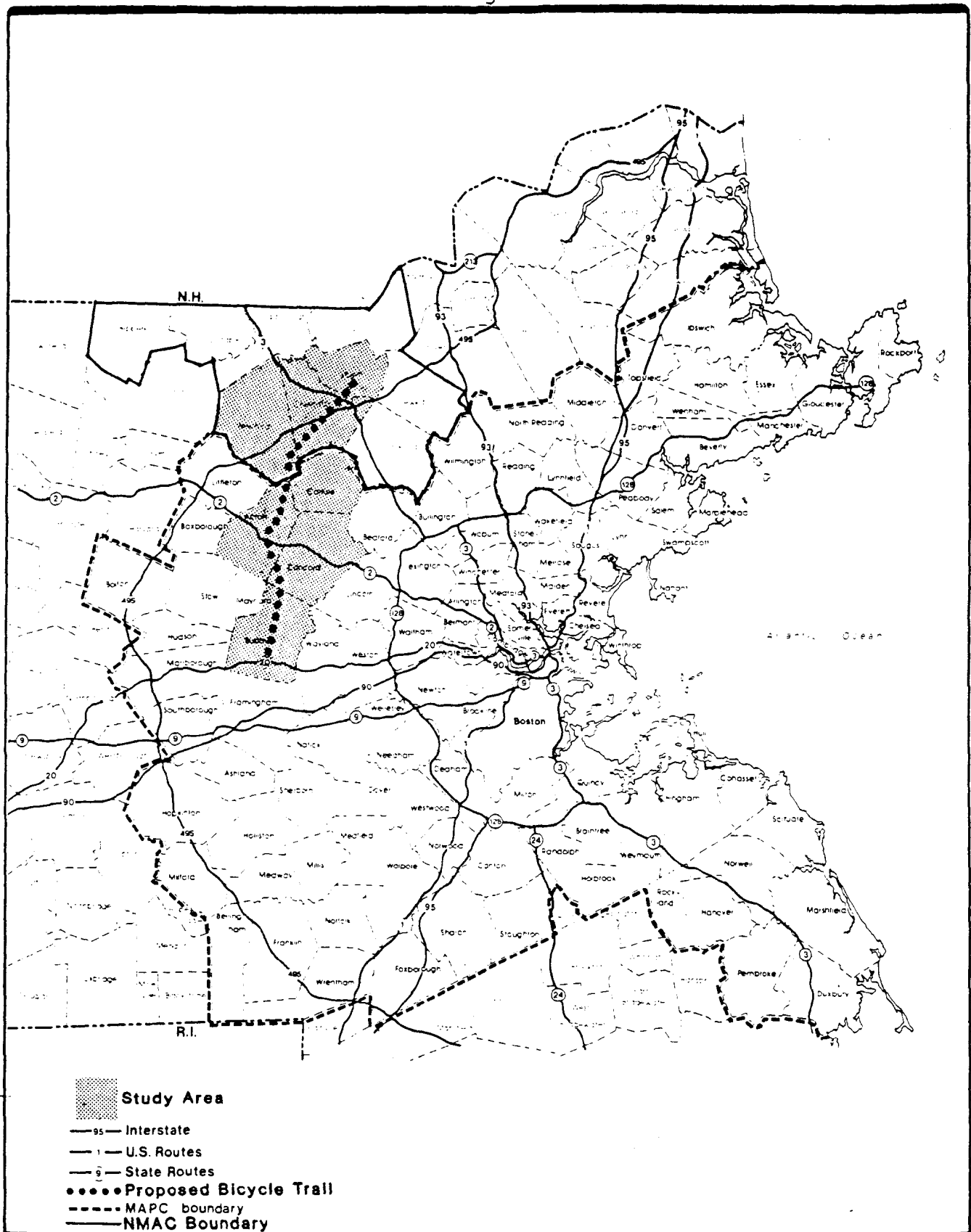
The right of way of the Lowell Secondary Track is 66 feet wide for most of its length. In a few places the right of way is slightly narrower, either because of prior land sales or failure of the original builder to obtain title to a full 66 feet. Except at former station sites, and on the West Concord-North Acton segment discussed below, the Lowell Secondary was always a single-track line. The track was more or less on the center line of the right of way. Present day rail construction standards call for clearance of eight feet from the center line of a track to any fixed object which, theoretically, leaves 25 feet on each side of the Lowell Secondary Track within the right of way, but beyond the area required for rail use. Much of this land is not actually usable, however, because it includes slopes of cuts or fills, drainage ditches, swamp, or other obstructions. Some of the land is level, but overgrown with large trees. For a bicycle path to be constructed at reasonable cost, it would have to be on the track alignment in most places.

Between West Concord Station and a point near the Deck House siding in North Acton, the Lowell Secondary right of way is still in active use. This section was once shared with the Nashua, Acton & Boston Railroad (NA&B). Although the right of way here is still only 66 feet wide, there were two tracks, offset on opposite sides of the center line. The NA&B track was removed in the late 1920's, but the remaining track was not relocated. Because of this, nearly all of the segment of the Lowell Secondary still in use within the proposed bikeway area includes a wide enough grade to accommodate both a railroad track and a bicycle path. It would, however, be necessary to install new superstructures on several dismantled bridges on the abandoned track alignment.

2. Current Uses of the Right of Way and Adjacent Land

Currently the only active use of the railroad right of way as railroad is from the West Concord Junction to North Acton. The rest of the right of way is overgrown, and is used primarily by hikers, horse riders, and riders of motorized dirt bikes and All Terrain Vehicles. In several areas brush and trash has been dumped on the right of way.

Land uses abutting the right of way vary widely and include farm fields, forest, residential, commercial and industrial areas. The right of way also passes near several recreation and conservation areas including Featherland Park in North Sudbury. A scattering of commercial abutters were noted in South Sudbury, West Concord, North Acton, and Chelmsford. In South Sudbury the rail line runs along the South Sudbury Commercial District. In West Concord, the right of way passes through a major shopping center. In Acton, the right of way parallels the commercial strip development along Routes 2A/119. Chelmsford Center, the Route 3 Cinema, and the



Study Area

FIGURE

2

Chelmsford Mall were the major commercial abutters in the north and will serve as potential access points. Industrial uses adjacent to the right of way were Transcom, JapEnamelac, Agway, and Wang Laboratories. These industries could potentially be the source of a large number of employees commuting to and from the workplace.

3. Ownership

The Lowell Secondary is currently owned by the EOTC. The purchase of the Lowell Secondary right of way by EOTC took place in two transactions with the Penn Central Corporation, the last of a long succession of corporate owners of the property. The first transaction, completed on May 3, 1982, included the 5.3 mile segment from West Concord to North Acton currently used by the Bay Colony Railroad Company. The second transaction, completed on November 30, 1982, included the 7.2 miles from South Sudbury to West Concord and the 7.7 miles from North Acton to Route 3. Both deeds state that they include

all the right, title and interest of The Penn Central Corporation, of, in and to all those pieces or parcels of land and premises, easements, rights of way and other rights of any kind whatsoever appurtenant thereto or used in conjunction therewith.

Also included are

the existing track, ties and other track material, bridges, pole lines, wires, signals, culverts, conduits, grade crossings, structures, improvements and appurtenances located thereon.

