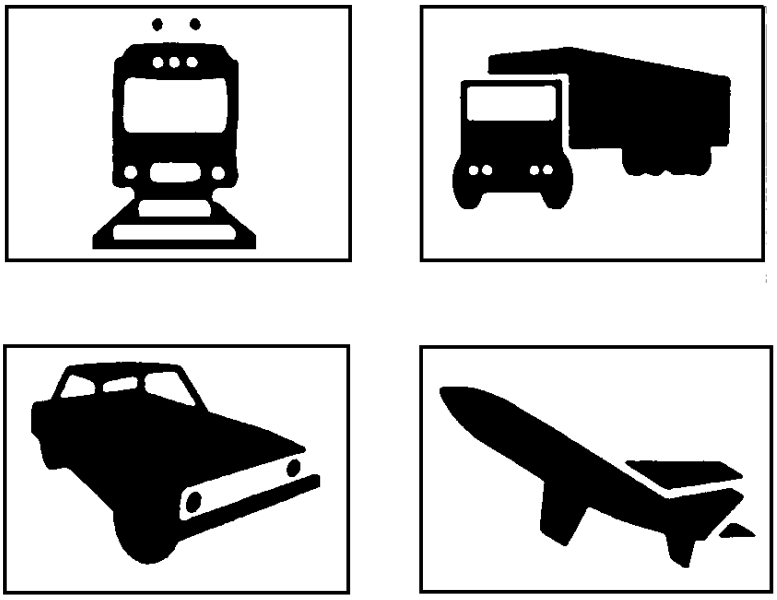
ITHACA-TOMPKINS COUNTY TRANSPORTATION COUNCIL



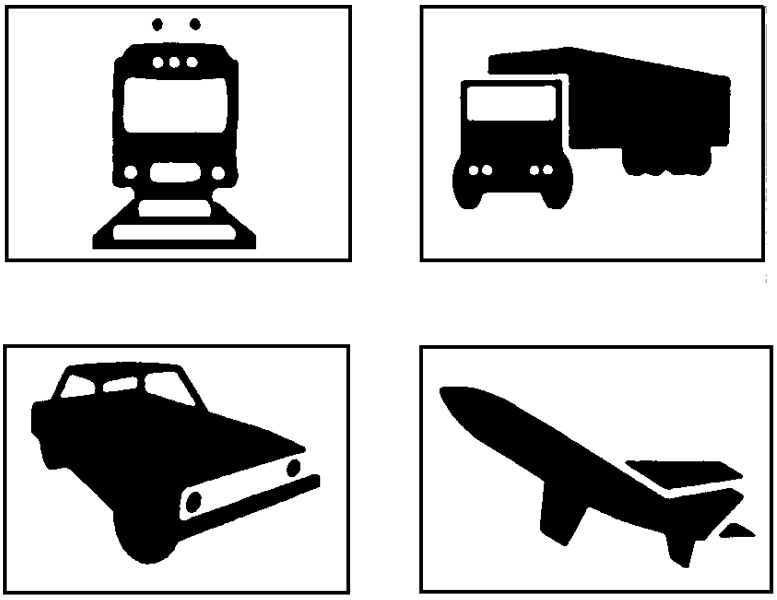
TRANSPORTATION TRAIL/CORRIDOR STUDY

prepared by:

Planning/Environmental Research Consultants
310 West State Street Ithaca, New York
Kennedy•Yager Associates
RD 2 Box 2582 Vergennes, Vermont

MARCH, 1996

ITHACA-TOMPKINS COUNTY TRANSPORTATION COUNCIL



TRANSPORTATION TRAIL/CORRIDOR STUDY

prepared by:

Planning/Environmental Research Consultants
310 West State Street Ithaca, New York
Kennedy•Yager Associates
RD 2 Box 2582 Vergennes, Vermont

MARCH, 1996

ABSTRACT

TITLE: Transportation Trail/Corridor Study

AUTHOR: *Ithaca-Tompkins County Transportation Council*
Planning/Environmental Research Consultants, Ithaca, New York
Kennedy•Yager Associates, Vergennes, Vermont

SUBJECT: Preliminary planning for corridor preservation and trail system development in Tompkins County, New York.

DATE: March, 1996

COPIES: Office of the Director
Ithaca-Tompkins County Transportation Council
121 East Court Street
Ithaca, New York 14850
Phone: 607-274-5560 / Fax: 607-274-5578
E-Mail: ITCTC@mail.co.tompkins.ny.us

PAGES: 162

ABSTRACT: The purpose of this study is to review the status of major corridor preservation opportunities within the metropolitan area (Tompkins County), to identify corridors with the highest potential for use as a countywide trail system, and to provide more detailed and implementation-oriented planning for a select subset of high priority corridors.

The study effort included the review and compiliation of current local activities directed towards the development of major roadway corridors. This report includes eight specific recommendations regarding these efforts, including the critical recommendation that local governments develop "official maps" in order to facilitate corridor preservation via the development review process.

The remainder of the study focuses on the development of a countywide, multi-use trail system. The study effort was guided by a thirteen-member Steering Committee composed of representatives of primary potential user groups and affected local governments and the New York State Department of Transportation.

Seventeen discrete trail segments were identified for initial review. Of these, eight segments, representing six "corridors", were recommended for further review by the Steering Committee. Additional analysis of these six corridors was conducted in order to determine general conditions and estimation of construction costs (less real estate acquisition). A total of $1,679,850 (plus real estate acquisition) costs were identified.

The report concludes with additional information intended to facilitate local implementation of the corridors and provides a significant resource in the form of an annotated bibliography of contemporary literature and local plans & studies.

TRANSPORTATION POLICY COMMITTEE

Stuart W. Stein, Chairman,	Tompkins County
Theodore Wixom, Vice Chair	Village of Lansing
Charles Moynihan, P.E., Secretary	NYSDOT
Ronald Anderson	Village of Cayuga Heights
Douglas Austic	Town of Ulysses
Alan Cohen	City of Ithaca
Henrik Dullea	Cornell University
Jeannine Kirby	Town of Lansing
Raymond Maki	Town of Newfield
William Mather	Town of Enfield
Mary Oltz	Town of Danby
Robert Ritter	Federal Transit Administration
Teresa Robinson	Town of Groton
James F. Schug	Town of Dryden
Robert Spaulding	Town of Caroline
Thomas Waters	Federal Highway Administration
Catherine Valentino	Town of Ithaca

TRANSPORTATION PLANNING COMMITTEE

John Gutenberger, Chair	Cornell University
James W. Hanson, Jr., Vice Chair	Tompkins County
Barbara Blanchard	ITTC Operations Committee
Brent A. Cross, P.E.	Village of Cayuga Heights
William Gray, P.E.	City of Ithaca
Janis Gross	NYSDOT
David Herrick, P.E.	Village of Lansing
Jonathan Kanter, AICP	Town of Ithaca
Peter Marks	Town of Caroline
William J. Mobbs, P.E.	Tompkins County
David Nardone	Federal Highway Administration
Dennis Reinhart	Village of Lansing
Robert Ritter	Federal Transit Administration
James F. Schug	Town of Dryden
Ronald Updike	Town of Enfield
H. Matthys Van Cort	City of Ithaca
Albert S. Vetter, P.E.	NYSDOT
Daniel Walker, P.E.	Town of Ithaca
William Wendt	Cornell University
Michael Zona	Village of Cayuga Heights
To be named	Town of Danby
To be named	Town of Groton
To be named	Town of Lansing
To be named	Town of Newfield
To be named	Town of Ulysses

STEERING COMMITTEE

Lois Chaplin	Cornell University Bike/Ped Program
John Clancy	NYS OPRHP
James W. Hanson, Jr.	TC Planning Advisory Board
Jonathan Kanter	Town of Ithaca
Peter Marks	Town of Caroline
Nancy Ostman	Tompkins County Greenway Coalition
Dr. Tom Reimers	Cayuga Trails Club
James Schug	Town of Dryden
Phil Snyder	Finger Lakes Land Trust
Thys Van Cort	City of Ithaca
Albert S. Vetter	NYSDOT
Katie White	Tompkins County EMC

***ITCTC* STAFF**

David S. Boyd, AICP	Executive Director
Amy G. Gronlund	Senior Transportation Analyst
Teresa L. Linde	Administrative Assistant
J. Kirk Eby	Intern
Matthew Ibe Ibeike-Jonah	Intern
Harry Missirian	Tompkins County Planning

CONSULTANT TEAM

Thomas Niederkorn, AICP, Principal	P/ERC
Janet T. Kennedy	Kennedy•Yager Associates
John A. Steele	Kennedy•Yager Associates
J.A. Wallin	Kennedy•Yager Associates
Scott Witham	

The preparation of this document was financed through grants from and disseminated under the sponsorship of the Federal Transit Administration and the Federal Highway Administration (U.S. Department of Transportation). The United States Government assumes no liability for its contents or use thereof.

TABLE OF CONTENTS

TABLE OF CONTENTS, continued

LIST OF MAPS & FIGURES

LIST OF TABLES

EXECUTIVE SUMMARY

BACKGROUND

This study of transportation and trail corridors was undertaken by the *Ithaca-Tompkins County Transportation Council* (*ITCTC*) as an important step in the identification of potential routes that would be well-suited for transportation and recreation purposes. Portions of this report will be utilized in amending the 2015 Long Range Plan prepared and adopted by the *ITCTC* in January, 1995.

To provide direction and oversight for the study, a Steering Committee was appointed by the *ITCTC* Planning Committee. Steering Committee members consisted of representatives of local agencies and organizations that have a special interest in the development and use of trail and transportation facilities. Involvement of the general public was obtained through interviews with advocacy organizations and user groups as well as through a series of public meetings designed to listen to, as well as inform, those in attendance. In addition, officials were interviewed in those communities that have been actively engaged in planning for future transportation routes and multi-use trails.

METHODOLOGY

Essential background information for this study was obtained by researching relevant contemporary literature and reviewing local planning studies. Data from available sources was assembled and mapped: settlement patterns and employment centers were delineated, school sites identified, gas and electric transmission lines located, former railroad rights-of-way, existing trails and major recreation resources mapped. Tax maps were used to determine current ownership patterns; air photos and field surveys were examined to determine existing conditions. The roadway corridors that were considered were those that had previously been identified as important in a community's long range plan or had been under serious consideration at some level of government.

Analysis of background information and evaluation of existing conditions resulted in the identification of a number of potentially viable roadway and multi-purpose trail corridors. A number of criteria were developed to provide an indication of the relative importance of each corridor in the County's overall transportation system and to establish a priority list for subsequent investigation and analysis. The number of possible roadway corridors was small (7) and all were examined, while six (6) of seventeen (17) multi-use trail corridor segments were selected by the Steering Committee for further investigation.

Minimum design and construction standards for a trail system that would be used by pedestrians and bicyclists were prepared. These were based on AASHTO guidelines, modified to reflect conditions in Tompkins County. The six corridors selected for further study were then examined in detail. Existing conditions were determined by using air photos, anecdotal information and, when possible, field observations. Conditions were described and a cost estimate was made for trail implementation.

INVENTORY OF PROPOSED ROADWAY CORRIDORS

An inventory of proposed major roadway corridors was completed and included in the study (see Technical Memorandum No. 1). Inventory information was obtained from local plans and reports and from discussions with local officials in those communities that have considered roadway corridors in the past.

Although State planning and zoning enabling acts permit municipalities to establish "official maps" that delineate proposed streets and highways, these mapped routes must be identified and described in detail; official maps must also be adopted by formal resolution of the governing body. While some Tompkins County municipalities have undertaken transportation studies for special areas and purposes, none have used the official map process to preserve specific corridors for future transportation purposes. Corridor preservation remains a critical development issue in all areas of the County.

The purpose of the roadway corridor inventory was to evaluate potential corridors that would facilitate traffic movements beyond those needed in a typical residential development (i.e., those streets that could be functionally classified as major collectors and above). The primary conclusions of the inventory are:

1. Potential roadway corridors have been formally identified and examined in the Towns of Lansing and Dryden and the City of Ithaca. The Town of Ithaca is currently beginning the transportation component of their Comprehensive Plan (1993). No other communities have conducted traffic movement studies to date.

2. Detailed plans for right-of-way acquisition or construction are not currently being considered by any of the three communities that have studied traffic movement and identified potential corridors.

3. An intermunicipal route involving the towns of Lansing, Dryden and Ithaca, and Cornell University, is the most politically and technically complex roadway corridor currently being considered in Tompkins County. If this route around the eastern edge of the urban area is to become a realistic consideration in the future, a more detailed study will need to be conducted in order to consider potential impacts, alternative routes, and costs. If a right-of-way can be agreed upon, protection against preemption by future development is vital.

4. Two future corridors of long-range significance to development and traffic movement in the City of Ithaca are the South Meadow-Floral Avenue connector and the West State Street-Elmira Road connector. These facilities would add important traffic routes across the Inlet Valley. Key land parcels (currently under private ownership) could be lost to development if the right-of-way is not secured in the near future.

5. The extension of Cherry Street, serving the Cherry Street Industrial Park in the City of Ithaca, could have a large positive economic impact.

6. Another relocation of Warren Road to permit further expansion of the runway at Tompkins County Airport has been considered in the Town of Lansing Comprehensive Plan. Unless the right-of-way is secured, private development of key parcels could prevent future roadway realignment.

7. An improved connection between Warren Road and Peruville Road, considered in the Lansing Comprehensive Plan, could facilitate traffic movement to destinations along Warren Road and on the Cornell campus. The right-of-way for this connection is also threatened by continuing development in the Town.

8. A future connection between Conlon Road and Route 34 has been included in the Lansing Comprehensive Plan as one component of a Town Center complex. Public ownership of the needed rights-of-way will simplify the establishment of this transportation route. The design characteristics of this proposed road and its potential for future use should be examined in more detail by the Town.

The inventory of proposed roadway corridors included an assessment of the relative importance of each identified corridor measured against specific criteria. Based on this evaluation, the Consultant Team recommended several priorities considerations for possible future action. The South Meadow Street-Floral Avenue connector and the West State Street-Elmira Road connector, both located in the City of Ithaca's "West End", were considered to be currently of paramount importance.

It is important to note that this evaluation represents the professional conclusions of the Consultant Team and does not represent the thoughts, opinions, or policies of the *Ithaca-Tompkins County Transportation Council* or the Steering Committee.

INVENTORY OF PROPOSED TRAIL CORRIDORS

Analysis of existing conditions and growth patterns led to the identification of seventeen (17) trail segments which offered opportunities for primary pedestrian/bicyclist use. Those potential trail facilities that would provide limited modal access (e.g., hiking) were not considered in this study.

Identified trail segments were mapped and examined to provide basic information on each. The identified segments and corridors are presented in the table below.

	CORRIDOR NAME	SEGMENT LOCATION
A	MONKEY RUN CORRIDOR	Game Farm Road to NYS Route 13
B	FALL CREEK VALLEY CORRIDOR (PART 1)	NYS Route 13 to Etna Lane
C	FALL CREEK VALLEY CORRIDOR (PART 2)	Etna Lane to Village of Freeville
D	FREEVILLE-DRYDEN CORRIDOR	Freeville to Dryden Lake Trail
E	*not named*	Dryden Lake to Town of Harford
F	BUTTERMILK FALLS CORRIDOR (PART 1)	Cayuga Lake to Stone Quarry Road
G	BUTTERMILK FALLS CORRIDOR (PART 2)	Stone Quarry Road to South Hill Recreation Way
H	Buttermilk Falls Corridor (ALT 1)	Emerson Power Transmission Corp. to Coddington Road/Hudson Street
J	*not named*	Hudson Street to East Hill Recreation Way
K	*not named*	NYS Route 96/Trumansburg to the Black Diamond Trail
L	*not named*	Libertyville Trail to Atwater Road
M_1	*not named*	Atwater Road to Warren Road (via Cherry Road)
M_2	*not named*	Atwater Road to Warren Road (via Hillcrest Road)
N	*not named*	Village of Freeville to Villages of McLean/Cortlandville
P	*not named*	Village of Freeville to Villages of Groton/Locke
Q	EAST SHORE CORRIDOR	Esty Point to Stewart Park
R	SNYDER HILL CORRIDOR	Snyder Hill Road to NYS Route 79/ South Hill Recreation Way

The Steering Committee and Consultant Team defined and applied a series of criteria designed to provide a measurement of each trail segment against the others and, by so doing, to help select those segments that would be studied in more detail. The criteria used are described in **Section 3.0** of the report; the segments in UPPERCASE letters above were those selected by the committee for additional examination and analysis.