The acquisition of the West Concord-North Acton segment was part of a larger package, and the price paid for that segment alone was not specified. The other two segments were purchased for \$920,000, or about \$62,000 per mile. EOTC is interested in having the right of way used for the benefit of the general public, and has been supportive of the bicycle path proposal. The authority by which EOTC acquired the right of way would permit it to be used as a bicycle path, but EOTC would require that the property first be leased to another public entity.

The acquisition of the Lowell Secondary right of way by EOTC in 1982 ended at the southern edge of U.S. Route 3 in Chelmsford. This was the southern limit of the right of way sold to the Boston & Maine Corporation by Penn Central in 1976, but the B&M never used the track further south than Industrial Avenue in Lowell. Property maps for the Lowell Secondary show that the right of way from the EOTC/B&M property line to 500 feet north was taken by the Commonwealth in 1940 as part of the Route 3 right of way. It further appears that from the northern limit of the Route 3 right of way to Industrial Avenue, about 1,400 feet of the rail right of way sold to the B&M by Penn Central consisted of a location over

over property owned by the City of Lowell. The B&M subsequently re-sold this segment of the right-of-way to Wang Laboratories, which currently uses it as a parking lot. As of November 30, 1982, a ruling on the ownership of the right-of-way north of Route 3 was pending in land court. As of 1987 the right-of-way is owned by the Wang Corp. Continuation of a bicycle path from Route 3 to Industrial Avenue would require the assent of Wang.

4. Grade Crossings

The existing rail bed is set within a natural landscape and has a gentle grade fluctuation making it extremely adaptable for re-use as a bikepath. The only major gap from Sudbury to Lowell is the Assabet River in West Concord, where the bridge has been removed. Some minor problems that were observed are as follows:

1. Years of deferred maintenance have taken their toll on the visual appearance of the property which is overgrown. In addition there are several areas where debris have been dumped on the right-of-way.
2. Sixteen bridges exist along the rail trail between Sudbury and Chelmsford Center. Each bridge spans a stream or river and although some of the wooden ties are rotted, the underlying supporting structures appear sound. One bridge is made of reinforced concrete, the others are open deck girder bridges.
3. The rail trail crosses 38 street intersections from Route 20 in South Sudbury to Wang Laboratories in Lowell. Of the 38 intersections, one is a divided four lane highway (Route 2 in West Concord), 24 are two lane traffic streets, the remaining 13 are one lane through ways or driveway intersections with minimum traffic.

The crossing of Route 27 in Sudbury, Route 2 in West Concord, Routes 2A and 119 in South Acton, Chelmsford Center at Routes 110, 4 and Westford Street, and Golden Cove Road in Chelmsford are complicated by high levels of traffic, high speed traffic, poor sight lines, or other factors. These intersections will need to be studied further to determine how they will be handled. All other crossings of the rail trail appear to have no problems.

4. The standard width for a two-way mixed use bike path (12 feet wide with 5 foot clearance on each side) can be easily met with a right-of-way 66 feet wide along most of the trail. Minor filling and grading would be needed in isolated areas to achieve the level surface required for bicycles. It has not been determined at this stage what the width of the bicycle path would be if it is built.

5. Several segments of the right of way have been leased by EOTC. A segment in West Concord Center has been leased to the Town of Concord for a small park. The town is negotiating with EOTC for lease of the remaining right of way in Concord for use as a linear park. A segment of the tracks in Chelmsford Center has been paved over to provide temporary parking for several businesses there. A temporary leasing agreement was obtained by local merchants from EOTC, but the right of way has been maintained. In the case of both leases, EOTC has reserved the right to use the right of way for a bicycle path.

A specific inventory and maps of grade crossings and conditions on the right of way appears in Appendix 2.

D. PROPOSED USE OF RIGHT OF WAY

1. Physical Treatment

a. Trail Design

The proposed mixed use bicycle path would be constructed on the right of way from Sudbury, north of Route 20 to Lowell, north of Route 3. The right of way is wide enough for a standard 8 to 12-foot wide, paved path. In addition, significant space remains for shoulders to accommodate horse and pedestrian traffic. This is true even from West Concord to North Acton, where the rail is still in active use.

Street intersections present a potential conflict between motorists and bicyclists on a bike path and precautions need to be taken. Channelization with specific route markings and signage will provide the least expensive method. A clearly delineated path will direct the bicyclist to the easiest crossing point. Of the 38 crossings found from Sudbury to Lowell, 13 intersections with high traffic volumes and speeds greater than 35 MPH will require these precautionary methods. Signage is probably sufficient for the remaining intersections.

Restricting unauthorized motor vehicle access to the trail will also have to be addressed. With 38 possible entrances, bollards or some other form of motor vehicle restriction will have to be built that allow for emergency and police vehicle access and that do not inconvenience the cyclists.

Another safety concern are areas where grading creates steep slopes and embankments, often leading to marshy areas, and on bridge crossings where no railings or other barriers exist. Minimum amounts of regrading will be necessary to provide the widths required for two-way bicycle traffic. Installation of railings or safety barriers may be required to protect the cyclists in areas with steep embankments at marshy areas and on

bridge crossings. In these areas "Trail Narrows" signs may be desirable.

Additional signs could guide cyclists to the path from the local street system and guide cyclists on the path to available facilities along the route.

b. Connecting Links

A network of shorter trails or routes on local streets could feed off the main rail trail. Links could take the user to work or school, through a park, to a museum, past a historical monument and along the waterfront on the Merrimack, Concord, or Assabet Rivers. Specific destinations could include the South Sudbury Shopping Center, Featherland Park in North Sudbury, the Great Meadows Wildlife Refuge, White Pond in South Concord, Emerson Hospital, the West Concord Shopping Center, the Great Brook State Park, Chelmsford Historic District, Lowell-Dracut State Forest, and Lowell National Historical Park.

Future connecting routes could connect the Lowell - Sudbury Rail Trail to the proposed Concord River Bikeway with links to the existing Merrimack River Bikeway, the proposed Minuteman Commuter Bikeway and the proposed Waltham to Berlin Rail Trail. These connecting routes could provide access to the Minuteman National Historic Park and most of the northeastern suburbs of Boston along the Minuteman Commuter Bikeway.

Bicycle parking facilities at major transit stops would allow commuters to utilize the bikeway for a portion of their trip. The Massachusetts Bay Transportation Authority's (MBTA) Commuter Rail station in West Concord is being renovated, and the MBTA has agreed to install bicycle parking and to accommodate the plans for the proposed bicycle path. Similar sites should be identified and included in the preliminary design of the bike path facility.

2. Uses

Although primarily intended as a bikeway, hiking, jogging and horseback riding are compatible warm-weather trail activities. Recreational winter use include cross-country skiing and snowshoeing. Pastoral locations along the rail trail are ideally suited for picknicking, nature trails or birdwatching.

The Town of Chelmsford may want to give consideration to providing a public beach at Baptist Pond (Heart Pond). There currently exists a private beach open only to paying members. Should a public beach be provided the water itself would be an important attraction. Additional activities such as fishing and ice skating could be added to the list of potential secondary uses. If water views are opened up and public access made available, the Baptist Pond area could become one of the most scenic and heavily used areas of the trail.