First-Level Research

As noted above, the Steering Committee determined that eight (8) of the seventeen (17) trail segments should be studied at a higher level of detail. In two cases (Fall Creek Valley and Buttermilk Falls), two segments were combined to create a single corridor, thus reducing the number of first-level research corridors to six. These corridors are as follows:

CORRIDOR NAME		CORRIDOR LOCATION	LENGTH (approx.)
A	Monkey Run	Game Farm Road to NYS Route 13	3.3 mi. (5.3 km.)
B/C	Fall Creek Valley	NYS Route 13 to Freeville Trail	4.5 mi. (7.3 km.)
D	Freeville-Dryden	Village of Freeville to Dryden Lake Trail	2.8 mi. (4.5 km.)
F/G/H	Buttermilk Falls	South Hill Recreation Way to Cayuga Inlet	2.9 mi. (4.5 km.)
Q	East Shore	NYS Route 34/Cayuga Heights Road to Stewart Park Entrance	2.4 mi. (3.9 km.)
R	Snyder Hill	Pine Tree/Snyder Hill Roads to South Hill Recreation Way	2.2 mi. (3.6 km.)

Field studies were made of the six corridors listed above, each of which was formerly a railroad right-of-way. The analysis was based on walking the right-of-way (when permitted), examining the right-of-way from road crossings, reviewing air photos, tax maps and existing literature, and discussing the routes with those who had some familiarity with conditions in the area. Existing physical conditions were noted and improvements that would be necessary to create an adequate facility were determined. Results of this analysis are included in **Section 4.0** of the report.

Approximate costs for suggested improvements were estimated, based on the best information available and on design standards which the Steering Committee believed to be appropriate. At this stage, no attempt was made to estimate the land acquisition costs associated with creating the trail; however, several techniques for securing use of the right-of-way were considered. The generalized development costs are presented in the table below. **Section 4.0** also contains a review of possible revenue sources for funding trails, including a list of State and Federal funding programs that have been used for utilitarian and recreational trail development.

GENERALIZED COST ESTIMATE SUMMARY					
CORRIDOR	**GENERAL CONDITIONS**	**SPECIAL CONDITIONS**	**"GAP" CONNECTIONS**	**"ADD-ON" ALTERNATIVES**	**TOTAL COST**
A - MONKEY RUN	$123,200	$126,500	$ 2,000		$251,700
B/C - FALL CREEK VALLEY	$169,250	$251,850	$ 7,500		$428,600
D - FREEVILLE-DRYDEN	$ 57,500	$ 60,000			$117,500
F/G/H - BUTTERMILK FALLS	$208,250	$136,450	$ 4,500		$349,200
Q - EAST SHORE	$136,000	$174,000*		$ 20,300	$330,300*
R - SNYDER HILL	$ 67,500	$ 40,500	$85,800	$ 8,750	$202,550
SYSTEM TOTAL	**$761,700**	**$789,300**	**$ 99,800**	**$ 29,050**	**$1,679,850**

* Does not include unknown costs for bridge & embankment washout.

Gaps, Linkages and Extensions

An important reason for undertaking this study was to assess the extent to which an interconnected *system* could be established in Tompkins County, over time. The possibility of extending Tompkins County's system to adjacent counties was also a consideration. To address both these issues, important breaks, or "gaps", in system-continuity were identified and potential "extensions" and "linkages" beyond were considered.

Linking the Town of Ithaca's East Ithaca Recreation Way with its South Hill Recreation Way presents a very complex gap that will require considerable on-road facilities to resolve. Connecting Stewart Park and the Farmer's Market with Cass Park recreation and trail facilities (including the Black Diamond Trail) will involve a willingness to explore unusual solutions (e.g., such as a small ferry across Cayuga Inlet). Connecting the Black Diamond Trail with the Buttermilk Falls Corridor will involve constructing a bicycle/pedestrian bridge over Elmira Road or creation of an at-grade crossing on Elmira Road. Other breaks in trail system continuity, and potential linkages to close these gaps, are somewhat less complicated but will require a determined effort, usually on the part of the adjacent local municipalities.

Opportunities to extend Tompkins County trails to adjacent counties were found to be extremely limited. This is due to the general absence of planning for trail facilities and, in isolated cases, considerable opposition to the concept of public trails in these areas. Details of connections, gaps and extensions, with a description of the gaps examined and possible ways to correct the gap and establish trail continuity, are included in Technical Memorandum No. 2.

IMPLEMENTATION STRATEGIES

At this stage the Transportation Trail/Corridor Study is highly conceptual in nature and does not represent a coordinated or extensive effort to officially establish a countywide trail system. It is hoped that the information contained in the study will facilitate efforts to the implement one or more segments of the trail system or roadway improvements envisioned and described. This must be accomplished primarily at the ~~local level (although State and Federal funds may be utilized in some cases) and after much additional~~

research, analysis and public discussion.

Four corridors appear to have relatively easy solutions to right-of-way issues and are therefore recommended for implementation efforts within the next five years. A longer time-frame will be needed to implement other potential corridors. Those thought to be high priority implementation targets are:

- Monkey Run Corridor (Town of Dryden)
- Freeville-Dryden Corridor (Town of Dryden)
- Buttermilk Falls Corridor (City/Town of Ithaca)
- Snyder Hill Corridor (Town of Ithaca)

A brief description of existing factors affecting the establishment of rights-of-way for these four corridors, and some of the physical obstacles to be anticipated and overcome, is included in **Section 5.0** of the report. **Section 5.0** also discusses continuation of planning at the local level and overall coordination efforts that will be needed before an integrated trail system can become a reality.

The report concludes with a seven-step "action plan" aimed at future implementation efforts that should be considered. In summary form, the actions needed are:

1. Prepare funding applications for high-priority corridors. These would be aimed primarily at the *ISTEA* Transportation Enhancement Program administered by the New York State Department of Transportation.

2. Coordinate local efforts by the County and its municipalities to implement a trail system.

3. Begin official discussions to secure privately-owned sections of necessary rights-of-ways.

4. Undertake more detailed engineering and feasibility studies of on-street bikeways that have been described in the report.

5. Discuss the principles and objectives of the trail program with private land owners who might be affected.

6. Continue efforts to encourage increased use of bicycles and walking as modes of transportation.

7. Consider incorporating requirements for land contributions for trail purposes, or money in lieu of land, in local subdivision regulations.

NOTES:

FORWARD

PURPOSE

The *Ithaca-Tompkins County Transportation Council* (*ITCTC*) has recognized the potential that bicycling and walking offer as viable modes of transportation. The purpose of the Transportation Trail/Corridor Study is to identify existing/potential corridors and design facilities that, over time, could become the framework of a County-wide system of bicycle and pedestrian trails. Such a system would offer an attractive recreation opportunity for many people and, for some, an acceptable, and even preferable, alternative to travel by motorized vehicle.

Tompkins county is rich in natural and cultural resources. The attractive physical environment and the County's noted educational and research institutions attract a diverse and growing population that can be expected to use a trail system for recreational and utilitarian purposes. Prospective users include residents of all ages and backgrounds and tourists and visitors to the area.

As the population grows and traffic increases, the value of alternative transportation facilities becomes more apparent. At the same time, continuing development in the County, particularly within the designated Ithaca Urbanized Area (UZA), increases the likelihood that land highly suited for trail corridors will be preempted for other uses.

This study examines a number of trail corridors that could become useful components of the County's transportation system. Corridors that have been selected for study reflect existing and expected development patterns, current vehicular and bicycle traffic characteristics, origin and destination points, and current land use information.

A great deal of work by many individuals and agencies has preceded this study and should be acknowledged. These efforts include: *Building Greenways for Tompkins County: An Action Plan* (July 1995), prepared by the Tompkins County Greenway Coalition; *The Village of Lansing Greenway Plan* (May 1994), prepared by the Village of Lansing Greenway Committee; *Cornell Cycles* (March 1992), prepared by the Cornell University Office of Transportation Services; *New York Statewide Trails Plan* (June 1994), prepared by the New York Office of Parks, Recreation and Historic Preservation; as well as the planning and design efforts for the *East Ithaca Recreation Way*, *South Hill Recreation Way*, the *Freeville Trail*, the *Dryden Lake Park Trail*, *Black Diamond Trail*, and the *Libertyville Trail*.

This study has been completed using funds provided by the Federal Highway Administration (U.S. Department of Transportation) and administered by the New York State Department of Transportation (NYSDOT). This study represents a joint effort and partnership between the *Ithaca-Tompkins County Transportation Council* and its members. Particular acknowledgement is due the Tompkins County Planning Department which provided assistance and in-kind services as a means of meeting the requirements for all non-federal matching funds. Detailed research on existing conditions and facilities in the County was undertaken and initially mapped by the Tompkins County Planning Department which also compiled an extensive bibliography of relevant publications. County maps which have been included in this report, and final editing of the narrative, were products of the *Ithaca-Tompkins County Transportation Council*.

OVERVIEW

This study is divided into five sections. **Section 1.0** discusses the overall structure of the study and the efforts made to achieve participation and comment from the public. **Section 2.0** is a summation of the background data that was assembled and analyzed to provide a rationale for the corridor evaluation process. **Section 3.0** contains a brief description of seventeen possible trail segments and a classification system to identify priority segments. A discussion of appropriate standards for trail design and construction is also included in this section. **Section 4.0** contains the results of more detailed investigation and description of the six corridors that were identified for "first-level research" activities. There is also a generalized cost estimate for trail construction and a general discussion of implementation strategies that could be considered. **Section 5.0** presents a recommended plan of action and work program which may be used by the Transportation Council, its participating entities, and individual communities if efforts to continue trail development in Tompkins County proceed. **Section 6.0** provides a glossary of terms that are used throughout this report. **Section 7.0** contains an annotated bibliography of pertinent contemporary literature and local planning efforts/reports.

1.0 PUBLIC PARTICIPATION

STEERING COMMITTEE

At the outset of this Transportation Trail/Corridor Study (TT/CS) a 13-person Steering Committee was established by the *ITCTC* Planning Committee. The main purpose of the Steering Committee was to provide guidance to the Council and to the Consultant Team on issues related to the TT/CS. Local groups and agencies interested in, or participating in the development of trails in the County were asked to serve on the Committee. Periodic meetings were held during the course of the study and background information was presented for review and comment, proposals and recommendations were discussed. The Committee was asked to approve criteria used to evaluate possible trail segments and to select a limited subset of segments to be studied in greater detail ("first-level research").

The participation and interest of Steering Committee members was instrumental in the most difficult task of this study - determining which trail segments could be most useful in the timely development of a long range concept for trails in Tompkins County. This forum provided insight and valuable information that vastly improved the quality of the end product.

PUBLIC INVOLVEMENT

Two public meetings were held during the course of the study. The first was used to outline the structure of the study and discuss background information that was gathered. A survey was made of those attending the first public meeting to determine public attitudes and perceptions about issues and concerns related to trail development and the use of trails. While the survey sample was small (and by no means "random"), the results were both interesting and helpful. The survey results can be found in the **APPENDICES**.

At the second public meeting, the full array of identified corridor segments was presented for discussion and the selection process for ranking segments was explained.

The critical results of this study will be incorporated in an amendment to the 2015 Long Range Plan that was formally adopted by the *Ithaca-Tompkins County Transportation Council*. The amendment procedure will include a public meeting, constituting the third such meeting on the TT/CS.

LOCAL AGENCY INTERVIEWS

Interviews were conducted with selected municipal leaders and representatives from prospective user-groups. This was done to determine general interest in the TT/CS, to answer questions related to the objectives of the study and to identify specific desires, proposals or plans related to trail activity in the County. User group information is presented in the **APPENDICES**.

TECHNICAL REPORTS

The scope of the TT/CS included three Technical Memoranda addressing the topics of *"Roadway Connections"*, *"Gaps, Connections and Extensions"*, and *"Implementation"*. Technical Memorandum No. 1, examined the nature, purpose and status of existing plans related to new roads or streets in the County. Technical Memorandum No. 2 described important future connections that could be made in the trails system, identified gaps in that system and considered the likelihood of future extensions into adjacent counties. While these technical reports provided significant information that was useful in the preparation of this report, the reports also contain expert-based subjective assessments of the above topics and were not formally approved as the policies or positions of the *Ithaca-Tompkins County Transportation Council*. The Technical Memoranda are contained in the **APPENDICES**.

2.0 DATA COLLECTION

LITERATURE & LOCAL PLAN REVIEW

Extensive research has been undertaken of existing literature and local plans that contain information relevant to trails generally, and specifically to Tompkins County trails and transportation plans. Pertinent information, ideas and plans contained in the examined literature have been incorporated, as appropriate, into this report. An annotated bibliography has been prepared and can be found in **Section 7.0**.

RECONNAISSANCE AND MAPPING

To facilitate the initial identification and evaluation of possible trail segments, information on existing conditions in the County was recorded and analyzed. This background material, provided by the County's planning staff, is summarized below.

Settlement Patterns: If maximum use of a trail system is a desirable planning objective, it follows that trails should be located close to where the people actually live. **MAP 1**, which is based on the interpretation of 1994 aerial photographs, displays areas where there are concentrations of 50 or more people (based on housing unit observations). It can be seen that the most dense population concentrations are located in a broad band circling the end of the lake, an area that is often referred to as the Ithaca Urban Area.

Historically, the City and its immediate environs form the nucleus of this concentration with urban development extending to the northeast into Cayuga Heights, the Town of Ithaca and the Village and Town of Lansing. Smaller areas of development exist in each of the County's nine towns with the largest being in Dryden's villages and hamlets, and the smallest in Enfield. The Villages of Groton and Trumansburg are other significant nodes of urban development.

Forty-five percent of County residents live in the City and six villages; it is estimated that close to 70 percent of the County's inhabitants are located in the shaded areas of **MAP 1**. As part of the County's public transportation program, 16 Park-and-Ride lots have been established. The location of these lots is also shown on **MAP 1** and, as might be expected, most are located in settlement nodes.

Employment Centers: **MAP 2** illustrates centers of employment activity in the County. Each dot represents a concentration of employees ranging in size from 50 to 3,000 employees.

Sixty-three establishments provide employment for 50 or more people. This includes manufacturing, retail trade, education and health services and several other employment categories. The largest concentration of jobs is located on the Cornell and Ithaca College campuses, at primary and secondary schools, in the downtown and Lansing shopping centers, along Warren Rd., and at the health complex on Trumansburg Road. In outlying communities, major employment centers are related primarily to education facilities

including TC3, George Jr. Republic and the New York State schools in Lansing.

The distribution of dots on **MAP 2** closely resembles the settlement concentrations shown on **MAP 1**. A composite map showing both settlement patterns and employment centers is included as **MAP 3**.

Utility Corridors: Because rights-of-way that have been established for the construction of electric and gas transmission lines are sometimes considered for trails, the location of these lines are shown on **MAP 4**. As the map shows, utility lines crisscross the eastern and southern part of the County. Gas mains cross the Towns of Newfield, Danby, Caroline, Dryden and Groton. Electric transmission lines circle the urban area on the east and are found in the City and all towns except Ulysses. There is no obvious alignment pattern and the rights-of-way seem to be located without regard to topography or other environmental conditions. Because of potential health and liability concerns regarding the possible impacts of electromagnetic fields along large electric transmission lines, power companies have recently become reluctant to consider the use of power lines for trail or other public purposes. While the scientific community continues to debate this issue, it appears highly unlikely that users of the corridor would be exposed to sufficiently high levels of electromagnetic activity to cause health defects.

Schools: **MAP 5** illustrates the boundaries of the six school districts that most affect Tompkins County. The largest of these, Ithaca City District, includes the entire City and Town of Ithaca and parts of Dryden, Caroline, Danby, Newfield, Enfield and Ulysses. In addition to the Ithaca City District, there are separate districts in Lansing, Groton, Dryden, Newfield and Ulysses. Small portions of the Towns of Caroline Danby, Newfield and Enfield are located in other districts. School facilities serving residents in these areas are located outside the County.

There are 27 public elementary or secondary school sites in Tompkins County. In addition there is a BOCES facility and a Catholic school. For ten months of the year, these facilities represent major destination points for large numbers of children, some of whom might make use of appropriately located trails.

Railroad Rights-of-Way, Existing Trails and Recreation Resources: During the earlier decades of this century, rail service was provided on a number of lines in Tompkins County. The City of Ithaca and Village of Freeville were important connecting points in the rail system where rights-of-way intersected. Today, only one active line remains in the County -- a CONRAIL® line providing service to Cargill Salt and New York State Electric and Gas (NYSEG) facilities located in the Town of Lansing. The location of this line is shown on **MAP 6**.

Other railroad rights-of-way in the County have been abandoned and, although there was an opportunity for public purchase of these routes, for the most part, railroad corridors have reverted to adjacent land owners. Abandoned lines are also shown on **MAP 6**; several are of particular significance in this trails study.

insert MAP 1 - page 2.3
insert MAP 2 - page 2.4
insert MAP 3 - page 2.5
insert MAP 4 - page 2.6
insert MAP 5 - page 2.7
insert MAP 6 - page 2.8

The Black Diamond line connected Tompkins and Seneca Counties, running up the West Shore escarpment and through the Village of Trumansburg. This right-of-way was purchased in the 1970's by NYSEG. An electric transmission line has been erected on the right-of-way in the City and part of the Town of Ithaca. The New York State Office of Parks, Recreation and Historic Preservation has received funding under the *ISTEA* "transportation enhancement" program to implement a trail project on a portion of this corridor. While the planning process is not yet complete, the potential trail could someday connect Robert Treman State Park (south of the City of Ithaca) with the Erie Canal system (north of Geneva).

Other former rail lines extended to the southeast and to the east out of the Town of Ithaca. Portions of these rights-of-way have been purchased by the Town of Ithaca and converted into the South Hill and East Hill Recreation Ways, as indicated on the map.

Two Lehigh Valley lines formerly crossed in the Village of Freeville and their rights-of-way are still largely identifiable. One connected Ithaca to Cortland; the other connected Binghamton and Auburn. There has been interest in the use of these rights-of-way for public purposes for twenty years but only the Freeville Trail and the Dryden Lake Trail have actually been established. The Town of Dryden secured utility easements on railroad rights-of-way in the Town.

A Short Line Railroad formerly ascended the East Hill escarpment and passed through the Town of Lansing. This line was abandoned years ago and, in some areas, there is no longer evidence of its existence.

MAP 6 also shows the location of existing trails, paths, greenways and recreation routes in the County. As can be seen, the privately developed Finger Lakes Trail crosses the southern part of the County and has been located in a way that provides a hiking trail connecting Connecticut Hill, Treman State Park, and State Forest areas in the Towns of Danby, Caroline and Dryden.

A bike/pedestrian trail is progressing toward implementation in the South Lansing area, as shown, and the Village of Lansing has recently completed a plan for a Village-wide greenway system. Other pedestrian trails shown on the map include Ithaca's Circle Greenway, Cornell's Plantation Trail and the privately established and maintained Cayuga Trail. The New York State Finger Lakes Bicycle Route is also identified. This route follows existing roads in the western part of the County.

Conclusion: If a trail system is to be responsive to the need for alternative transportation as well as recreation, it should be located where it has the potential of serving the most people. The review of background information presented in this section shows conclusively that the northeastern quadrant of Tompkins County contains more population and more job centers than other locations. Growth has been occurring on the fringes of the City but has also extended to the north toward Lansing and to the east toward Dryden. Indications are that this will be the pattern for the foreseeable future. Clearly, the initial stages of a trail system should aim to serve the urban and suburbanized parts of the County and attempt to connect and extend those trails that are already in existence and working well.

It appears that developing areas of the County are also areas where large sections of abandoned railroad rights-of-way exist. These corridors generally have characteristics that are well suited for bicycle and pedestrian trails. They will often require only minimal surface improvements and usually have grades of 3 percent or less. In many cases, these rights-of-way have already traversed sensitive areas that would be difficult to develop for most purposes, given today's environmental values.

Since population growth, employment centers and other existing origin and destination points are concentrated in an area that also has opportunities to establish a first class trails system, it is reasonable to conclude that this is where the *Ithaca-Tompkins County Transportation Council* should begin its conceptual and long range planning efforts.

3.0 CORRIDOR IDENTIFICATION

POTENTIAL FACILITY LOCATION

One objective of this study has been to identify and investigate in some detail those trail corridors that are expected to have the highest transportation value as part of an effective long range system. When all areas of Tompkins County and all possible trail types are considered, the number of potential trail segments is quite large. In an attempt to place a reasonable limit on the number of trails to be evaluated, it has been determined at the outset that all segments to be considered will offer, at a minimum, opportunities for both pedestrian and bicycle use; that is, a possible trail segment would not be further considered if potential or most appropriate use was limited to hiking.

Analysis of existing conditions, described in the previous section of this report, has led to the identification of seventeen (17) trail segments that meet the multi-use test and have potential as part of a County-wide system. These trail segments, shown on **MAP 7**, can be described briefly as follows:

A. Game Farm Road to Route 13 (Monkey Run Corridor)
The East Hill Recreation Way currently terminates at Game Farm Road. This segment would provide for a continuation of the Recreation Way to the east, skirting the residential Hamlet of Varna and continuing to the intersection of Routes 13 and 366. The existing railroad bridge that passes over Route 366 east of Varna would continue in use. A traffic signal would facilitate the crossing of Route 13. Large stretches of this 2.8 mile segment are currently owned by Cornell University and the State of New York.

B. Route 13 to Etna Lane (Fall Creek Valley Corridor)
This segment begins at the intersection of Route 13 and Hall Lane and extends to the Hamlet of Etna. Hall Lane would provide an on-street route around the Wilcox Press complex to a connection with the railroad right-of-way. Private land owners control most of this corridor with one-third of its 2.1 mile length being located on two farms. NYSEG owns an 800' section and the Finger Lakes Land Trust is the adjacent owner of a 900' section in Etna. An at-grade crossing of Route 366 would be required.

C. Etna Lane to Freeville (Fall Creek Valley Corridor)
This 2.9 mile segment crosses large stretches of active farm land. Between Etna Lane and the Freeville Village boundary, land is privately owned but two-thirds of the total right-of-way for this stretch is located on one farm. The corridor appears to be intact for most of its length. Inside the Village boundary, most of the right-of-way is publicly owned and known as the Freeville Trail.

D. Freeville to Dryden Lake Trail (Freeville-Dryden Corridor)
The population centers of Freeville and Dryden could be connected by this segment. The railroad right-of-way is located in the Virgil Creek Valley; much of it is owned by George Junior Republic. Both ends of this 2.8 mile

stretch are publicly owned by the two villages. In addition to the large holdings of the Republic, private land owners control approximately 14 percent of the right-of-way. A short on-street connection from this segment to Dryden High School would be possible.

E. Dryden Lake to Harford

The Dryden Lake Trail has been established and in use for several years. From the lake, the railroad right-of-way runs to the southeast into Cortland County. In anticipation of eventually extending the Dryden Lake Trail to the southeast, the Town has purchased the right-of-way to Willow Crossing in the Town of Harford.

F. Cayuga Inlet to Stone Quarry Road (Buttermilk Falls Corridor)

This segment begins at the southern-most point of the system where a new pedestrian/bicycle bridge will cross Elmira Road near Buttermilk Falls State Park. An existing railroad grade negotiates the steep hillside from the park through a wooded residential area to Stone Quarry Road. The NYS Department of Parks, Recreation and Historic Preservation owns this entire 0.9 mile segment.

G. Stone Quarry Road to South Hill Recreation Way (Buttermilk Falls Corridor)

The railroad grade continues uphill to the northeast, below Emerson Power Transmission Corporation, necessitating Emerson's permission to re-open a section of the right-of-way that has been blocked from public access. A difficult intersection with Stone Quarry Road may require some capital improvements. At 96B, the corridor follows Hillview Place to the north entry of the South Hill Recreation Way. The length of this segment is about 1 mile.

H. Emerson Power Transmission Corporation to Coddington Road/Hudson Street (Buttermilk Falls Corridor)

As an alternative to G, it may be possible to create a trail up the steep grade on the south-western edge of the Emerson property to where Coddington Road meets 96B. This would involve a series of trail switchbacks and permission from Emerson to cross the company parking lot. From Coddington Road, this segment would be entirely on-street until Coddington meets the southern entry to the South Hill Recreation Way at Hudson Street. The length of this segment is approximately 0.6 miles.

I. *The letter "I" has been intentionally omitted in order to clarify graphics.*

J. Hudson Street to the East Hill Recreation Way

The proximity of the Columbia Street pedestrian bridge over Six-Mile Creek to the Hudson Street entry to the South Hill Recreation Way provides a South Hill/East Hill link in the greenway system, primarily on-street. From either Ferris Place or Quarry Street, a bicyclist or pedestrian could follow State Street up the hill to Mitchell which intersects with the East Hill

Recreation Way. This segment is entirely in the City of Ithaca and might be studied in more detail as a part of the City's current bicycle planning project (funded under the *ISTEA* "enhancement" program). The length of this segment will depend upon the route chosen.

K. Route 96 in Trumansburg to the Black Diamond Trail

The Black Diamond Trail, now being developed by the NYS Department of Parks, Recreation and Historic Preservation, will follow an old rail line on the west side of Cayuga Lake between Ithaca and Geneva. As it passes through Trumansburg, a 0.5 mile on-street connection is possible via Lake, King and Cayuga streets leading directly from the Central School complex.

L. Libertyville Trail to Atwater Road

The Town of Lansing is developing the Libertyville Trail, part of the Lansing Trailway, which will run parallel to Routes 34/34B. A potential trail connection could run directly south from the Libertyville Trail, passing the proposed site for a new Town Hall, crossing Route 34 to the community baseball fields, past Woodsedge Senior Housing and through a field to join the old Ithaca/Lansing shortline grade. Except for the proximity of one farmstead, the shortline alignment would make possible a trail to Atwater Road. The length of this segment is approximately 0.7 miles.

M_1. Atwater Road to Warren Road via Cherry Road

This segment would continue the trail further south into the undeveloped areas between Triphammer Road and Route 34. The shortline r.o.w. is evident in some locations but is not appropriately located to serve this area. Rather, a trail route could be established as future subdivision of farm land occurs. In reviewing subdivisions, the Lansing Planning Board could make the establishment of a trail one of the approval conditions. This segment would run the full distance from Atwater Road to Burdick Hill Road where links with the Village of Lansing Greenway and the East Shore corridor could be made. A connection to Cherry Road would also be needed so that Cherry Road could become the important on-street link with Warren Road. A short connection to the new ice rink should also be considered. The total length of this section is approximately 3.4 miles.

M_2. Atwater Road to Warren Road via Hillcrest Road

An alternative trail segment between Atwater Road and Warren Road would use the diagonal route of Hillcrest Road over Beam Hill. Approval of future land subdivision south of Asbury Road could include a provision for a trail connecting Atwater to Hillcrest. An on-street route along Hillcrest would link the Lansing Town Center area with work places on Warren Road. Addition trail segments to Burdick Hill Road, as described above, could still be a desirable objective for the town of Lansing. The length of the Atwater-Hillcrest-Warren segment is approximately 2.2 miles.

N. Freeville to McLean/Cortlandville

The old Lehigh Valley Railroad right-of-way between Freeville and the Cortland County line is, for the most part, well-defined. This right-of-way, which passes through active farms, wetlands and a large mobile home park near McLean, is privately owned. At the Cortland County line, this segment would link to an existing Cortland County linear park which provides access to the Lime Hollow Nature Preserve in the Town of Cortlandville. This distance from Freeville to the County line is approximately 5.1 miles.

O. *The letter "O" has been intentionally omitted in order to clarify graphics.*

P. Freeville to Groton/Locke

A well-defined railroad right-of-way extends northward in the Owasco Inlet Valley from Freeville through the Town and Village of Groton. This route passes through farms and large wetlands created by the Owasco Lake inlet; many bridge crossings of undetermined conditions would be involved. Most of the right-of-way is privately owned. In the Village of Groton, the route runs between Main Street and Conger Boulevard. In the Groton General Plan, this area is shown as a linear park. The connection between the Village of Groton and the Village of Freeville is approximately 5.2 miles long. The connection to the Town of Locke would involve an additional 2.5 miles.

Q. Esty Point to Stewart Park (East Shore Corridor)

This route descends the slopes of East Hill from the Town of Lansing to the City of Ithaca. The same railroad shortline mentioned in L above would provide a portion of the right-of-way for the center portion of this trail segment. The right-of-way is no longer in existence at the north and south ends of the segment, however, and the bridge over a major gorge has been removed. Potential connections with Stewart Park and future trails and greenways in the Village and Town of Lansing make this an attractive corridor. The length of this segment is approximately 2.1 miles.

R. Snyder Hill Road to Route 79/South Hill Recreation Way (Snyder Hill Corridor)

An extension of the East Hill Recreation Way along the southern edge of Cornell's Polo Center would link to a new trail in the fields uphill from residences on Pine Tree Road. The new trail would begin near the Pine Tree Road-Snyder Hill intersection and extend to the small neighborhood park at the end of Tudor Road. From this point, a long on-street segment, involving Park Lane, Route 79 and Burns Road, will be necessary to complete a connection with the South Hill Recreation Way. The overall length of this segment is approximately 2.8 miles, about half of which would be on existing roads.

insert MAP 7 - page 3.5

GAPS AND LINKAGES

For purposes of this study, gaps are defined as breaks in the continuity of trail segments. Linkages, also referred to as connections, describe the facilities, actions or commitments needed to fill gaps and achieve the continuity that gaps prevent.

In terms of existing, committed or planned trail facilities in Tompkins County, the only obvious gap is on East Hill where the two segments of the East Hill Recreation Way are separated by a distance of approximately 1,400 feet on Maple Avenue. To link these two trail segments, an on-the-road bike lane with appropriate signing and pavement marking will be necessary. Until that happens, pedestrians and bicyclists wishing to get from one trail segment to the other will continue to use Maple Avenue in its present condition. The construction of a new path from Maple Avenue to Mitchell Street would be an alternative to the use of Maple Avenue as the connection. This would be located between Maple Avenue Apartments and East Lawn Cemetery with care being taken not to intrude on functional cemetery land. Much of the land needed for this alternative connection belongs to Cornell and is used for agricultural purposes.

Other existing, committed or planned trail facilities in the County are limited in number and widely scattered. These facilities are separated by distances that are larger than can be considered gaps, as that term is used here. For example, the Libertyville Trail committed for South Lansing is separated from the Greenway System planned for the Village of Lansing by almost three miles. In the Ithaca area, a possible linkage between the existing South Hill Recreation Way and the proposed Black Diamond Trail to be built by the State involves a distance of over two miles.

One of the purposes of this study is to explore the possibility of creating new trails to close these large separations and, in the process, create an interconnected system. Gaps and linkages are mentioned in several places in this report. In addition, Technical Memorandum No. 2 deals extensively and in some detail with the subject of connections, gaps and extensions. The Technical Memorandum is included in the **APPENDICES**.

CLASSIFICATION

The trail segments described above were evaluated by the Consultant Team in order to provide an indication of their relative effectiveness as part of the system. A consistent framework for segment evaluation was established by defining a number of criteria by which the segments could be measured. These criteria were reviewed and accepted by the Steering Committee. A score of 1 to 5 was given for each criterion as it applied to the trail segment being evaluated. Scoring of the prospective trail segments is based on the following scale:

1 = *weak; significant problems anticipated; limited usefulness*
2
3 = *neutral; uncertain; neither good or bad*
4
5 = *strong; few problems anticipated; high potential*

It should be noted that most trail segments were not examined in the field prior to scoring. Rather, the

score was determined on the basis of personal knowledge of the area, air photo examination and drive-by visits to the various sites. The scoring framework and segment scores were helpful in facilitating the Steering Committee's selection of trail segments that would progress to the next stage of evaluation ("first-level research"). The criteria approved by the Steering Committee are as follows:

Desirability: Strong indications of interest in, and local support for, the segment; mentioned or considered in other plans or reports; generally considered to be a good addition to the system. (For example, significant local interest would rank high.)

Environmental Conditions: Effect of terrain on access and use; potential adverse impact on environmentally sensitive areas. (For example, few terrain or environmental problems would rank high.)

Land Acquisition Issues: Anticipated degree of difficulty in obtaining necessary rights-of-way; potential loss of rights-of-way to other uses; anticipated public objection (For example, multiple properties involved or public objection would rank low. Likely loss of rights-of-way would rank high.)

Relative Probable Cost: Initial acquisition; construction and improvements; future maintenance implications. (For example, a low to moderate expected cost would rank high.)

Origin/Destination Function - Utilitarian Purposes: Potential connection of residential areas with employment centers, schools, shopping, park-and-ride services, other transportation facilities. (For example, good current, or potential future, connection possibilities would rank high.)

Origin/Destination Function - Recreational Purposes: Potential connection of residential areas with recreational, cultural, historical resources. (For example, good current, or potential future, connection possibilities would rank high.)

Relationship to Existing or Future System: Important segment in overall system or could function effectively as a "stand alone" facility. (For example, a pivotal segment in a system or an effective stand-alone segment would rank high.)

Connectivity: Opportunities to connect to other existing or potential trail segments in Tompkins County; possible extensions to other counties. (For example, good possibility for connections would rank high.)

Aesthetic Value: Scenic and natural beauty within the corridor; adjacent points of interest, natural or man-made. (For example, good internal or external views, historical features or natural beauty would rank high.)

Multi-use Potential: Suitability of segment for a variety of purposes, such as x-country skiing, horses, snow mobiles, in addition to hiking and biking. (For example, segment that would be suitable for uses other than hiking or biking would rank high.)

Complexity: Number of sub-segments involved; multiple political jurisdictions; problematic conditions such as crossing major roads, significant earth moving, urban vs. rural, etc. (For example, a segment that has few potential problems of this nature would rank high.)