3. Impacts

Sensitive use of landscaping can provide privacy for residents who closely abut the trail by providing screening and acoustical control without disturbing the natural environment. Massing of plant materials or sculpted earth forms would create a lineal arboretum to add interest and further define the path to discourage meandering by the users and protect the privacy of the abutters. Signing could be used to guide path users to appropriate destination exits along the paths. The natural enframing of the rail corridor, the opening of vistas at given locations, the restriction of motorized vehicles, and the general clean-up of the abandoned rail should be an improvement over existing conditions.

According to a study of a similar facility, the Burke-Gilman trail in Seattle, WA, the value of houses near the trail increased slightly, and abutting areas had a lower crime rate than the surrounding neighborhoods. A report written by the Seattle Engineering Department states that property near the trail was easier to sell, and sold for between 1/2 to 6 percent more than similar houses located elsewhere. The report also states that homes immediately adjacent to the trail did not experience an increase in burglaries and vandalism as a result of the trail. Police officers noted that there would be not significant trail problems as long as parking lots were located away from the trail, and bollards prevented motor vehicle use.

Views of the owners of abutting properties should be solicited during the preliminary design process to incorporate their suggestions. Clear and detailed information should be provided on planned improvements. These property owners should also be encouraged to identify hazards and maintenance problems to the proper authorities.

4. Costs

a. Construction

Estimates of construction costs vary from \$45,000 per mile to \$95,000 per mile. Assuming that the path will be built for the entire distance of the right of way, then the range of construction costs is \$910,000 to \$1,920,000. Because there are open deck girder bridges which will need to be either decked over or replaced, as well as grading of several areas, it is assumed that the costs will be at the high end of the scale. These estimates do not include replacing the bridge over the Assabet River. These figures would also include lighting improvements where the path intersects roads, but not lighting of the path itself.

According to engineers in the MDPW, the cost of replacing the bridge over the Assabet River in Concord would be between \$100,000 and \$1,260,000, depending upon the materials used and the weight

the bridge would be expected to carry. The costs of a new bridge would be lower if the bikeway and bridge did not have to support regular-sized maintenance vehicles. If "light" maintenance vehicles could be purchased, the costs of construction could be reduced because less material would have to be used.

The source of construction funds for this facility would be State Transportation Bond funds administered by the MDPW. Preliminary design and engineering is necessary in order to develop a more accurate estimate of the construction costs.

b. Maintenance

Either DEM, the communities, or a combination could maintain the trail. DEM has indicated that they are willing to maintain the facility with the support and assistance of the towns, if a line item can be introduced into their budget by the legislature. In addition, cooperation from EOTC in leasing the right-of-way to DEM would be necessary.

Maintenance costs will depend upon the design of the trail, and the level of maintenance agreed to by the Towns and DEM. The initial design of the facility should be done in such a way as to minimize these costs. It is assumed that a base level of maintenance would consist of a series of early spring and summer maintenance "sweeps." These "sweeps" could include an inventory of pavement problems; sweeping of debris from the trail; maintaining clearances by clearing brush; striping and sign repairs; and mowing grass where appropriate. The estimated cost of this base level of maintenance is \$1920 per mile per year.

Annual maintenance costs, presented in Table 1 below, have been projected by adjusting the cost per mile figures by the miles of right-of-way in each community. This was done for the purposes of illustration; the towns may, or may not be responsible for these costs depending upon their negotiations with the DEM. These costs were taken from the 1981 Minuteman Commuter Bikeway Study and modified after discussion with several towns in the Region, the DEM, and several cities around the United States which have similar facilities, and adjusted for inflation using the Means Construction Historical Cost Index document for January 1, 1986.

c. Policing

The communities are already responsible for policing the right-of-way, and would be the most likely parties to assume responsibility for policing of the bicycle path, should it be built. The Towns might be able to be reimbursed for part of their policing costs through the "Cherry Sheet" reimbursements for local maintenance of state-owned facilities, if DEM rather than the towns leases the right-of-way from EOTC.

TABLE 1

ESTIMATED ANNUAL BASE LEVEL MAINTENANCE COST

<u>Community</u>	<u>Approximate Path Mileage</u>	<u>Base Level Cost*</u>
Sudbury	4.6	\$8,820
Concord	3.5	6,710
Acton	4.3	8,250
Carlisle	0.2	390
Westford	1.8	3,450
Chelmsford	5.2	9,970
<u>Lowell</u>	<u>0.6</u>	<u>1,150</u>
Total	20.2	\$38,750

ANNUAL MAINTENANCE COSTS BY TOWN

TABLE

1

E. CONCLUSIONS AND NEXT STEPS

The abandoned Lowell Secondary railroad right-of-way provides an opportunity to create a public bike/hike trail. Routes connecting business, industrial and recreation destinations are easily accessible from the proposed bikeway. Future links to existing and proposed trails in the area could provide additional opportunities which could fill the growing need for such facilities in the Eastern Massachusetts region.

The proposed bikeway is feasible. Construction includes repaving of the rail bed, resurfacing of bridge structures, minor filling and grading of steep embankments, and filling in or cutting back landscaping. Clear delineation of crossings as well as installation of railings where necessary will provide safety precautions and help maintain residential privacy.

A much more detailed examination of the engineering and financial aspects of this project would occur in the preliminary design. Local support and interest in implementing this project will be necessary in order to continue on to this next phase.

APPENDICES

- A. Letters From Towns Requesting Feasibility Analysis
- B. Intersection Inventory
- C. Contact List

APPENDIX A.

Letters From Towns Requesting Feasibility Analysis



TOWN OF SUDBURY

Sudbury, Mass. 01776

443-8891

Selectmen's Office
Richard E. Thompson
Executive Secretary

June 27, 1986

Mr. Arnold Soolman, Director
Central Transportation Planning Staff
10 Park Plaza
Boston, Massachusetts 02116

Dear Mr. Soolman:

The Town of Sudbury has been working closely with its neighbors in developing a regional bike path utilizing the abandoned Lowell to Sudbury railroad line. We support the concept of this project and seek your assistance.

Specifically, Sudbury requests your assistance in providing an initial feasibility analysis to consider the overall potential for such a project, opportunities, problems, costs of development, maintenance, etc.

To facilitate your involvement in this endeavor we have named Deborah Montemerlo, Conservation Coordinator, as the official Town liaison for this project. She can be reached at 443-8891, ext. 170, to assist you in gathering information or making any needed contacts.

In addition, the Board of Selectmen has received and endorsed recommendations from the Conservation Commission and the Planning Board, as follows:

1. In the letter to the C.T.P.S., the Selectmen should specify that the study should provide the estimated fiscal impact on the Town of Sudbury for the initial design, patrolling, maintenance and other related expenses.
2. In the letter to the C.T.P.S., the Selectmen should specify that C.T.P.S. should get the Town of Sudbury's approval before proceeding (or advising any other State agency to proceed) with the design and construction of the proposed trail.
3. In the letter to the C.T.P.S., the Selectmen should appoint a committee of more than one to represent Sudbury before State agencies and planning agencies on the bike trail issue.
4. In the letter to the C.T.P.S., the Selectmen should state that the study address the concerns of the abutters to the bike trail.

Mr. Arnold Soolman, Director
Central Transportation Planning Staff

June 27, 1986
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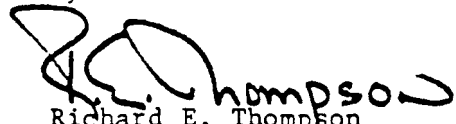
Relative to #3 above, the Selectmen do not believe it is appropriate to appoint a committee at this time, but would endorse such action if a comprehensive bike trail planning study is agreed to after the feasibility study. However, the Board of Selectmen will appoint a representative of the abutters (David J. Roddy) to work along with Sudbury's liaison in an observing and supporting capacity, so that the abutters might properly be kept abreast of proceedings of the project.