TABLE 1 shows the score that each trail segment received when the evaluation criteria were applied. These scores are based on the opinion of the Consultant Team as confirmed by the Steering Committee. The "*Time Line*" column on **TABLE 1** represents the period within which it is reasonable to expect the trail to be established. Factors such as ease or complexity of securing land, estimated cost of improvements, community support and importance to the overall system were considered by the Steering Committee. The designation "*I*" indicates implementation within the first five-year period; "*II*" is within a five to ten year period; and "*III*" is longer than ten years. The "*Time Line*" is further discussed in **Section 5.0**.

DESIGN STANDARDS

Research continues throughout the nation as to the design criteria and standards for bicycle facilities. Manuals and design recommendations have been produced by nearly every state and federal transportation agency, some reflecting the communities' unique characteristics and resources. For purposes of this study, Guide for the Development of Bicycle Facilities, August 1991 (and *Draft*, June 1995), published by the American Association of State Highway and Transportation Officials (AASHTO), has been used for the base standards. The Draft 1995 version of the AASHTO publication introduces the concept of using a "design bicyclist" to develop design standards for safe, convenient, and adequate bicycle facilities. This Transportation Trail/Corridor Study embraces that concept and has developed standards that reflect anticipated use of the system and existing local conditions.

Tompkins County has many old railroad corridors. As indicated in **Section 3.0** (above), these corridors have been targeted as the right-of-way for most of the proposed trails that are to serve as Class I Bikeways (bike paths). These resources offer many benefits including potential for simplified right-of-way acquisition, existing grades of less than 2%, well-developed, graveled beds for trail sub-base, existing bridges and drainage structures, existing corridors through wetlands and other environmentally sensitive areas, as well as a tradition of use as a transportation or informal trail corridor. However, in some cases, the corridors may also have some limitations - surface width, for example - that could have an impact on the proposed design standards.

Rationale

Although Tompkins County trails will be used by pedestrians and joggers as well as bicyclists, it is the safe use by bicycles that largely determines the minimum construction standards that should be met. Because engineers and designers have, in the past, often thought of bicycle trails as extensions of the highway system, design and construction standards used for trail building have been based, to some extent, on traditional highway characteristics and objectives. Although these standards are important for safety reasons, it has been recognized that specific performance characteristics of bicycles and the bicyclist are more appropriate for the design of safe and adequate trail facilities. Designing for these performance characteristics is achieved by using the distinguishing features of the so called "design bicyclist" as the basis for construction standards.

TABLE 1

CORRIDOR IDENTIFICATION/PRELIMINARY SCORE/TIME LINE

Segment	From*	To*	Estimated Length (mi)	Score**	Comment	Time Line+
A	GAME FARM RD	NYS ROUTE 13	3.3	43		I
B/C	NYS ROUTE 13	ETNA LANE	2.0	36		II
	ETNA LANE	FREEVILLE	2.5	38		II
D	FREEVILLE	DRYDEN LAKE TRAIL	2.8	44		I
E	Dryden Lake	Harford	3.7	34	Committed to Willow Crossing	II
F/G	CAYUGA INLET	STONE QUARRY RD	1.8	46	NYS owns R/W	I
	STONE QUARRY RD	S. HILL REC WAY	1.1	35	Emerson owns R/W	I
H***	Emerson Power Transmission Corp	Coddington Road/ Hudson Street	0.6	34	All on-street	I
J	Hudson Street	E. Hill Rec. Way	1.5	37	Most on-street	II
K	NYS Route 96 (Trumansburg)	Black Diamond Trail	0.5	30	All on-street	II
L	Libertyville Trail	Atwater Road	0.7	41		II
M_1	Atwater Road	Warren via Cherry	3.4	30	Much on-street	III
M_2	Atwater Road	Warren via Hillcrest	2.2	35	Much on-street	III
N	Freeville	McLean	3.7	32		III
P	Freeville	Groton	4.9	38		III
Q	ESTY POINT	STEWART PARK	2.1	31		II
R	SNYDER HILL ROAD	NYS ROUTE 79/ BURNS RD/ S. HILL REC WAY	2.2	38	Much on-street	I

* Segments in UPPERCASE selected by Steering Committee for more detailed analysis.

** Numbers are derived by applying each of the eleven criteria described on the preceding pages to a particular trail segment. On the basis of knowledge of the area and other available information, a score of 1,2,3,4 or 5 was subjectively assigned by the Consultant Team for each criterion as it applied to a given trail segment. The total score for the trail segment is the figure presented in this column.

*** Not to be considered unless Segment G is infeasible.

\+
- I Acquire rights-of-way and develop within 5 years (See **Section 5.0**)
- II Acquire rights-of-way and develop within 5 to 15 years
- III Review and take action after 15 years

In the 1995 AASHTO (*draft*) Guide for the Development of Bicycle Facilities, three categories of design bicyclist have been described. Each category has its own capabilities, limitations and needs which are used to determine design and construction standards. AASHTO design bicyclist categories are:

Group A - Advanced Bicyclists (Experienced): Group A bicyclists fall into two categories; commuting/utility and touring. Group A bicyclists usually prefer the following conditions:

- Direct access to destinations (usually via existing street and highway system)
- The opportunity to operate at maximum speed with minimum delays.
- Sufficient operating space on the roadway or shoulder to eliminate the need for the bicyclist or the motor vehicle operator to shift position when passing.

Group B - Basic Bicyclists (casual, novice, occasional, recreational): Group B bicyclists usually prefer the following conditions:

- Comfortable access to destinations but not necessarily by the most direct route; this might be either a low-volume street or a designated bicycle facility.
- Well defined separation of bicycles and motor vehicles when major or collector streets are used.

Group C - Children (pre-teen): Group C bicyclists and their parents usually prefer the following conditions:

- Access to key destinations surrounding residential areas such as schools, recreation facilities, shopping and other residential areas.
- Well defined separation of bicycles and motor vehicles
- Residential areas with low motor vehicle speed limits and good sight distances.

For the purposes of this study, the design bicyclist Groups B and C have been selected and combined with other proposed trail uses to form the *"design user"*. In establishing a trail system, the following design considerations have been used:

- Key trail corridors should have separate bike facilities wherever possible to provide safe routes for bicyclists and pedestrians, thereby encouraging alternative modes of transportation.
- Due to the existing dense urban/sub-urban infrastructure throughout much of the study area, many gaps within the system have been closed by utilizing the existing streets and highways. The streets and highways that are identified for connections within the system should be either rural roads with usable roadway shoulders or residential neighborhood streets with low speed limits and good sight distance.
- Trail uses should include pedestrians and bicycles, with occasional use by horses, and in winter, cross-country skiing. It should be noted that pedestrian use of all the facilities is not only anticipated, but to be encouraged.

Standards

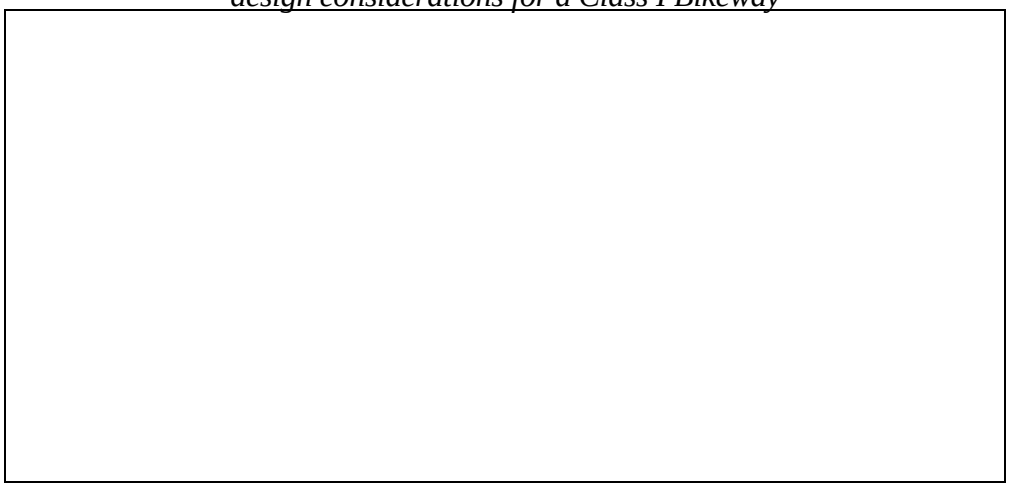
The AASHTO guidelines serve as the basis for design standards for the construction of trails and bicycle facilities for the Tompkins County Trails/ Corridor Study. However, due to topographical and environmental limitations, and the desire to be consistent with existing trail facilities, some modifications of AASHTO standards are appropriate.

Class I Bikeway (Bike Path)

The figure below illustrates a typical trails cross-section for a Class I Bikeway (a bike path) and identifies terms used in **TABLE 2**. Recommended design standards for a Class I Bikeway are included in **TABLE 2** below.

TYPICAL SECTION

The following illustration shows the design considerations for a Class I Bikeway



Using **TABLE 2** as a generalized point of reference, a more detailed specification for construction of a Class I Bikeway is recommended below.

Surface Conditions

The smoothness of the riding surface affects the comfort and speed of cyclists. In Tompkins County, trail surface conditions will depend upon the location of the trail. For urban trails, which anticipate a high level of use, a paved surface of bituminous concrete (asphalt) or an oil and stone surface (as currently in use along the East Hill Recreation Way) is recommended. For rural trails, where a lower level of use and more demand for winter cross country skiing as well as occasional use by horses can be anticipated, a stabilized surface of gravel and grass is recommended.

TABLE 2

RECOMMENDED DESIGN STANDARD AND FUNCTION TABLE (Class I Bikeway)

USE	SURFACE WIDTH	SURFACE TREATMENT	CLEARING WIDTH	SELECTIVE THINNING	CLEARING HEIGHT	CARRYING CAPACITY
Hiking only	3 - 5'	native	6 - 10'	10 - 20'	8'	low
Urban Pedestrian	4 - 8'	paved	10 - 14'	20 - 24'	8'	high
Rural Pedestrian	4 - 8'	stabilized	10 - 14'	20 - 24'	8'	moderate
Urban Bicycle	10'	paved	14'	28'	10'	high
Rural Bicycle	8 - 10'	stabilized	14'	28'	10'	moderate
Horses	6' 10'	native stabilized	12'	22'	12'	low moderate
X-Country Skiing	8'	native stabilized	12'	22'	8'	low moderate
Snowmobiles	12'	native stabilized	20'	30'	10'	moderate high
Multi-use (non-motorized)	10' 14'	paved	18 - 20'	28 - 30'	10'	low moderate
In-Line Skating	10'	paved	18'	28'	10'	moderate
Skateboarding	10'	paved	18'	28'	10'	moderate
Emergency Access	10 - 12'	paved	18'	28'	12'	low

Surface Width and Clearing Width

It is recommended that trails be designed for a standard clearing width of 14' consisting of a 10' wide surface width and 2' wide grassed shoulders. However, as has been done with existing trail segments in Tompkins County, many of the proposed trails will be built upon existing 12' wide railroad beds with severe limitations for additional widening due to topography or wetland restrictions. In such cases, these trails may have a clearing width of 12' with an 8' wide surface.

Side Slopes

It is recommended that side slopes be maintained at 1:4 or less wherever possible. Slopes that must be between 1:4 and 1:3 should have shrubs and landscaping to provide slope stabilization and a sense of security for the bicyclist. In very steep conditions, where the drop is 6' or more and the grades are 1:2 or greater, a barrier consisting of a 4 1/2' fence and landscaping should be installed to provide slope stabilization and protection from steep embankments. In all cases, a minimum 2' wide graded area should be maintained to provide clearance from lateral obstructions including trees, poles, fences and guide rails.

Design Speed

A cyclist is most comfortable traveling at speeds between 12 and 15 mph (16 to 20 km/h); slower speeds reduce the stability of the bicycle and increase mental stress. For paved trails, a maximum design speed of 25 mph (40 km/h) should be used wherever possible. For downgrades over 4 percent, the design speed can increase to 30 mph (50 km/h). For unpaved trails, the maximum design speed should be 20 mph (30 km/h) wherever possible. It is recognized that due to topographical and environmental conditions these standards may require some modification to permit a somewhat higher maximum speed.

Horizontal Alignment and Superelevation

The safe curvature of a trail is based upon the relationship between speed, superelevation of the trail surface, and the coefficient of friction between the tire and trail surface. Formulas and standards included in AASHTO publications will serve as guidelines for horizontal alignment and superelevation of the trails. For a design speed of 20-30 mph the minimum radii of curvature of the trail alignment should be between 95-155', using the larger radii in downgrades. It should be noted that because bicycles have a tendency to skid on unpaved surfaces, horizontal curvature design should be increased on rural trails to take into account lower coefficients of friction.

Grade

Trail segments that are proposed to be built on old railroad corridors will generally maintain a grade of less than 2 percent, perfect for bicycle trails. However, in some areas the topography in Tompkins County can be a major

obstacle in the effort to keep trails under 5 percent, and increased grades need to provide for a higher design speed. However, it is desirable to develop trails that conform to accessibility requirements of the 1991 Americans with Disabilities Act (ADA) wherever possible, and universal design symbols should be used to inform users about outdoor site conditions related to accessibility and grade.

Signs and Markings

Adequate signs and markings should be provided on trails to reduce potential conflicts. The Federal Highway Administration Manual on Uniform Traffic Control Devices (MUTCD) is the authority on design and placement of signs and should be used to provide general guidance for signage and markings. Considerable discretion can and should be exercised on when and how signs are used, with the objective being a balance between aesthetics and safety. For trails near highways it should be noted that motorists can confuse nearby trail signs with roadway signs. Universal design symbols should be used at trailheads and major access points to inform users to outdoor site conditions related to accessibility.

Structures

Structures necessary for trail continuity may include an overpass, underpass, small bridges, culverts, retaining walls and embankment stabilization. Guidelines for these structures are included in AASHTO publications. In some instances, existing structures on proposed trails, such as the old railroad bridges on the existing Dryden Lake Trail, may be suitable for retrofitting. Compatibility with existing facilities is recommended as an appropriate objective.

Class II Bikeway (Bike Lane) and Class III Bikeway (Bike Route)

Guidelines included in AASHTO publications also serve as the basis for design standards for construction of bike lanes and bike routes (See Glossary in Foreword).

Gaps between independent segments of the trail system can often be closed by using the existing roadway and street system. This method of providing continuity can be less suitable for pedestrians and joggers than for bicycles, depending on the volume and speed of vehicular traffic that is encountered. A paved shoulder at least 4' wide is necessary to provide an acceptable bike lane. Such shoulders should be paved to a grass, rather than a gravel, edge. It has been shown that gravel tends to spread onto the paved surface of the shoulder, reducing the safe travel way for bicyclists.

On designated bike lanes there is always the potential conflict between bicyclists and adjacent property owners who want to park their vehicles on the shoulder. This problem is as great on rural highways as it is on urban streets. In some cases, where satisfactory alternatives are available, shoulder parking can be restricted. Where restrictions are not feasible and roadside parking must be permitted, an additional 7' of hard surface shoulder is needed to allow for vehicular parking off the bicycle travel way.

On bike routes, it is expected that bicyclists will share the road surface with other vehicles. No special design provisions are required on low-volume roads but signs are necessary to indicate a shared facility.

Signs and Markings

The Federal Highway Administration's Manual on Uniform Traffic Control Devices is the authority on design and placement of signs and should be used to provide general guidance for signs and markings. It is recommended that "Tompkins County Bikeway - Share the Road" signs be fabricated and installed along bike routes and bike lanes. These signs will serve the dual function of identifying the bikeway as part of a regional network and transmit the message to motorists that bicyclists have a right to use the roadway. Highway markings should avoid plastic striping materials that create a slippery surface that is especially dangerous for bicyclists when wet.

4.0 PRELIMINARY COMPONENTS

FIRST-LEVEL RESEARCH

From the seventeen (17) corridor segments that received initial evaluation, as described in the preceding section of this study, eight (8) have been selected by the Steering Committee for more detailed examination and for inclusion in the Preliminary Plan. These corridor segments are shown on **MAP 8**. In two cases, two segments have been combined to create one corridor, thereby reducing the number of corridors shown on the map to six.

Insofar as is practicable, given the limitation imposed by private property rights, each segment has been examined, existing conditions have been noted, needed improvements identified, construction standards applied and cost estimates made for improvements and general construction. For those segments where access without prior approval was not possible, information was obtained from available sources including air photos, topographic maps, tax maps and the knowledge of people who were familiar with the area.

The six trail corridors selected for inclusion in the plan are:

CORRIDOR NAME		CORRIDOR LOCATION	LENGTH (approx.)
A	Monkey Run	Game Farm Road to NYS Route 13	3.3 mi. (5.3 km.)
B/C	Fall Creek Valley	NYS Route 13 to Freeville Trail	4.5 mi. (7.3 km.)
D	Freeville-Dryden	Village of Freeville to Dryden Lake Trail	2.8 mi. (4.5 km.)
F/G/H	Buttermilk Falls	South Hill Recreation Way to Cayuga Inlet	2.9 mi. (4.5 km.)
Q	East Shore	NYS Route 34/Cayuga Heights Road to Stewart Park Entrance	2.4 mi. (3.9 km.)
R	Snyder Hill	Pine Tree/Snyder Hill Roads to South Hill Recreation Way	2.2 mi. (3.6 km.)

On the following pages, each of these corridors is examined in more detail. An overall corridor description is followed by a conceptual drawing showing a workable trail location which, in most cases, follows a former railroad right-of-way. A series of station points has been located at approximately 1,000' foot intervals along the illustrated route. These are intended as points of reference for the inventory and analysis tables following the drawing.

Each corridor's inventory and analysis is based on the best information that could be obtained or provided for this project. The inventory describes observed or expected conditions at, and between, station points. For example, the analysis suggests a surface treatment that would be appropriate in a particular location and the length of trail to receive such treatment. It describes special conditions that have been noted and the

measures needed to address those conditions. Finally, an estimate of the cost of the proposed improvement has been made.

It should be noted that cost estimates used in the inventory and improvement analysis do not include the cost of any land that might have to be acquired. At this juncture, trail locations are still conceptual and subject to change. Since land costs can vary widely from location to location, and choices other than purchase are often available, no attempt has been made at this time to include land cost in any specific way.

insert MAP 8 - page 4.3

CORRIDOR DESCRIPTIONS

A Monkey Run Corridor (Game Farm Road to NYS Route 13)

The Monkey Run corridor is a discrete section of a trail that would establish a solid connection between a growing employment center along Routes 13 and 366 in the Town of Dryden and the eastern part of the Ithaca Urban Area. This section would use the former right-of-way of the Lehigh Valley Railroad for most of its 3.3 mile length. The route crosses Cascadilla Creek in two locations east of Game Farm Road then runs south of the Hamlet of Varna. It would be possible to make connections to the large mobile home park and proposed housing development in the hamlet.

Just east of Varna, there is a former railroad bridge over Route 366. The steel structure and abutments of this overpass are still in place and, absent a structural analysis, appear to be in relatively good condition. At worst, this important overpass would have to be replaced by a prefabricated trail bridge. To provide a realistic ("high-end") estimate of cost for this corridor, the bridge replacement scenario has been included in the analysis.

One obvious difficulty to be overcome is the crossing of Route 13 at the Route 366 intersection. To address this problem, it is proposed that the trail be constructed on the surplus highway right-of-way on the south side of Route 13 (approximately 15+600 on the map). The crossing of Route 13 would be controlled by a traffic signal. Using Hall Road, the trail would wrap around the Wilcox Press building and end at that point.

The provision of ample parking near the Route 13/366 intersection should be considered. This would enable cyclists to drive to the trailhead and cycle from there into the urban area.

There are over 35 separate parcels of land along this corridor; 5 are owned by Cornell and one by the State of New York. Together the NYS/Cornell-owned land accounts for approximately 80 percent of the total corridor length. Railroad right-of-way for the rest of the corridor is owned by adjacent private land owners.

TABLE 3

MONKEY RUN CORRIDOR

Recommended Treatment: 8' wide crushed gravel fines trail on existing railroad grade; approximately 3.3 miles in length.

STATION	CONDITION	TREATMENT	LINEAR FEET	ESTIMATED COST
GENERAL CONDITIONS INVENTORY				
0+000 to 1+800	Existing RR bed extremely overgrown	gravel fines & grass	1800' @ $10/lf	$ 18,000
1+800 to 5+350	Existing gravel roads for Cornell farms	no work	3550'	
5+350 to 6+000	Existing RR bed with trail; light clearing	gravel fines & grass	650' @ $10/lf	$ 6,500
6+000 to 6+400	Existing gravel roadway	no work	400'	
6+400 to 9+800	Existing RR bed with trail; light clearing	gravel fines & grass	3400' @ $10/lf	$ 34,000
9+800 to 9+830	Monkey Run Road	no work	30'	
9+830 to 14+200	Existing RR corridor; mowed	gravel fines & grass	4370' @ $10/lf	$ 43,700
14+200 to 15+600	Separated trail within NYS Rt. 13 r/w; no RR bed	gravel fines & grass	1400' @ $15/lf	$ 21,000
			General Conditions Inventory Subtotal	$123,200
SPECIAL CONDITIONS INVENTORY				
0+300	Bridge repairs	misc	lump sum	$ 2,000
0+900	Bridge replacement, existing abutments	pre-fab	lump sum	$ 12,000
5+850 to 6+000	Blockade of fill & debris	clear & grub	lump sum	$ 2,000
7+000 to 7+400	Steep sideslopes	fencing & landscaping	400' @ $10/lf	$ 4,000
7+950 to 8+000	RR bridge over NYS Rt. 366, existing abutments	repair or pre-fab	lump sum	$100,000
8+400 to 8+500	Embankment washout	sheet-piling reinforcement & fill	100' @ $65/lf	$ 6,500

TABLE 3

MONKEY RUN CORRIDOR

Recommended Treatment: 8' wide crushed gravel fines trail on existing railroad grade; approximately 3.3 miles in length.

STATION	CONDITION	TREATMENT	LINEAR FEET	ESTIMATED COST
15+600 to 15+800	Connection between Monkey Run and Fall Creek Valley Corridors: Crossing NYS Rt. 13 and 366	sign & stripe	lump sum	$ 1,000
15+600 to 17+800	Connection between Monkey Run and Fall Creek Valley Corridors: Existing roadways	sign & stripe	lump sum	$ 1,000
			Special Conditions Inventory Subtotal	$128,500
			PROJECT TOTAL	**$251,700**

NOTES:

insert MONKEY RUN MAP - PAGE 4.9

B/C Fall Creek Valley Corridor (NYS Route 13 to Freeville Trail)

This corridor is a middle segment of a potential connection between the Ithaca Urban Area and population centers in the Town of Dryden. It covers the 4.5 mile stretch between the Monkey Run and Freeville-Dryden corridors and ties the Hamlet of Etna into the system. The western trailhead begins at the north end of Hall Road near the Route 13/366 intersection; the eastern terminus is the Freeville Trail at Johnson Road in the Village of Freeville.

Most of this corridor passes through farm land in the Fall Creek Valley. Aerial photographs and observation from adjacent roadways indicate that, for most of this corridor, the right-of-way is clearly defined and only moderately overgrown. There are several drainage tributaries of Fall Creek and Virgil Creek that must be crossed. Most of these crossings are probably culverts but several appear to involve small bridges.

Tax maps show that there are 15 property owners between Hall Road and the Freeville municipal boundary. These include two large lots, one of which is owned by NYSEG and the other, in Etna, by the Finger Lakes Land Trust. About half the adjacent land owners have residential lots; the rest of the privately owned land consists of large parcels that are vacant open space or used for farming. Approximately 15 percent of the corridor is located in the Village of Freeville. This segment is referred to as the Freeville Trail but it has not been improved west of Johnson Road.

TABLE 4

FALL CREEK VALLEY CORRIDOR

Recommended Treatment: 10' wide crushed gravel fines (where required) and grass trail on existing railroad grade; approximately 4.5 miles in length.

STATION	CONDITION	TREATMENT	LINEAR FEET	ESTIMATED COST
GENERAL CONDITIONS INVENTORY				
17+800 to 19+250	Abandoned RR bed; lightly overgrown	gravel fines & grass	1450' @ $10/lf	$ 14,500
19+250 to 21+500	Abandoned RR bed; open & clear corridor	gravel fines & grass	2250' @ $10/lf	$ 22,500
21+500 to 22+200	Abandoned RR bed; moderately overgrown	gravel fines & grass	700' @ $10/lf	$ 7,000
22+200 to 24+000	Abandoned RR bed; clear corridor	gravel fines & grass	2500' @ $10/lf	$ 25,000
24+000 to 25+100	Abandoned RR bed; moderately overgrown	gravel fines & grass	1100' @ $10/lf	$ 11,000
25+100 to 25+500	Abandoned RR bed; densely overgrown	gravel fines & grass	400' @ $10/lf	$ 4,000

TABLE 4

FALL CREEK VALLEY CORRIDOR

Recommended Treatment: 10' wide crushed gravel fines (where required) and grass trail on existing railroad grade; approximately 4.5 miles in length.

STATION	CONDITION	TREATMENT	LINEAR FEET	ESTIMATED COST
25+500 to 27+250	Abandoned RR bed; lightly overgrown	gravel fines & grass	1750' @ $10/lf	$ 17,500
27+250 to 28+600	Abandoned RR bed; heavily overgrown	gravel fines & grass	1350' @ $10/lf	$ 13,500
28+600 to 29+600	Abandoned RR bed; moderately overgrown	gravel fines & grass	1000' @ $10/lf	$ 10,000
29+600 to 30+000	Abandoned RR bed; open grass trail	gravel fines & grass	400' @ $10/lf	$ 4,000
30+000 to 35+500	Existing farm roadway	no work	5500'	
35+500 to 36+600	Abandoned RR bed; heavily overgrown	gravel fines & grass	1100' @ $10/lf	$ 11,000
36+600 to 38+700	Abandoned RR bed; light to moderately overgrown	gravel fines & grass	2100' @ $10/lf	$ 21,000
38+700 to 40+950	Grass path; existing trail	no work	2250'	
40+950 to 41+500	Abandoned RR bed; heavily overgrown	oil & stone trail	550' @ $15/lf	$ 8,250
			General Conditions Inventory Subtotal	$169,250
SPECIAL CONDITIONS INVENTORY				
19+250	Pinckney Lane ped crossing	sign & stripe	lump sum	$ 250
20+780	Embankment washout	sheet-piling & fill	50' @ $65/lf	$ 3,250
20+800	Bridge & culvert washout	80' bridge & abutments	lump sum	$150,000
21+100	Bridge replacement	pre-fab	lump sum	$ 12,000
24+600	Bridge replacement	pre-fab	lump sum	$ 12,000
25+100 to 27+250	Rails & ties	remove & sell	2150'	-$ 2,150
24+850	Culvert washout	repair & replace	lump sum	$ 3,000
25+100	NYS Rt. 366 ped	sign & stripe	lump sum	$ 500

TABLE 4

FALL CREEK VALLEY CORRIDOR

Recommended Treatment: 10' wide crushed gravel fines (where required) and grass trail on existing railroad grade; approximately 4.5 miles in length.

STATION	CONDITION	TREATMENT	LINEAR FEET	ESTIMATED COST
	crossing			
25+500	Bridge replacement	pre-fab	lump sum	$ 12,000
25+600	Embankment washout	sheet-piling & fill	20' @ $65/lf	$ 2,000
27+250	Etna Lane ped crossing	sign & stripe	lump sum	$ 250
27+300	Culvert washout	repair & replace	lump sum	$ 5,000
30+000	Kirk Rd ped crossing	sign & stripe	lump sum	$ 250
33+500	Footbridge reinforcement & railings	repair & replace	lump sum	$ 5,000
36+350	Large culvert washout	repair & replace	lump sum	$ 20,000
38+550	Repair existing RR bridge; add railings	repair	lump sum	$ 30,000
38+700	Johnson Rd ped crossing	sign & stripe	lump sum	$ 250
40+950	Union St ped crossing	sign & stripe	lump sum	$ 250
41+500 to 41+800	Connection between Fall Creek Valley and Freeville-Dryden Corridors: NYS Rt 38 r/w; no RR bed	asphalt	300' @ $25/lf	$ 7,500
			Special Conditions Inventory Subtotal	$259,350
			PROJECT TOTAL	**$428,600**

INSERT FALL CREEK CORRIDOR MAP(a) - PAGE 4.15

INSERT FALL CREEK CORRIDOR MAP(b) - PAGE 4.17

D Freeville-Dryden Corridor (Village of Freeville to Dryden Lake Trail)

This corridor presents an opportunity to join two village population concentrations, with possible side connections to the Dryden school complex. It would also provide a connecting link between two existing and active trail segments: Freeville Trail in the Village of Freeville and Dryden Lake Trail in the Village and Town of Dryden.

The Freeville-Dryden trail would be located entirely on the right-of-way of the Lehigh Valley Railroad that formerly ran north-south through the Town of Dryden. For much of its length, the right-of-way runs through flat farm land in the Virgil Creek Valley. In Dryden Village, the right-of-way is owned by the Village; land along the rest of the corridor belongs to adjacent owners.

When completed, this corridor would permit bicycle and pedestrian travel from the Village of Freeville to the recreation facility at Dryden Lake. Future extensions by the Town would push the trail beyond Dryden Lake into the Town of Harford. Access to the Dryden High School site from the proposed trail would logically be provided along Springhouse Road and Route 38, a distance of about a quarter of a mile. This part of the route would most likely become a bike lane (see definitions) where pedestrians, bicycles and motorized vehicles would share the road. Provision would have to be made for pedestrian crossings on West Main Street and, if the school connection is made, on Route 38 as well.

TABLE 5

FREEVILLE-DRYDEN CORRIDOR

Recommended Treatment: 10' wide crushed gravel fines (where required) and grass trail on existing railroad grade; approximately 2.8 miles in length; the corridor is in generally good condition with minimal work required to complete the trail from Freeville to Dryden.

STATION	CONDITION	TREATMENT	LINEAR FEET	ESTIMATED COST
GENERAL CONDITIONS INVENTORY				
0+00 to 2+500	Existing RR bed used as access road (good condition); sewer lines	gravel & grass (where needed)	2500' @ $5/lf (partial treatment)	$ 12,500
2+500 to 11+500	RR corridor in varying levels of clearing; sewer lines	gravel & grass (where needed)	9000' @ $5/lf (partial treatment)	$ 45,000
11+500 to 15+00	25' mowed & maintained corridor	maintain as is; no work needed	3500'	
			General Conditions Inventory Subtotal	$ 57,500

SPECIAL CONDITIONS INVENTORY				
2+500 to 11+500	Varying levels of clearing	clearing	9000' @ $2/lf (partial treatment)	$ 18,000
3+150 to 3+800	Fenced area for horse paddocks	replace fences and gates	lump sum	$ 5,000
5+700	Gates	replace fences and gates	lump sum	$ 500
7+000	Gates	replace fences and gates	lump sum	$ 500
7+350 to 7+450	RR underpass of roadway has been filled	excavate below road; reinforce	lump sum	$ 10,000
8+500	Embankment washout	sheet-piling reinforcement & fill	100' @ $65/lf	$ 6,500
11+250	Bridge washout (existing abutments remain)	repair or pre-fab	lump sum	$ 14,000
13+750 to 13+850	Low area needs fill & drainage	culvert & fill (4')	lump sum	$ 5,000
15+000	NYS Rt 13 highway crossing	sign & stripe	lump sum	$ 500
			Special Conditions Inventory Subtotal	$ 60,000
			PROJECT TOTAL	**$117,500**

INSERT FREEVILLE-DRYDEN CORRIDOR MAP - PAGE 4.21

F/G/H Buttermilk Falls Corridor (South Hill Recreation Way to Cayuga Inlet)

A connection between the end of the South Hill Recreation Way at Renzetti Place and the Inlet Valley would be accomplished by using the Buttermilk Trail corridor. This would enable pedestrian and bicycle movement between the population concentrations on South Hill and destinations such as Buttermilk Falls State Park and Elmira Road. At some future time, the Buttermilk Trail could also link up with the State's Black Diamond Trail along the West Hill escarpment.

Approximately 60 percent of the right-of-way for this corridor is currently publicly owned, including 1.2 miles of former railroad right-of-way purchased by the State of New York in anticipation of trail construction. Privately owned land belongs primarily to a single owner.

Despite the relatively large amount of right-of-way already in public ownership, there are several obstructions to development of this corridor. The South Hill Recreation Way ends at Hudson Street in the vicinity of Hillview Place, a cross street between Hudson and South Aurora Streets. Hillview is narrow but could become a marked on-street bike route. The traffic signal at Hillview and South Aurora would facilitate crossing at this point.

Between South Aurora Street and Stone Quarry Road, the railroad right-of-way is privately owned and, between South Aurora Street and Turner Place, developed. Trail passage through this developed area appears to be physically possible but would require substantial cooperation by the land owner. Stone Quarry Road poses another design problem area due to the existence of a short but very steep section of road with sight distance limitations that could be dangerous. Because of increasing traffic on Stone Quarry, correction of the road grade will probably occur whether or not a trail crossing occurs at this point.