The Board of Selectmen does understand this is a feasibility study and, as such, it will not be able to evaluate all concerns to the extent desired, but we hope that if funds are available an effort will be made to do so to some degree.

We look forward to a positive response from you regarding your involvement in this worthwhile project.

Very truly yours,

By vote of the Board of Selectmen


Richard E. Thompson
Executive Secretary-Clerk

cc: Board of Selectmen
D. Montemerlo, Liaison
Representative L. Hicks
Senator A. P. Cellucci
Planning Administrator/Planning Board
Conservation Commission

RET:js



OLD NORTH BRIDGE

TOWN OF CONCORD

TOWN HOUSE · P.O. BOX 535
CONCORD, MASSACHUSETTS 01742

SELECTMEN
A. JOHN MARABELLO
CHAIRMAN
NANCY B. BEECHER
CLERK
RICHARD J. LOUGHLIN, JR.
TERRY W. ROTHERMEL
ANNABELLE W. SHEPHERD
TOWN MANAGER
STEVEN E. SHEIFFER

March 28, 1986

Mr. Arnold Soolman, Director
CTPS
10 Park Plaza
Boston, MA 02116

Dear Mr. Soolman:

The Town of Concord has been working with its neighboring towns on the concept of a regional bike path using the abandoned Lowell to Sudbury railroad line. We support the concept of this project and seek your assistance.

Specifically, Concord urges your assistance in providing an initial feasibility analysis. This study will consider the overall potential for such a project, opportunities, problems, costs of development, maintenance, etc.

To facilitate your involvement in this endeavor we have named Judith Chanoux, Town Planner, as the liaison for this project. She can be reached at 369-8454 to assist you in gathering information or making any needed contacts.

We look forward to a positive response from you regarding your involvement in this worthwhile project. Thank you for all past courtesies.

Very truly yours,

John Marabello, Chairman
Board of Selectmen

cc: Judith K. Chanoux

gc



Bernard J. Murphy, Jr
Town Manager

TOWN OF ACTON

TOWN HALL
472 MAIN STREET
ACTON, MASSACHUSETTS 01720
TELEPHONE (617) 263-8200

BOARD OF SELECTMEN
F. DORE HUNTER - CHAIRMAN
DONALD R. GILBERTI - VICE-CHAIRMAN
WILLIAM F. WEEKS - CLERK
PAMELA P. RESOR
CHARLES E. KOSTRO, JR.

May 27, 1986

Mr. Arnold Soolman, Director
CTPS
10 Park Plaza
Boston, MA 02116

Dear Mr. Soolman:

The Town of Acton has been working closely with its neighbors in developing a regional bike path utilizing the abandoned Lowell to Sudbury railroad line. We support the concept of this project and seek your assistance.

Specifically, Acton and its other involved communities request your assistance in providing an initial feasibility analysis. This study will consider the overall potential for such a project, opportunities, problems, costs of development, maintenance, etc.

To facilitate your involvement in this endeavor we have named Larry Duffy as the liaison for this project. He can be reached at work 732-6461 or home 263-2615 to assist you in gathering information or making any needed contacts.

We look forward to a positive response from you regarding your involvement in this worthwhile project. Thank you for all past courtesies.

Very truly yours,

Donald R. Gilberti
Vice-Chairman
Acton Board of Selectmen



Town of Carlisle

MASSACHUSETTS 01741

Office of

BOARD OF SELECTMEN

Tel. (617) 369-6136

March 5, 1986

Mr. Arnold Soolman, Director
Citizen Transportation Planning Service
10 Park Plaza
Boston, MA 02116

Dear Mr. Soolman:

The Town of Carlisle has been working closely with its neighbors in developing a regional bike path utilizing the abandoned Lowell-to-Sudbury railroad line. We support the concept of this project and seek your assistance.

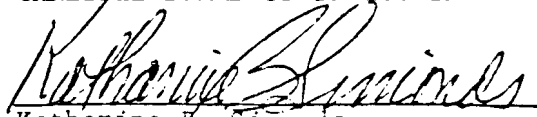
Specifically, Carlisle and its other involved communities request your assistance in providing an initial feasibility analysis. This study will consider the overall potential for such a project, opportunities, problems, costs of development, maintenance, etc.

To facilitate your involvement in this endeavor, we have named Ms. Judy Lane as the liaison for this project. She can be reached at 369-8763 to assist you in gathering information or making any needed contacts.

We look forward to a positive response from you regarding your involvement in this worthwhile project. Thank you for all past courtesies.

Very truly yours,

CARLISLE BOARD OF SELECTMEN


Katharine B. Simonds
Chairman

KBS/ajw

TOWN OF WESTFORD

Board of Selectmen

GEOFFREY D. HALL, *Chairman*
RONALD H. JOHNSON, *Vice Chairman*
ROBERT C. HERRMANN, *Secretary*
DAVID R. EARL
ROBERT P. TIERNEY



ROBERT J. HALPIN
Executive Secretary

March 7, 1986

Mr. Joseph Hannon, Executive Director
Northern Middlesex Area Commission
144 Merrimack Street
Lowell, MA. 01852

RECEIVED

MAR 11 1986

NMAA

Dear Mr. Hannon:

The Town of Westford has been working with its neighbors in developing a regional bike path utilizing the abandoned Lowell to Sudbury railroad line. At its meeting of March 4th, the Board of Selectmen voted to support the concept of this project and seek your assistance.

Specifically, Westford and its other involved communities request your assistance in providing an initial feasibility analysis. This study will consider the overall potential for such a project, opportunities, problems, costs of development, maintenance, etc.

To facilitate your involvement in this endeavor, the Board named Marion Harman as the liaison for this project. She can be reached at 692-3907 to assist you in gathering information or making any needed contacts.

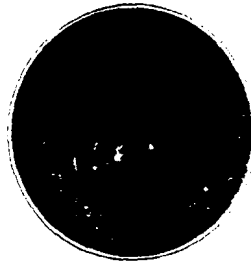
I look forward to a positive response from you regarding your involvement in this worthwhile project. Thank you for all past courtesies.

Very truly yours,

Robert J. Halpin,
Executive Secretary

RJH/mm

cc: M. Harman



JOHN P. EMERSON, JR., Chairman
DENNIS J. READY, Vice Chairman
BONITA A. TOWLE, Clerk
ROGER A. BLOMGREN
HENRICK R. JOHNSON, JR.

**BOARD OF SELECTMEN
TOWN OFFICES
50 BILLERICA ROAD
CHELMSFORD, MASS. 01824-2777**

HOWARD W. REDFERN, JR.
EXECUTIVE SECRETARY
TEL. 256-2441

April 16, 1986

Joseph Hannon, Executive Director
Northern Middlesex Area Commission
144 Merrimack Street
Lowell, MA 01854

RECEIVED
APR 18 1986
N. M. A. C.

Dear Mr. Hannon:

The Town of Chelmsford has been working closely with its neighbors in developing a regional bike path utilizing the abandoned Lowell to Sudbury railroad line. We support the concept of this project and seek your assistance.