Crossing Elmira Road at the bottom of the Buttermilk Trail would, ideally, take place on a bridge overpass. New abutments have been constructed as part of a road improvement project but the absence of an overpass remains a gap in this corridor. On the west side of Elmira Road, the trail follows the big loop of the former railroad right-of-way to the Inlet. From this point, a new bridge across the Inlet and a trail paralleling the active CONRAIL® line (such as has been proposed as part of the Black Diamond Trail project) would be a possibility. An alternative, and possibly better, connection would require building a segment of trail between the railroad loop and the flood control levee. This would pass Negundo Woods, ascend the levee and use the existing levee road to the fish ladder and a future connection with the Black Diamond Trail.

TABLE 6

BUTTERMILK FALLS CORRIDOR

Recommended Treatment: 8' wide oil & stone trail on existing railroad grade and levee; approximately 2.8 miles in length.

STATION	CONDITION	TREATMENT	LINEAR FEET	ESTIMATED COST
GENERAL CONDITIONS INVENTORY				
0+900 to 5+850	Existing RR bed (with ties); overgrown	oil & stone trail	4950' @ $15/lf	$ 74,250
0+850 to 6+000	Stone Quarry Road	realign roadway	150'	*Not Available*
6+000 to 9+500	Existing RR bed (with ties & rails); overgrown	oil & stone trail	3500' @ $15/lf	$ 52,500
9+500 to 9+600	Roadway	sign & stripe	lump sum	$ 500
9+600 to 9+800	Grassy area	oil & stone trail	200' @ $15/lf	$ 3,000
9+800 to 10+700	Existing RR bed (with ties & rails); overgrown	oil & stone trail	900' @ $15/lf	$ 13,500
10+700 to 15+000	Existing RR bed and levee road	oil & stone trail	4300' @ $15/lf	$ 64,500
			General Conditions Inventory Subtotal	$208,250
SPECIAL CONDITIONS INVENTORY				
0+000 to 0+100	Connection between South Hill Rec Way and Buttermilk Falls Trail: Hudson Street Intersection	crosswalk, sign & stripe	lump sum	$ 1,000
0+100 to 0+800	Connection between South Hill Rec Way and Buttermilk Falls Trail: Hillview Place Intersection	sign & stripe	lump sum	$ 500
0+800	Connection between South Hill Rec Way and Buttermilk Falls Trail: Existing pedestrian-activated traffic signal	no work		
0+800 to 0+900	Connection between	widen to 8'	100' @ $30/lf	$ 3,000

TABLE 6

BUTTERMILK FALLS CORRIDOR

Recommended Treatment: 8' wide oil & stone trail on existing railroad grade and levee; approximately 2.8 miles in length.

STATION	CONDITION	TREATMENT	LINEAR FEET	ESTIMATED COST
	South Hill Rec Way and Buttermilk Falls Trail: Existing concrete sidewalk on South Aurora Street			
3+500	Washout	sheet-piling & fill	50' @ $65/lf	$ 3,250
4+200	Washout	sheet-piling & fill	50' @ $65/lf	$ 3,250
4+300	Stream culvert washout	repair & fill	lump sum	$ 5,000
6+000 to 7+000	Rails & ties	remove & sell	1000'	-$ 1,000
7+500 to 8+000	Gorge with steep side slopes (both sides)	fence & shrub	500' @ $20/lf	$ 1,000
8+200 to 8+500	Steep side slope (one side)	fence & shrub	300' @ $10/lf	$ 3,000
8+700	Washout	sheet-piling & fill	50' @ $65/lf	$ 3,250
8+900 to 9+400	Steep side slope (one side)	fence & shrub	500' @ $10/lf	$ 5,000
7+200 to 9+000	Rails & ties	remove & sell	1800'	-$ 1,800
10+700 to 10+760	Bridge crossing over Elmira Road/NYS Rt 13/96; use existing abutments	wooden bridge	lump sum	$120,000
			Special Conditions Inventory Subtotal	$140,950
			PROJECT TOTAL	**$349,200**

NOTES:

INSERT BUTTERMILK FALLS CORRIDOR MAP - PAGE 4.27

Q East Shore Corridor (NYS Route 34/Cayuga Heights Road to Stewart Park Entrance)

The Ithaca/Lansing Short Line railroad right-of-way forms the basis for this corridor. From the vicinity of Stewart Park, this route ascended the steep East Shore escarpment and continued northward into the Town of Lansing. The East Shore trail corridor would make use of the abandoned right-of-way to the extent feasible and would terminate near the intersection of Route 43 and Cayuga Heights Road.

When approving land subdivisions in this area, the Village of Lansing Planning Board has already required that the railroad right-of-way be reserved for recreation purposes. This policy has resulted in the preservation of a section of this trail at the upper end of this corridor.

While the East Shore corridor would make a useful connection between trail and greenway facilities in the City and the developing Lansing area, there are several obstacles to the near-term establishment of a trail in this location:

- Opportunities to link the northern end of the corridor into development activity in the Village and Town of Lansing are not clear at this point.
- Several drainage ways dropping to the lake have carved gorges that are deep and wide, one of which is no longer spanned by the old railroad bridge.
- There appears to be no good way to connect the upper part of this corridor with Stewart Park.

Nonetheless, this trail deserves consideration because it could provide a good long-range transportation alternative for parts of the Lansing communities and it would be an attractive bicycle and pedestrian recreation facility for the surrounding area.

There are over 35 adjacent property owners along the East Shore corridor. The Cayuga Heights Sewage Treatment Plant and the Route 13 right-of-way occupy approximately 15 percent of the southern end. There are several large private owners in the Town of Ithaca; properties in the Village and Town of Lansing are residential lots.

The corridor approximately parallels East Shore Drive from Cayuga Heights Road to the Ithaca town line. A hiking trail on the old Short Line grade is already established for almost half of this distance but ends at a wide unbridged gorge at Twin Glens. South of Twin Glens, other gorge crossings appear to be intact but their condition is not known. The trail could continue to the Cayuga Heights Sewage Treatment Plant. From that point, a bike route could be established along approximately a half-mile of East Shore Drive to Stewart Park although the route is narrow and traffic is fast. Alternatively, a route could stay on the hillside and run along the western edge of the Route 13 right-of-way.

TABLE 7

EAST SHORE CORRIDOR

Recommended Treatment: 8' wide crushed gravel fines trail primarily on existing railroad grade; approximately 2.1 miles in length.

STATION	CONDITION	TREATMENT	LINEAR FEET	ESTIMATED COST
GENERAL CONDITIONS INVENTORY				
0+000 to 1+200	No existing RR corridor; level surface with little overgrowth	oil & stone trail	1200' @ $20/lf	$ 24,000
1+200 to 7+300	Old RR corridor; some in use as sewer/power ROW	gravel fines & grass	6100' @ $10/lf	$ 61,000
7+300 to 12+400	Old RR corridor; with existing hiking trail	gravel fines & grass	5100' @ $10/lf	$ 51,000
			General Conditions Inventory Subtotal	$136,000
SPECIAL CONDITIONS INVENTORY				
0+900 (or A 0+800)	Pedestrian crossing of NYS Rt 34	sign & stripe	lump sum	$ 1,000
4+900	Anticipated bridge repair or embankment washout	unknown		*not available*
5+600	Anticipated bridge repair or embankment washout	unknown		*not available*
7+300	Bridge across gorge (≈100'); use existing abutments	pre-fab	lump sum	$160,000
7+450	Embankment washout	sheet-piling & fill	100' @ $65/lf	$ 6,500

8+750	Embankment washout	sheet-piling & fill	100' @ $65/lf	$ 6,500
			Special Conditions Inventory Subtotal	$174,000*
			PROJECT TOTAL	**$310,000***

* Does not include unknown costs for bridge & embankment washout.

TABLE 8

ROUTE 34 ON-ROAD ALTERNATIVE

This provides an on-road, "add-on" alternative to the southern end of the proposed East Shore Trail; approximately 0.45 miles in length.

STATION	CONDITION	TREATMENT	LINEAR FEET	ESTIMATED COST
A 0+000 to A 0+800	Existing park access road; shared roadway treatment	sign & stripe	lump sum	$ 800
A 0+800 to A 2+050	NYS Rt 34; 4' bike lanes & 11' travel lanes	gravel, pave, sign & stripe	1250' @ $10/lf	$ 12,500
A 2+050 to A 2+400	No existing RR corridor; surface is hilly with moderate overgrowth	oil & stone trail	350' @ $20/lf	$ 7,000
			PROJECT TOTAL	**$ 20,300**

NOTES:

INSERT EAST SHORE CORRIDOR MAP - PAGE 4.33

R Snyder Hill Corridor (Pine Tree/Snyder Hill Roads to South Hill Recreation Way)

Construction of a trail in the Snyder Hill corridor could provide a connection between two existing trails in the Town of Ithaca: the East Ithaca and the South Hill Recreation Ways. As shown on the conceptual design, the Snyder Hill corridor involves a relatively short section of new trail and use of existing roads and highways to traverse Six Mile Creek Valley.

At its north end, the new trail would begin near the southern terminus of the East Ithaca Recreation Way. A new facility would be located behind the houses fronting on Honness Lane and run from the recreation way to Pine Tree Road. Alternative routes can be considered to access the open fields east of Pine Tree Road where, at present, small signs welcome those who want to walk in this area. It is apparent that a considerable amount of recreation activity already occurs in these fields.

Since there is no pre-existing railroad right-of-way in this part of the corridor, a trail location would have to be established. A possible route running from Snyder Hill Road to an existing town park -- Tudor Park, located at the end of Tudor Road -- is shown on the conceptual design sketch. From this point, the trail would make use of existing roads -- Park Lane, Route 79 and Burns Road -- to complete the connection with the southern terminus of the South Hill Recreation Way.

Earlier this century, a railroad line was located on the east side of Route 79. Like most other lines in the County, this has been abandoned; unlike other lines, there are few vestiges of the right-of-way in this neighborhood and the former route alignment does not appear on tax maps for the Town of Ithaca. For this reason, and because of steep topography and existing development in this area, it appears that existing roads could provide the best opportunity for a workable route between Tudor Park and the eastern end of Burns Road. While Burns Road is steep and narrow, traffic volumes are not high at most times and the road could be considered as the connection to the South Hill Recreation Way.

A full range of municipal services are available to this part of the Ithaca Urban Area and considerable residential subdivision has occurred in both the Town of Ithaca and Dryden. Even so, the number of land owners along the Snyder Hill corridor is less than 6 and one of these is Cornell. While it may be that additional residential subdivision is not contemplated, this area is extremely attractive and trail opportunities could easily be preempted in the future.

TABLE 9

SNYDER HILL CORRIDOR
Recommended Treatment: 8' wide crushed gravel fines trail; approximately 0.8 miles in length.

STATION	CONDITION	TREATMENT	LINEAR FEET	ESTIMATED COST
GENERAL CONDITIONS INVENTORY				
0+000 to 1+350	Located in Taylor park; no trail	oil & stone trail	350' @ $20/lf	$ 7,000
1+350 to 3+800	Undeveloped land; no trail	oil & stone	2450' @ $20/lf	$ 49,000
3+800 to 3+900	Snyder Hill Road; shoulder & drainage	asphalt	100' @ $35/lf	$ 3,500
3+900 to 4+100	Private lot	gravel fines & grass	200' @ $15	$ 3,000
4+100 to 4+300	Adjacent Pine Tree Road; shoulder	asphalt	200' @ $25/lf	$ 5,000
			General Conditions Inventory Subtotal	$ 67,500
SPECIAL CONDITIONS INVENTORY				
0+350	Pedestrian bridge (≈25'); including abutments	pre-fab	lump sum	$ 32,500
2+000	Drainageway	culvert	lump sum	$ 3,000
3+050 to 3+300	Pond & residence	fence & landscape	lump sum	$ 5,000
4+300	Existing drop curbs	no work		
Connection between South Hill Rec Way and Snyder Hill: Burns Road (from South Hill Rec Way to NYS Rt 79)	10' travel lanes with 4' bike lanes	pave, sign & stripe	5280' @ $10/lf	$ 52,800
Connection between South Hill Rec Way and Snyder Hill: NYS Rt 79 (from Burns Road to Park Lane)	11' travel lanes with 4' bike lanes (wider where parking permitted)	pave, sign & stripe	1800' @ $10/lf	$ 18,000
Connection between South Hill Rec Way and Snyder Hill: Park	12' striped travel lanes, no gravel shoulders	pave, sign & stripe	1500' @ $10/lf	$ 15,000

TABLE 9

SNYDER HILL CORRIDOR

Recommended Treatment: 8' wide crushed gravel fines trail; approximately 0.8 miles in length.

STATION	CONDITION	TREATMENT	LINEAR FEET	ESTIMATED COST
Lane (from NYS Rt 79 to Taylor Park)				
			Special Conditions Inventory Subtotal	$126,300
			PROJECT TOTAL	**$193,800**

TABLE 10

SNYDER HILL ON-ROAD ALTERNATIVE

This provides an on-road, "add-on" alternative to the northern end of the proposed Snyder Hill Trail; approximately 0.07 miles in length.

STATION	CONDITION	TREATMENT	LINEAR FEET	ESTIMATED COST
A 3+800 to A 4+150	Snyder Hill Road	asphalt	350' @ $25/lf	$ 8,750
			PROJECT TOTAL	**$ 8,750**

NOTES:

INSERT SNYDER HILL CORRIDOR MAP - PAGE 4.39

COST/REVENUE ESTIMATES

Costs

The general trail inventories and analyses described in **Section 4.0** (above) includes a proposed treatment for various segments of the trail and an estimate of the cost of such treatment. Except for major specific construction items, such as bridge replacements, the cost estimates used are based on the actual construction costs for the *South Hill Recreation Way* in the Town of Ithaca. These costs are shown in **TABLE 12** below. Other costs used in this report are based on current data available for the Northeastern United States. The generalized cost estimates presented here do not include land acquisition costs.

Cost figures used by the Town of Ithaca should be reasonably applicable to trails that are currently committed and those that are constructed in the next year. It should be noted, however, that Town of Ithaca costs reflect the use of the Town's Highway, Parks and Planning Department staff for design, administration and construction. The use of private contractors can be expected to increase costs by 20 percent or more.

A summary of the estimated costs for implementing the six proposed corridors is presented in **TABLE 11** below. These figures represent generalized cost estimates for design and construction of these facilities and do not include land acquisition or maintenance activity costs.

TABLE 11

GENERALIZED COST ESTIMATE SUMMARY

CORRIDOR	GENERAL CONDITIONS	SPECIAL CONDITIONS	"GAP" CONNECTIONS	"ADD-ON" ALTERNATIVES	TOTAL COST
A - MONKEY RUN	$123,200	$126,500	$ 2,000		$251,700
B/C - FALL CREEK VALLEY	$169,250	$251,850	$ 7,500		$428,600
D - FREEVILLE-DRYDEN	$ 57,500	$ 60,000			$117,500
F/G/H - BUTTERMILK FALLS	$208,250	$136,450	$ 4,500		$349,200
Q - EAST SHORE	$136,000	$174,000*		$ 20,300	$330,300*
R - SNYDER HILL	$ 67,500	$ 40,500	$85,800	$ 8,750	$202,550
SYSTEM TOTAL	**$761,700**	**$789,300**	**$ 99,800**	**$ 29,050**	**$1,679,850**

* Does not include unknown costs for bridge & embankment washout.

TABLE 12

TRAIL COMPONENT CONSTRUCTION COST ESTIMATES

Item Cost Per Mile	Asphalt: 2" wearing course over 6" crushed stone base		Oil & Stone: 2 coats over 6" crushed stone base		Gravel & Grass: 6" crushed gravel fines seeded to grass	
	Native	RR Corridor	Native	RR Corridor	Native	RR Corridor
Clearing and Grubbing 20' corridor, trees, stumps, & roots removed, chipped & hauled away	$ 27,000	$ 20,000	$ 27,000	$ 20,000	$ 27,000	$ 20,000
Rough grade 8-10' trail, drainage swale uphill, 6" crushed gravel sub-base, fabric 30% trail	$ 15,000	NC	$ 15,000	NC	$ 15,000	NC
Culverts (18") every 500'	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000
Surface Treatment	$ 45,000	$ 45,000	$ 22,500	$ 22,500	$ 6,000	$ 6,000
Fine grading, site restoration, signs, amenities	$ 4,000	$ 4,000	$ 4,000	$ 4,000	$ 4,000	$ 4,000
Subtotal	**$101,000**	**$ 79,000**	**$ 78,500**	**$ 56,500**	**$62,000**	**$ 40,000**
Design & Administration	$ 12,000	$ 9,500	$ 9,500	$ 6,800	$ 7,500	$ 5,000
Contingency	$ 10,000	$ 8,000	$ 7,850	$ 5,650	$ 6,200	$ 4,000
TOTAL	**$123,000**	**$ 96,500**	**$ 95,850**	**$ 68,950**	**$ 75,700**	**$ 49,000**
Linear Cost Per Foot	**$ ±23/LF**	**$ ±18/LF**	**$ ±18/LF**	**$ ±13/LF**	**$ ±14/LF**	**$ ±9/LF**

Revenues

For the type of multi-use trails discussed in this study, construction costs are relatively high even though design dimensions are minimal and low-cost materials and improvements are specified. Revenues to off-set these costs in any significant way are very unlikely. There are, however, several sources of revenue that could be considered.

1. Sale of Material: In several locations on trails described in this report, it has been noted that ties and rails have been left in old railroad rights-of-way. If public use of such sections is to occur, these will have to be removed. There is some limited revenue to be realized from the salvage value of some of this material.

2. License Fees: Since the trail system is designed to be useable by

bicycle riders, a license fee might be established with revenue therefrom to be earmarked for support of the trail system.

3. Gifts of Private Land: Land owners might donate land or easement rights for trail facilities. This form of revenue would help reduce the initial cost of facility construction. In exchange for such gifts, some tax benefits to the land owner or other trade offs might be a possibility.

4. Community Support: A specific reserve fund could be established for construction and upkeep of the trail system as part of local budgets or the County budget. Private contributions that might be forthcoming in support of the trails concept could be directed to that budget line.

5. Sales or Room Tax: Although revenue from these sources is in great demand, legislators might value the trails system enough as an enhancement of tourist potential to allocate some funds for trail development and maintenance.

6. State/Federal Grants: A preliminary inventory of Federal, State and private funding sources that have been, and may be, available for planning, design, construction and maintenance of trail facilities and amenities is listed on **TABLE 13**. It should be noted that many of these sources may be temporarily suspended or are in the last year (1996) of availability.

Many facilities, amenities and programs for bicyclists and pedestrians have been funded at the local level. A major advantage to this funding source is the absence of conditions for construction and use. Disbursement of local funds is also generally quicker and less cumbersome. Sources of cash and in-kind contributions can include specific capital items in local public works and park and recreation budgets which, in many instances are bonded, and development impact fees or money in-lieu of land through subdivision regulations. Private sector contributions of money, land, materials, equipment and labor can also be important potential sources of revenue for certain projects and may be of vital importance when considering the ever-increasing pressures on local, state and federal funding sources.

If the trails system does, in fact, become a viable option to conventional transportation methods, some degree of government budget reduction might be the result (transit, road repair, parking lot construction, etc.). In a sense, any savings thus realized can be thought of as revenue generated by the developed trail infrastructure.

In the final analysis, a trail system can be considered as another piece of community infrastructure like roads, bridges or parks. These items are financed through general tax dollars or bonds in response to community demand. Revenue from users of such projects is sometimes possible to obtain but this is seldom sufficient to cover initial and continuing costs.

TABLE 13

POTENTIAL FUNDING RESOURCES

UTILITARIAN TRAILS & FACILITIES
(*facilities that serve primarily transportation purposes*)

Intermodal Surface Transportation Efficiency Act	• National Highway System (NHS) • Surface Transportation Program (STP) - Transportation Enhancement Set-Aside
Federal Transit Act	• Capital Program (Section 5309) • Urbanized Area Formula Program (Section 5307) • Nonurbanized Area Formula Program (Section 5311)
Community Development Block Grant	• Small Cities Program
Lease of Subsurface Utility Rights	

RECREATIONAL TRAILS & FACILITIES
(*facilities that serve primarily recreational purposes*)

National Recreational Trails Fund Act	**Land and Water Conservation Fund**
Community Development Block Grant	**Trust for Public Land**
The Nature Conservancy	**Richard King Mellon Foundation**
American Greenways - Dupont Awards Program	**Environmental Protection Fund**
Rural New York Land Trust Grant Program	**Rural NY Environmental Action Grant Program**
NYS Department of Parks, Recreation and Historic Preservation	**National and Community Service Program**
NYS Division for Youth and Juvenile Justice Services	**Urban Park and Recreation Recovery Program**
National Park Service Rivers and Trails Conservation Assistance Program	**REI Rivers Grant - American Rivers**
World Wildlife Fund Innovation Grants Program	**Recreational Equipment, Inc. Grants Program**
Walking Magazine - Trail Restoration Fund	

Note: A temporarily discontinued program that needs to be monitored for reauthorization is the Rails-to-Trails Grant Program, Sec. 809(b) of the Railroad Revitalization and Regulatory Reform Act.

5.0 IMPLEMENTATION STRATEGIES

PRELIMINARY DESIGN

In an effort to create a long range plan for a trail system in Tompkins County, the six corridors described in the preceding section are recommended as being highly suitable for additional consideration. While this study can be viewed as a prelude to action, it should be emphasized that trail design is still in the conceptual stage. For each high priority corridor discussed in **Section 4.0** considerably more research, analysis and public discussion will be required before a final plan can be agreed upon, much less implemented.

Corridors that appear to have relatively easy solutions to right-of-way issues should be considered for initial implementation efforts, that is, within the next five years. In **TABLE 1** of **Section 3.0**, these corridors have been identified in the "Time" column by a Roman numeral "I". They are:

- Game Farm Road to Route 13 (A-Monkey Run Corridor)
- Freeville to Dryden Lake Trail (D-Freeville-Dryden Corridor)
- Cayuga Inlet to South Hill Recreation Way (F/G/H-Buttermilk Falls Corridor)
- Snyder Hill Road to South Hill Recreation Way (R-Snyder Hill Corridor)

Of these four, the Buttermilk Falls Corridor, Freeville-Dryden and Snyder Hill Corridors are likely targets for immediate implementation, at least in part. Local interest in all three corridors is high and there are municipal jurisdictions interested in assuming responsibility for taking the necessary next steps (see below).

Buttermilk Falls Corridor
State control of half the right-of-way needed for this corridor improves the probability of constructing part of this trail. Obstacles that must be addressed include:

- a bridge over Route 13,
- right-of-way easement negotiation with land owners,
- creation of a bikeway along Hillview Place,
- safety improvements at Stone Quarry Road, and
- use of the road on the flood control levee.

While these obstacles seem large, solutions do not appear to be impossible. The trail would still be effective if implemented in sections over a longer period of time.

Freeville-Dryden Corridor
Both ends of this corridor are publicly owned and easements for the center section involve a small number of private land owners. Physical obstacles involve repair of washouts and restoration of a bridge and underpass, neither of which is estimated to be unduly expensive.

Snyder Hill Trail
This corridor involves establishment of an entirely new trail over private property that is currently used for hiking and other forms of recreation. Right-of-way easements must be negotiated and one drainage way

must be crossed. Future connection with the South Hill Recreation Way faces the large obstacle of adequate and safe on-street bikeways; this could be accomplished at a later time.

COORDINATION

Implementation of a comprehensive trails system for Tompkins County will involve many steps and a number of independent decisions over a period of years. The concept presented in this study includes potential trail segments in four towns, five villages and the City of Ithaca. The *ITCTC*, as a Metropolitan Planning Organization, can provide an overall coordinating mechanism for system implementation, but each of the ten communities will also have to be involved at the policy, planning, design and funding level if the system is to be realized.

The City of Ithaca and the Towns of Ithaca, Dryden and Lansing and the Villages of Dryden, Freeville and Lansing have existing, committed or planned trails and greenways and have contributed supporting data to this study. In addition, the City of Ithaca and Towns of Dryden and Ithaca are currently applying for funds to increase trail facilities. Presentation of this study to the remaining affected communities in Tompkins County via the MPO forum will serve as the next step in the implementation of the proposed system.

A final location for each trail segment will have to be determined by the community in which it is located. This will require discussion with land owners along the potential route to identify concerns and assess local support. Depending on reactions, it might be necessary to make adjustments in alignment and design if trail development is to proceed beyond the planning stage. After general consensus has been obtained, additional on-site investigation and detailed design can occur; cost estimates will have to be refined and funding sources identified.

ACTION PLAN

There are a number of specific steps that should be considered to begin implementation of parts of the trail system discussed in this report.

1. Prepare applications to be submitted to the NYS Department of Transportation for funding under the *ISTEA* Transportation Enhancement Program. A local sponsor is required for each application; at present, there is a sponsor for each of the three priority corridors described in 5.1 above. The Buttermilk Falls Trail project is being jointly sponsored by the Town and City of Ithaca, the Freeville-Dryden Trail project is being sponsored by the Town of Dryden, and part of the Snyder Hill corridor is being implemented (Pew Trail project) by the Town of Ithaca.

2. Coordinate local efforts to implement a trail system. Such coordination, as exemplified by the joint efforts on enhancement fund applications, described above, is essential. The *ITCTC* can provide a central clearing house and coordination center.

3. Identify individuals with the appropriate credentials and authority to undertake discussions regarding the prospects for obtaining critical right-of-way easements and initiate these

discussions. It is necessary that local governments and the State Department of Transportation initiate these activities.

4. Undertake a more detailed survey of conditions along roads that have been suggested as on-street bikeways and consider possible design alternatives. For some road segments, such as Route 79, Burns Road and Route 34, this could be a large assignment. It would logically be undertaken by the planning and engineering department of the affected municipality. While there is no urgency on this matter, design work should be scheduled for the next year or two so that needed capital improvements can be programmed.

5. Identify private land owners who might be affected by the establishment of top priority trails described in **Section 4.0**. When a complete list has been assembled, efforts should be made to discuss the principles and objectives of the trail program and identify local concerns. This should be accomplished by the chief elected official of the relevant municipal government or a senior staff person. This task will fall to the Towns of Ithaca, Dryden and Lansing.

6. Continue efforts to encourage increased use of bicycles as alternative transportation. This can take a number of forms including the installation of bike racks on buses and the construction of bicycle park and ride facilities as suggested for the eastern end of the Monkey Run Corridor. This task needs to be on-going and should be undertaken on a countywide basis by the Ithaca Tompkins Transit Center and the participating transit providers.

7. Consider incorporating requirements for land contributions for trail purposes, or money in lieu of land, in local subdivision ordinances. This provision would be especially useful in the Town of Lansing where subdivision of large undeveloped areas could help to establish a future trail corridor. This would be a responsibility of the Town Planning Board and Town Board and, for maximum effectiveness, should be considered as soon as possible.

8. The *Ithaca-Tompkins County Transportation Council*, in its capacity as the designated metropolitan planning organization for the area, should continue to provide technical assistance to those municipalities and organizations interested in pursuing the above projects. In addition, the individual participants in the *ITCTC* should actively support state and federal legislation that will provide continued funding for trail and intermodal projects. Local government activism is particularly critical as Congress debates the reauthorization of the *ISTEA* legislation in the coming months.

The above tasks affect each of the high priority corridors to one degree or another. Each represents a step that must be taken if the establishment of a trail/corridor system is a serious objective of the County and its municipalities.

NOTES:

6.0 GLOSSARY OF TERMS

Specific terms have been used in this report to describe various components of a trail system. Recommended design standards also relate to different types of facilities as defined below. In general, terms and definitions consistent with the AASHTO *Guide for the Development of Bicycle Facilities* have been used.

Bicycle Facilities - A general term denoting improvements and provisions made by public agencies to accommodate or encourage bicycling, including parking facilities, mapping all bikeways, and shared roadways not specifically designated for bicycle use.

Bicycle Lane (bike lane) - A portion of the roadway which has been designated by striping, signing and pavement markings for the preferential use of bicyclists. Also see *Class II Bikeway*, below.

Bicycle Path (bike path) - A bikeway physically separated from motorized vehicular traffic by an open space or barrier and either within the highway right-of-way or within an independent right-of-way. Also see *Class I Bikeway*, below.

Bicycle Route (bike route) - A segment of a system of bikeways designated by the jurisdiction having authority with appropriate directional and informational markers, with or without a specific bicycle route number. Also see *Class III Bikeway*, below.

Bicyclist Performance Characteristics - Include the abilities, expectations, and limitations of the individual.

Bikeway - Any lane, path, or way which in some manner is specifically designated as being open to bicycle travel, regardless of whether such facilities are designated for the preferential use of bicycles or are to be shared with other transportation modes.

- Class I Bikeway (Bike Path) - These facilities are used where rights-of-way can be acquired and where safety, traffic conditions, and physical or geographical constraints dictate a need for the separation of traffic modes and/or a more direct route that would encourage the use of alternative modes of transportation. These routes link activity centers, origins and destinations, and circumvent congested intersections and roadways with high volumes of traffic.

- Class II Bikeway (Bike Lane) - These facilities have been used in areas where there is significant bicycle demand along arterial and collector roads with heavy traffic, providing the most direct and cost efficient route of travel which is within the existing roadway system. Bike lanes are intended to delineate the separate rights-of-way assigned to bicyclists and motorists, providing for more predictable movements of each.

- Class III Bikeway (Bike Route) - These facilities serve to provide

continuity to other bicycle facilities (providing a link between Class I and/or Class II facilities). They are shared facilities (bikes and motor vehicles within the same roadway), designating a preferred route through high demand corridors. It is expected that responsible agencies will take actions to assure that the routes are suitable as shared routes and will be maintained in a manner consistent with the needs of bicyclists.

Design Bicyclist - Bicyclist classifications (Group A/B/C) which consider performance characteristics as well as the vehicle characteristics for developing design criteria which will create facilities that are compatible with capabilities and limitations, improving overall operations and reducing potential for accidents. (See **Section 3.0**)

Design User - A combination of the design bicyclist and other anticipated trail uses who are considered when developing standards for design and construction. The Tompkins County Transportation Trail/Corridor Study Design User is based upon the anticipated B/C bicyclist (basic and children) and anticipated trail uses including pedestrians and bicycles, with occasional use in some areas by horses and, in winter, cross-country skiing.

Existing & Committed - Facilities that are constructed and in-use or for which construction funding has been committed. Existing & Committed projects are not included for analysis in this study as they are considered to be "*fait accompli*".

Highway - A general term denoting a public way for purposes of vehicular travel, including the entire area within the right-of-way.

Gaps - Breaks within the connectivity of trail segments for the Tompkins County Transportation Trail/Corridor Study.

Linkages - Connections between independent trail segments to provide for a interconnected transportation and recreation system for the Tompkins County Transportation Trail/Corridor Study. An example of a linkage would be the use of bike lanes along a highway connecting two independent trails.

Roadway - The portion of the highway, including shoulders, for vehicle use.

Shared Roadway - Any roadway upon which a bicycle lane is not designated and which may be legally used by bicycles regardless of whether such facility is specifically designated as a bikeway.

Shoulder - The portion of the roadway contiguous with the traveled way for accommodation of stopped vehicles, for emergency use and for lateral support of sub-base, base and surface courses. In some cases, the shoulder can be made usable for bicyclists or pedestrians.

Sidewalk - The portion of a highway designed for preferential or exclusive use by pedestrians.

7.0 BIBLIOGRAPHY

This aspect of the data collection effort includes two subdivisions, a review of pertinent contemporary literature and a review of local/regional/state planning efforts. The first subdivision, the review of pertinent contemporary literature, focuses on the topics of corridor preservation and trail development. An annotated bibliography with emphasis on information applicable to local issues and conditions is presented. The second subdivision, the review of State/Regional/Local planning efforts, is presented as brief written reports summarizing these efforts and plans.

In researching and preparing an annotated bibliography for a particular or central theme, several criteria served as guidelines in the evaluation of the literature reviewed. The central theme of this annotated bibliography is "the identification and utilization of community trails as multi-use/multi-function trails & corridors for daily commuting purposes". The objective is to enhance the movement of people by providing modal flexibility, choice, and access. The educational aspect of trails, with their rich natural setting, historic prominence, and beautiful scenic vistas, can not be ignored. They are all a welcome addition in the enhancement and enrichment of the user's experiences and appreciation of the environment as part of a daily routine.

The following is a list of guidelines that were considered in the review of the literature:

- Authorship: How relevant are the author's credentials, the educational background, and contribution to the central theme described above. Is this an area in which the author is well known for expertise?

- Timing: Is the publication current for the central theme? Does the work update other sources, substantiate other materials, add new information?

- Publisher: If the source was published by a university press, the likelihood of its being scholarly may be greater. Is the document a popular journal or a scholarly one?

- Audience: Is the document addressing a general audience or a specialized group? Is the source too elementary or too technical, advanced, or just right for user needs?

- Purpose: Is the objective of the study specified? Are the points of view highlighted?

- Writing Style: Is the publication organized logically? Are the main points presented clearly? Is a bibliography included for further study of the topic?

- Fact/Fiction: Is the information presented fact, opinion or propaganda? Is the author's point of view objective and impartial? Is the language free of emotion, rousing words, and bias? Does the information appear to be valid and well researched? Is it questionable? Does the study cover the topic of interest or is it marginal?