Specifically, Chelmsford and its other involved communities request your assistance in providing an initial feasibility analysis. This study will consider the overall potential for such a project, opportunities, problems, costs of development, maintenance, etc.

To facilitate your involvement in this endeavor, we have named Bernard Lynch as the liaison for this project. He can be reached at 256-2441 to assist you in gathering information or making any needed contacts.

We look forward to a positive response from you regarding your involvement in this worthwhile project. Thank you for all past courtesies.

Very truly yours,

John P. Emerson, Jr.
Chairman

JPE:bg

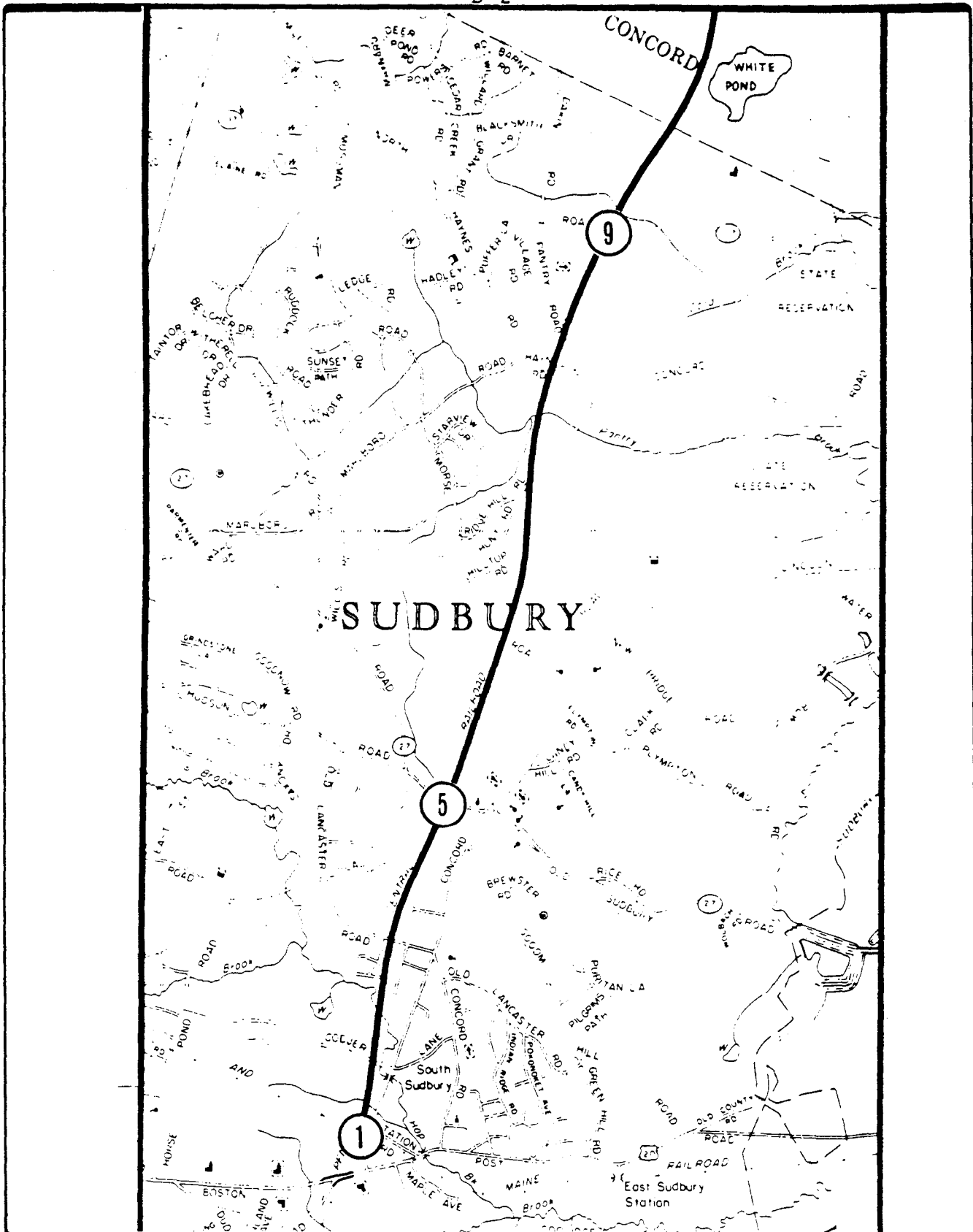
cc: Bernard Lynch

APPENDIX B.

Inventory of Grade Crossings and Conditions of the Right of Way

What follows is an inventory of the right-of-way, consisting of highlights discovered during various surveys. The intersections listed below are numbered from south to north. Included are the cross-street name, where known, and a brief description of the intersection. Special right-of-way conditions not occurring at intersections are keyed to the closest previous intersection to the south. The intersections are shown in Figures 3-7.

1. Union Avenue, Central Massachusetts Branch Railroad, the Chiswick and Coatings Companies' driveway, Railroad Street. Also called South Sudbury Station. The track crosses the driveway at right angles. Poor sight lines because of evergreen trees planted as landscaping to hide lumberyard, especially when traveling north on the right-of-way. The driveway is a narrow two-lane service road running into the lumber yard area.
2. Methods Machine Tools. Driveway crosses right-of-way north of South Sudbury Station. The rail curves slightly as it crosses the driveway. Sight lines are fairly good. Driveway is one-and-one-half lanes wide.
3. Codjer Lane. One-half lane in each direction. The track crosses the road at right angles. Sight lines from the north are good. Sight lines from south are partially obscured by brush, but are still good.
4. Old Lancaster Road. One-half lane each direction. The track crosses the road at right angles. Sight lines from the north are good. Sight lines from south are partially obscured by brush, but are still good.
5. Rte. 27 (Hudson Road). Road has two lanes with no shoulder. The track crosses the road at an almost right angle. Traffic travels very fast (40-45+ mph). Sight lines traveling north on the right-of-way are satisfactory, but traveling south, sight lines to Rte. 27 to the east are obscured by a low hill.
6. Morse Road. The railroad right-of-way is in a gully. Sight lines are restricted by rises on both sides. The track crosses the road at a right angle. The road is only one and one half lanes wide, narrow and appears to have low traffic.
7. Haynes Road. Haynes Road is a very narrow two lane road. Track crosses Haynes at right angles. Sight lines are good from the north and satisfactory from the south. (The road does a minor "S" curve here and bushes obscure view from south.)

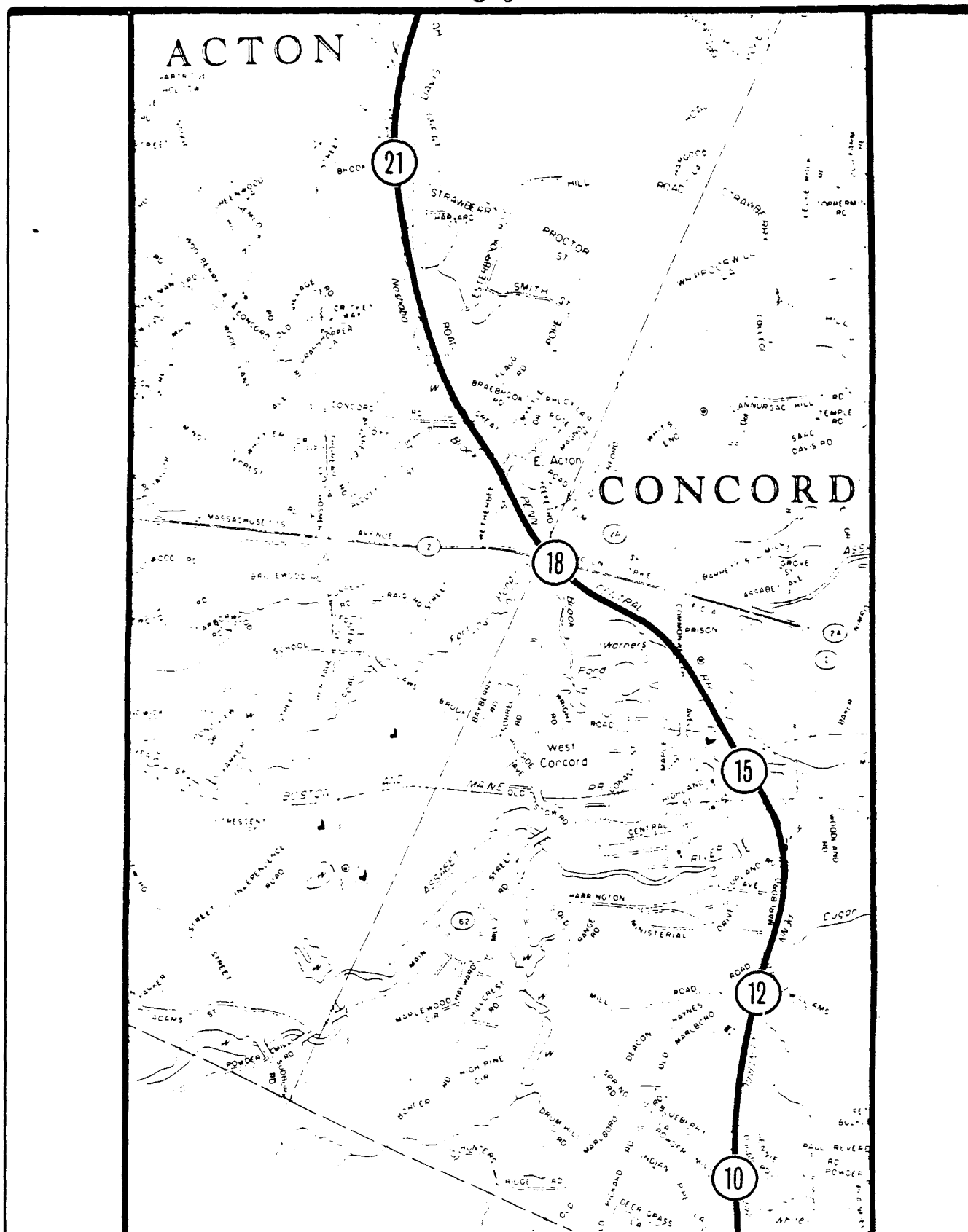


RIGHT OF WAY: SUDBURY/CONCORD

FIGURE

8. Pantry Road. This is a narrow two lane road which seems to be fairly well traveled. The track crosses the road at a 45-degree angle. Traffic travels at 40+ mph. Traffic sight lines seem to be good both ways. Intersection fairly level and free of brush.
9. North Road (Rte. 117). Wide two lane, no shoulders. Vehicle speeds seem to be around 40 mph. The track crosses the roadway at a 80-degree angle. Good sight lines in all directions (road is straight). Possible right turn problem from Windmill Road, but sight lines unobstructed
10. Powder Mill Road. This road used to cross the right-of-way on a bridge which has been replaced with earth fill. The right-of-way is maintained in a large culvert. Track has been removed 100 feet on either side of the construction zone.
11. Two "private" crossings south of Williams Road. One is dirt. The other, which runs to a water pumping station, is partially paved. The track crosses both driveways at a right angle. Sight lines are fair to poor due to evergreens near the tracks, and the fact that the right-of-way to the north curves to the right. Traffic volumes are low.
12. Williams Road and Old Marlboro Road. Sight lines are very poor. Old Marlboro Road is a wide two-lane and Williams is a standard two-lane road, both with no shoulders. When heading north on the right-of-way, the view of northbound traffic on Old Marlboro Road is blocked by a row of evergreens. RR crosses Williams practically at the intersection of Williams and Old Marlboro Road. The tracks crossing the road have been removed, but the right-of-way crosses Williams at right angles.
- 12A. Temporary construction road. Built across right-of-way at a 80 degree angle to develop houses near Harrington Road. Just north of this, a load of brush has been dumped. South of the construction road a tree has fallen across the right-of-way.
13. Old Marlboro Road. Standard two-lane road. The tracks cross the road at a 60-degree angle. Heading north on right-of-way, good sight lines west, but sight lines east restricted by hill and by a new residential development. The driveway for the new development is within 30 feet of the right-of-way crossing. Ties and track to the north of intersection have been removed.

14. Bridge over Assabet River. Bridge has been removed.
- 14A. Bridge to Main Street (Route 62), West Concord. The rail has been removed from the old bridge site to Main Street (Rte 62) in West Concord. Concord has leased the right-of-way from EOTC and is planning to build a linear park. A condition of the lease requires Concord to design the park in such a way that it does not interfere with the construction of the bike path.
15. Main Street, Commonwealth Avenue, and West Concord Junction. Right of way crosses Main Street and the Fitchburg Main Line at a right angle and proceeds north toward the Concord Reformatory. The segment of the right-of-way between Main Street and the West Concord Railway Station has been leased to the Town of Concord by the EOTC for the construction of a linear park.
- 15A. Commuter Rail Tracks, Station, and Parking Lot, West Concord Junction. The MBTA has plans to expand the Commuter Rail park-and-ride lot at the West Concord Junction. Part of the expansion will be on the Lowell Secondary right-of-way. The MBTA modified their plans to permit the bikepath to cross through the station, across the tracks, and through the parking lot area.
16. Bridge Over the Nashoba River. Three tracks wide, made of concrete deck.
- 16A. Sidings rejoin into single track just southeast of Commonwealth Avenue, near the reformatory.
17. Commonwealth Avenue. Two-lane, straight roadway. The tracks cross the road at a 45-degree angle. Excellent sight lines.
- 17A. Open deck girder bridge just south of Route 2.
18. Route 2. A four lane road(two lanes in each direction divided by median); the tracks cross at a 60-degree angle. Traffic volumes 29,700 vehicles per day in 1985, and traffic moves at around 55 mph. Sight lines are excellent in all directions.
- 18A. Acorn House Lumberyard. Northwest of Route 2. Acorn House has paved the area around the tracks for storage purposes.
19. Weatherbee Road. One and one half lanes wide. The track crosses the road at a right angle. Sight lines are very good.

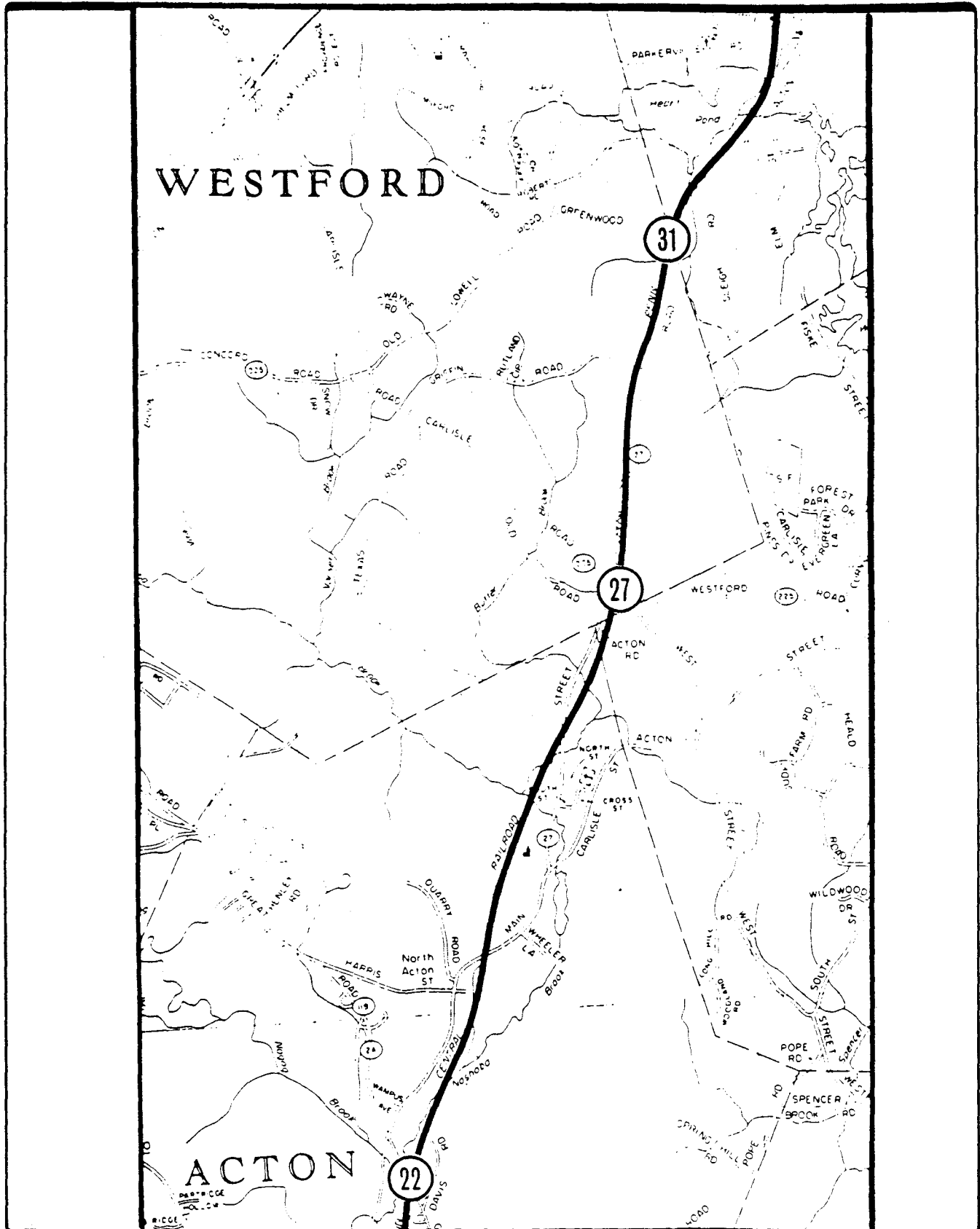


RIGHT OF WAY: CONCORD/ACTION

FIGURE

- 19A. Open deck girder bridge approximately 50 yards south of Concord Road.
20. Concord Road. Two lanes wide. Good sight lines but traffic turning right off of Routes 2A/119 would have short reaction times, as the crossing is less than 100 feet from the intersection and the tracks cross the road at a very shallow (25 degree?) angle.
- 20A. Private crossing & "Lovers Lane" overlooking pond in back of one story "shopping arcade" type building.
- 20B. Open deck girder bridge one half mile south of Brook Street.
- 20C. Open deck girder bridge 20 yards south of Brook Street.
21. Brook Street. Two lanes wide. Tracks cross the road at an 80 degree angle. Good sight lines in both directions
22. Great Road (Routes 2A/119). Wide two lane road with small shoulder. Good sight lines but right-of-way crosses road at a 45-degree angle at the bottom of a small but steep hill. Traffic moves very fast (45+ mph). Traffic volumes on 2A/119 were 14,300 vehicles a day in 1984.
- 22A. Open deck girder bridge over creek.
23. Route 27 (Main Street). Two lane road with no shoulder. The track crosses the road at a 75-degree angle. Good sight lines. Traffic moves at around 40 mph, and the average daily traffic (ADT) was 6,550 in 1985.
24. Deck House and Wickes Lumber. Private driveway across tracks connects storage facility to the main lumber yards. Sight lines good. Two spur lines go into lumber yards north of the driveway. This is the end of the active rail line, as several sections of rail have been removed, and there are two ties raised across the tracks just north of the second siding switch.
25. Nashoba Sportsman's Club. Private driveway into club. The driveway crosses the track at a right angle. --Sight lines are good.
- 25A. Two open deck girder bridges over swamp/stream.
- 25B. A dirt-bike (motorcycle) trail has been made from the right-of-way into the gravel pits abutting the track 20 feet south of Route 27.

26. Route 27 (Main Street). Two lanes. Sight lines are poor. The right-of-way is obscured by bush and by horizontal and vertical curvature of the road. The track crosses the road at a 45-degree angle. Traffic travels at 45+ mph.
- 26A. 0.07 miles south of Route 225. Several loads of brush, trees and debris on the track.
- 26B. 200 - 300 feet south of Route 225. There is a tree down across track.
27. Carlisle Road (Route 225) and Acton Road (Route 27). The right-of-way crosses Route 225 at a right angle about five feet from the Route 225/Route 27 intersection. It is a signalized intersection. Sight lines to the railroad right-of-way from Route 27 northbound are poor because of brush. Both roads are two lanes wide with no shoulders. The posted speed limit is 35 MPH, the observed travel speed was approximately 40-45 MPH.
28. Acton Road (Route 27): The rail crosses over Route 27 at a curve. Sight distance from the southbound direction is poor due to trees. Average daily traffic is estimated at approximately 7,000 vehicles. The 45-degree angle crossing has a posted speed of 35 MPH and observed speeds of 40-45 MPH.
29. Driveway Crossing: The rail crosses over a residential driveway at a right angle. Sight distances could be greatly improved with minor thinning of overgrown brush.
30. Griffin Road: This is a two-lane road with low traffic volumes. The tracks cross the roadway at a right angle. Sight distance is fair with pine trees obstructing views and a small horizontal curve on the west side. Griffin Road intersects with Route 27 just to the east of the rail crossing.
31. Greenwood Road: This road is an approximately fifteen-foot-wide private road with low travel speeds and traffic volumes. Overgrown brush needs to be thinned to improve sight distances on the northeast and southwest sides. There is a nearby driveway. Greenwood Road intersects with Route 27 immediately to the east of the rail.
32. Driveway Crossing: A private one-lane driveway crosses the rail at a right angle. Sight distance is inhibited by a curve on the east and west sides. Other driveways and an intersection with Route 27 are nearby.



RIGHT OF WAY: ACTON/WESTFORD

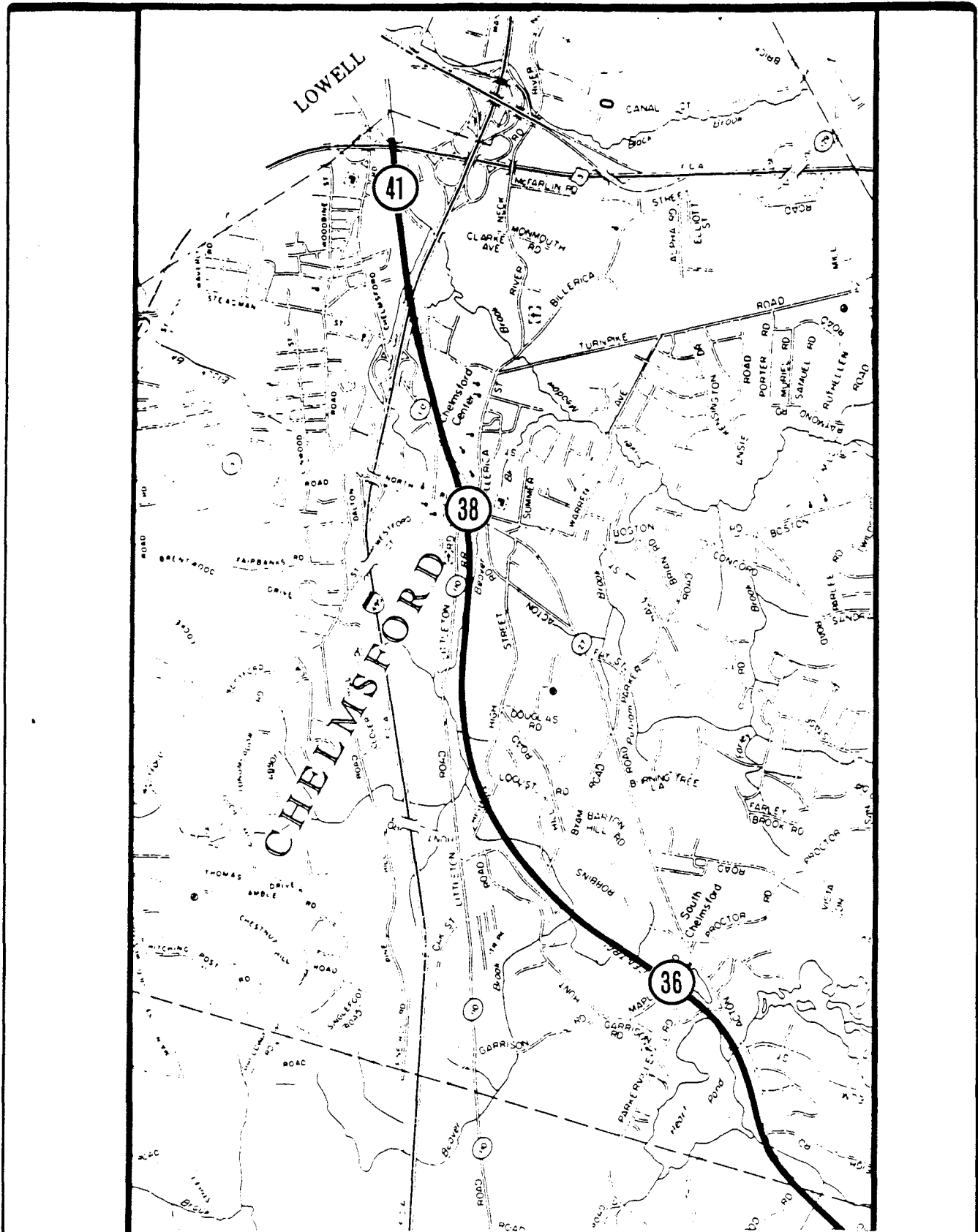
FIGURE

5

33. Westview Avenue: This is a one-lane dead end street used only by local residents. The tracks cross the street at a right angle. Sight distances are inhibited by a curve on the east and west sides; further obstructions exist due to overgrown brush. Westview Avenue intersects with Route 27 approximately 150 feet away.
34. Lakeside Drive: This is a one-lane, low-traffic-volume street with good sight distances. The track crosses Lakeside Drive at a right angle. Nearby is the intersection of Lakeside Drive with Route 27 (within 100 feet of the track).
35. Pond Street: This is a two-lane street with low traffic volumes. Pond Street runs along side the beach portion of Baptist Pond (Heart Pond). The rail crosses Pond Street at a 60-degree angle. Pond Street intersects Route 27. Overgrown brush impairs sight distances.
36. Maple Road: The estimated average daily traffic is 3,000 vehicles on this two-lane road. The track crosses Maple Road at a right angle with sight distance slightly impaired by brush. Maple Road is posted as a school zone with nearby driveways for shipping and receiving for Frequency Sources and Agway. There is a private driveway across from Agway. The intersection of Maple Road, Parkerville Road and Route 27 is nearby.
37. High Street: Low traffic volumes were noted on this two lane street. The track crosses at a 70-degree angle. Sight distance is slightly obstructed by a hill to the east and by overgrown brush. Fifty to sixty feet to the east is a private driveway.
38. Chelmsford Center: The trail crosses a major intersection at Chelmsford Center. The intersection presently has serious vehicular problems and no signalization exists. Studies are presently being conducted to solve traffic flow problems in the area.
39. Fletcher Street and Chelmsford Street (Route 110): The rail crosses Chelmsford Street at a diagonal. This is not the most efficient or safest path for bicycles. One easy solution for this crossing is to change the direction of the path from diagonal to a more direct right angle across the street and reconnecting to the rail path again on the opposite side. There are plans to install signals at this intersection. Construction of the intersection improvement is scheduled for the Summer of 1987.
40. Golden Cove Road: Observed speeds on this two lane road are approximately 40 MPH. The estimated daily traffic is

approximately 9,000 vehicles. Sight distances could be improved by cutting back brush. Nearby intersections are Golden Cove Road with New Fletcher Street (100 feet to the east) and private driveways toward the west.

41. Glenn Avenue: The last crossing at Glenn Avenue is at right angles to the roadway. There are two lanes of low volume traffic. Poor sight distances exist due to the nearby intersection of Golden Cove Road and Katrina Road which curves around the east side, and is further complicated by overgrown brush.



RIGHT OF WAY: CHELMSFORD

FIGURE

APPENDIX C.

Contact List

TO COMMENT ON THIS STUDY, WRITE TO:

Commissioner James Gutensohn
Department of Environmental Management
100 Cambridge Street
Boston, MA 02108
Attn: Leslie Luchonok

Commissioner Robert T. Tierney
Massachusetts Department of Public Works
State Transportation Building
10 Park Plaza, Room 3170
Boston, MA 02116
Attn: David Luce

FOR FURTHER INFORMATION, CONTACT:

Leslie Luchonok
Bay Circuit Program
Division of Planning and Development
Department of Environmental Management
225 Friend Street
Boston, MA 02114
727-3160

David Luce
Bureau of Transportation Planning and Development
Massachusetts Department of Public Works
State Transportation Building
10 Park Plaza, Room 4150
Boston, MA 02116
973-7313

Cathy Buckley, Webb Sussman
Central Transportation Planning Staff
State Transportation Building
10 Park Plaza, Room 2150
Boston, MA 02116
973-7100

Beverly Woods
Northern Middlesex Area Commission
35 Market Street
Lowell, MA 01852
454-8021