Over sixty-six (66) documents were reviewed. Due to the character and concentration of the various

studies, the documents are classified with the following categories and identified with a subscript *a*, *b*, *c*, *d*, or *e* to indicate areas of interest. These are described as follows:

a - Relevant Survey and Information
b - Planning and Political/Economic will
c - Public Participation
d - Environmental Design
e - Implementation and Feedback/Lessons to be Learned

PERTINENT CONTEMPORARY LITERATURE

Annotated Bibliography listed alphabetically by Title.

a,b,c,e *A Citizen's Guide to Greenways*, Greenways, Inc.
The report is an empirical study describing the effects of greenways on adjacent property values. It provides descriptions of interviews conducted during surveys and reports impacts of crime, security, privacy and resale of properties adjacent to greenways. Extensive details on tax benefits of greenways are presented. Conclusions are helpful in providing basic arguments for the planning, implementing and maintaining of greenways. The report is intended for planning of greenways in urban and suburban areas. It provides a comprehensive list of definitions for greenways.

a,b,d,e *Availability and Use of Abandoned RR ROW*, U.S.Department of Transportation, 1977.
The report has five main sections:
1. Inventory of current ownership and abandoned RR ROW by states (1970-76).
2. Alternate use suitability criteria
   - Conservation/open space
   - Recreation uses
   - Transportation uses
   -Utility uses: Electric power transmission/distribution lines
   Communication lines, oil and gas pipelines, Water/sewer pipelines
3. Existing programs and problems associated with reuse of abandoned r.o.w.
4. Feasibility of rail banking concepts.
5. Recommendations for new programs and policy solutions. This is an empirical

study providing significant information on abandoned railroad rights-of-way in miles by states. Provides excellent recommendations on different uses of the rights-of-way. The report is intended for use by all agencies involved in the acquisition and use of abandoned RR ROW. It provides a selected bibliography of 21 documents and a listing of current ownership and abandoned RR ROW from 1970 to 1976.

a,b,c,d,e *Banks/Vernonia State Park*, State of Oregon Department of Transportation, Parks &

Recreation Branch, 1979.
The Banks/Vernonia State Park is located on the old Burlington-Northern Railroad grade between the Washington County town of Banks and the Columbia County community of Vernonia. The area is within 45 minutes of the Portland Metropolitan area. Portions of the RR ROW planned as two, 22 mile long, adjacent pathways, is recommended for trail use including hiking, bicycling and horseback riding. Parts of the plan have already been implemented to provide year round trail opportunities. Major trailheads including parking and restrooms facilities have been developed. Side rails for safety of trail users have been built to protect individuals and organized groups on nature study, including schools. Public participation has been extensive. Some 16 Committees, Boards and Agencies have endorsed the plan for Vernonia trail, but serious opposition to the project has centered around the liability and management capability of Vernonia State Park. Extensive site analysis data has been compiled as a supplement to the final plan.

Now that a large portion of the project is implemented, a revised up to date plan is being prepared to proceed toward completion of the project. Much can be learned from this project.

a,b,e *Bike Trails & Facilities*, W.L. Cook, Bicycle Institute of America.
This is a brochure that provides guidelines to the design, construction and operations of Bike Trails. It contains technical data helpful for similar projects.

a,b,c,d,e *Building Support for Urban Trails*, Stuart H. MacDonald, Parks & Recreation (pps. 26-33), November, 1987.
The report emphasizes the value of united political and community support. Even though people expect trails in the mountains and parks for the pure recreation of weekend trips and vacation time, urban trails and pedestrian facilities are gradually moving into the urban fabric and taking part in our daily activities.

The report enumerates and describes in some detail three case studies. Primarily the descriptions are feedback of information. Details in terms of economic viability of trails is missing but helpful guidelines are presented for developing, funding, and maintaining urban trails.

a,b,d,e *Conflicts & Multiple Use Trails: Synthesis of the Literature & State of the Practice*, Federal Highway Administration, August, 1994.
The report outlines 12 principles for minimizing conflicts on multiple-use shared-use trails. The two primary goals are:

i. Provide a synopsis of the literature and current state of knowledge regarding how to best accommodate multiple activities on the same trail ROW.

ii. Identify topics that warrant further study for research.

The report points out that managers of shared-use or multi-use trails face many interrelated challenges, such as keeping users safe, minimizing negative impacts to natural resources, and providing for high quality visitor experiences.

A list of trail-sharing guidelines and educational materials designed to help reduce conflicts on trails are available from:

- Trails are for everyone by Metro Trail Systems (303) 795-6531
- Trail safety by East Bay Regional park District (510) 635-0135
- Sharing the Trails, guidelines (415) 691-1200
- Right Rider, Trail Etiquette, USDA Forest Service (406) 329-3711
- Pathways are for everyone, Idaho Trails Council (208) 622-3046

This is an excellent, comprehensive report to help local trail planners to overcome conflicts and opposition to trails.

a,b,c,d *Converting Rails to Trails*, Rails to Trails Conservancy, February, 1989.

This is a citizen's manual for transforming abandoned rail corridors into multipurpose public paths. It is prepared by experts in the field. Rails to Trails Conservancy is well known for their advocacy and expertise in this field. The report provides the basic information and techniques needed to convert abandoned railroad rights-of-way into trails. It is a "how to" manual providing clear descriptions of existing laws and procedures, and suggestions of strategies and techniques to create trails. In addition to the manual the Rails to Trails Conservancy, within staff limitations, provides on-going service and advocacy expertise to help local communities in their efforts to convert rails to trails.

a,e *Development Costs of Selected Rail-Trails* (memorandum), Rails to Trails Conservancy.

This handout has valuable information on the costs of several rail-trails that were developed between 1973 and 1986.

The following summary list of six examples is representative of work done on the east and midwest regions of the States, listed chronologically.

1. Red Cedar Trail (Wisconsin). 14.5 miles long. Development completed in 1973. Cost per mile = $12,500.
2. Sugar River Trail (Wisconsin). 23.5 miles long. Development completed in 1974. Cost per mile = $5,593. Cost extremely low due to in part to location of six limestone quarries directly along the corridor.
3. Cape Cod Rail Trail (Massachusetts). 17.6 miles long. Developed late 1970s-early 80's. Cost per mile = $60,000.
4. Little Miami Scenic Trail (Ohio). 13.5 miles long. Developed during 1983-1985. Cost per mile = $52,497.
5. Yaughiogheny River Trail (Pennsylvania). 9.0 miles long. Development completed in 1986. Cost per mile = $15,111.
6. Celina-Coldwater Bike Trail (Ohio). 4.6 miles long. Development completed in 1986.

Cost per mile = $52,173.

a,b,e *Economic Benefits of Rail-Trails*, Rails to Trails Conservancy.
This is a fact sheet on the economic benefits of rail-trails with an executive summary of the report, "Analysis of Economic Impacts of the Northern Central Rail-Trail" by PKF consulting for the Maryland Greenways Commission. The report presents the economic and qualitative impacts of a new greenway facility. It has extensive empirical information, very useful in planning of greenways.

a,b,c,d,e *Economic Impacts of Protecting Rivers, Trails and Greenway Corridors: A Resource Book*, Rivers, Trails & Conservation Assistance Program, National Park Service, 1992.
The following is a brief outline of the contents of the book:

1. Real Property Values
2. Expenditures by Residents
3. Commercial Uses
4. Agency Expenditures
5. Tourism
6. Corporate Relocation and Retention
7. Public Cost Reduction
8. Benefit Estimation - Benefit Cost Analysis, etc.

Extensive Appendices

This is one of the most comprehensive resource books available on the economic impacts of protecting rivers, trails and greenway corridors.

a,b,c,d,e *Effective Utilization of Abandoned Railroad Rights-of-Way for Park/Recreation Purposes*, Blair S. John & Barry S. Tidall, Patricia J. Briner (ed.), Arlington National Recreation & Park Association, 1977.
The Railroad Revitalization & Regulatory Reform Act of 1976 initiated a series of studies on the conversion of railroad rights-of-way. This report addresses matters relating to the evaluation, assessment and suggestions for a more effective public utilization of abandoned RR ROW, including problems and associated costs. It also presents potential benefits, recommendation for legislative, administrative, and regulatory action and proposals for different levels of funding. The report has several extensive appendices which provide detailed guidelines for trail development. Those who are interested in design details of trails, materials, sections and sketches will benefit from this report. A section on public participation and opposition is also presented along with other discussions on development, operation/maintenance, and environmental impacts.

a,b,c,d,e *Greenways - A Guide to Planning, Design & Development*, The Conservation Fund, 1993.
The report presents a rational for creating a Greenway. An excellent set of definitions and descriptions is provided. Chapter 11 provides extensive standards, layouts, definitions and specifications for developing a greenway trail. This report is a "how-to-guide" for planning

and designing greenway projects.

a,b *Greenways: Articles and Pamphlets - Fact Sheets*

i. Greenway - fact sheet, Scenic Hudson by Scenic Hudson Greenway. This is the last in a series of eight fact sheets produced by Scenic Hudson providing practical information on establishing and maintaining local greenways. The article outlines several helpful suggestions in risk assessment and management. Recommends some creative ways to reduce the legal exposure and liability insurance premiums associated with greenways. A short list of recommended readings is provided.

ii. Economic Benefits of Greenways - Summary of Findings. The excerpts from a larger report provide very useful information on real estate taxes, tourism, commercial uses and public cost reduction (greenways along rivers can help reduce the cost of repairing flood damage and improving water quality). It also provides an extended list of references on the economic impacts of Rail-Trails and greenway corridors.

iii. How Greenways Work - A Handbook on Ecology. National Park Service 1992. The handbook is intended as a guide and introduction to the subject of using greenway corridors and ROW their ecological potential can be enhanced. It is a marginal report on the development of multi-use/multi-function trails.

iv. The American Greenways Program - A series of fact sheets produced by the American Greenways Program:
   - No.1 - Creating a National Network of Greenways. The goal is the creation of a nationwide network of greenways. The network is intended to link natural areas, historic sites, parks and open space providing benefits for conservation, recreation, and economic development.
   - No.2 - What is a Greenway? Its benefits?
   - No.3 - Economic Benefits of Greenways.
   - No.4 - Crime & Vandalism.
   - No.5 - Greenways Organizations.
   - No.6 - Greenway Publications.
   - No.7 - Property Owner & Tenant Concerns.
   - No.8 - *ISTEA* Funding for Bicycling Paths & Greenways.

a,b,c *Greenways: The Natural Connection*, Linda Lamb, Planners Advisory Service, American Planning Association, May, 1992.

The report presents an examination of the possibilities of creating greenways. The author presents five basic types of greenways:

i. Urban River Greenways;
ii. Ecological Corridors;
iii. Scenic Drives and Historic Routes;
iv. Path & Trail Greenways; and
v. Comprehensive Greenway systems, which include a mix of greenway types.

Additional articles provide helpful information on the planning and creation of recreational trails; bicycling as an alternative to cars; and economic benefits of greenways. Reference resources are provided for extended study of the subjects presented.

a,b,d *Guide for the Development of Bicycle Facilities*, AASHTO Task Force, 1991.
The report emphasizes the increased popularity of bicycling for commuting, for recreation, for other travel purposes, and if adequately planned for and utilized, may play an important role in the overall transportation system.

The report provides information on the development of new facilities to enhance and encourage safe bicycle travel. It also provides information to help accommodate bicycle traffic in all riding environments and specifies recommendations on the operation and maintenance of facilities for bicycles. The appendix provides a review of the legal status of bicycles. A list of definitions helps provide standard terminology.

a,b,c *The Impacts of Rail-Trails*, National Park Service, 1992.
This is an extensive study of users and nearby property owners involving three trails.
The report provides a systematic examination of both trail users and nearby property owners of the same trail.

The objectives of the study are:

i. Explore benefits of rail-trails to their surrounding communities and measure the total direct economic impact of trail use.
ii. Examine the effects rail-trails have on adjacent and nearby property values.
iii. Determine the types and extent of trail related problems experienced by trail neighbors.
iv. Develop a profile of rail-trail users.

The report summarizes the findings of the three trails analyzed. It is an empirical study which provides background information on public opinion of trails particularly of property owners nearby trails.

b,c *Integrating Rail-Trails into Statewide & Metropolitan Long Range Plans*, Rails to Trails Conservancy, 1994.
The report emphasizes the value of *ISTEA* and how that it provides a rationale for pro-active rail-trail planning as an important element in long range comprehensive plans. The report points out that *ISTEA* created the opportunity for enhanced planning in corridor preservation and trail development.

a,b,c *ISTEA and Trails: Merging Transportation Needs and Recreation Values*, Rails to Trails Conservancy and American Trails, 1994.
The report provides assistance in securing funding for trails under the existing programs of *ISTEA*. The enactment of the Intermodal Surface Transportation Efficiency Act in

December of 1991 brought about major changes in the trails funding landscape. Under *ISTEA* some $500 million annually are made available to specific enhancement activities including trail and pathway projects. *ISTEA* articulates a fundamental shift in national transportation policy, establishing energy conservation, protection of the environment and quality of community life as high priority elements that must be considered and achieved through Federal Transportation spending.

The report points out the two trail projects, under the ten transportation enhancement activities, which are qualified under *ISTEA*.

1. Bicycle and Pedestrian Facilities
2. Preservation of Abandoned Railway Corridors and Converting them for Pedestrian and Bicycle Trails.

Because of *ISTEA*, the term "intermodal" is now used to refer to the multiplicity of facilities (highways, waterways, rail lines, airports and trails) and modes (automobiles, trucks, freight RR's, bus and rail transit, intercity buses, AMTRAK trains, bicycles, in-line skates and walking shoes) that make up our transportation system. It also specifically relates to the connections between enhancements-funded trails. Appendix C provides a list of definitions.

This is an excellent report worth using as a resource for reference by community and transportation planners and related agencies and organizations.

a,c *Law Enforcement Pedestrian Safety*, National Highway Traffic Safety Administration, 1992.

In 1991 motor vehicle crashes claimed the lives of some 5800 pedestrians. Approximately 100,000 more were injured. Some 14-17% of all traffic deaths annually have been pedestrians.

The report is intended to be a resource to assist police agencies in solving traffic safety problems. It provides law enforcement officials with proven strategies and solutions for pedestrian safety issues. The report contains significant information on how to implement a pedestrian safety law enforcement program using the 3E (enforcement, education, engineering) approach.

a,b *Liability Aspects of Bikeway Designation*, Bicycle Federation of America, 1986.

The report introduces basic concepts of legal liability including, tort law, negligence, assumption of risk and governmental immunity. It assesses the current law regarding liability of government entities for injuries incurred by persons using the highways.

The report emphasizes that designation of bikeways will not affect the governmental entities' potential liability. This is because the liability already exists with respect to bicyclists on the highways. The report concludes by pointing out that the most important step which any government entity can take to reduce potential liability, is to reduce

accidents on its highways. Agencies that are active in bikeway planning and corridor designation will benefit from this report, especially from its legal framework.

a,b,d,e *Multi-use Trail Design & Management Manual*, Rails-to-Trails Conservancy, 1992.

The manual provides guidelines for the construction and design of multi-use trails. Primarily these trails are conversions from abandoned railroad rights-of-way for use by pedestrians and bicyclists.

a,b,c,d,e *The National Bicycling and Walking Study*, Federal Highway Administration, 1994.

The report outlines a plan of action to promote and facilitate walking and bicycling as viable transportation options. The goal of doubling the current percentage of 7.9% of total trips made by bicycling and walking is a great challenge. Another goal is to reduce by 10% the number of pedestrians and bicyclists killed/or injured in traffic crashes. The report presents action plans and programs at the federal, state and local levels to expand options for personal transportation. Also make the changes needed in transportation systems to encourage greater use of human-powered travel modes. There is an extensive list of references at the end of the report. This report is one of the most comprehensive analytic, and empirical studies prepared by the Federal Highway Administration. Perhaps the most exhaustive and authoritative plan describing new ways and opportunities of incorporating analytic information of nationwide dimension.

The report is fully documented with an extensive list of technical and expert case studies. Some 23 case studies each in booklet form provide one of the most comprehensive collections of documentation. The following list is presented to inform the reader of the extent of each case study as conducted:

#1 Reasons why bicycling and walking are and are not being used more extensively as travel modes. Completed in 1992.
#2 Training needs of transportation professionals regarding the pedestrian and bicyclists. Completed in 1993.
#3 What needs to be done to promote bicycling and walking? 1992.
#4 Measures to overcome impediments to bicycling and walking. 1993.
#5 An analysis of current funding mechanisms for bicycling and pedestrian programs at the Federal, State, and Local Levels. 1993.
#6 Analysis of successful grassroots movements relating to pedestrians and bicyclists and a guide on how to initiate a successful program. 1993.
#7 Transportation potential and other benefits of off-road bicycle and pedestrian facilities. 1992.
#8 Organizing citizen support and acquiring funding for bicycle and pedestrian trails. 1993.
#9 Linking bicycle and pedestrian facilities with transit. 1992. Seven examples are presented and described in great detail.
#10 Trading off among the needs of motor vehicle users, pedestrians, and bicyclists. 1993.
#11 Balancing engineering, education, law enforcement and encouragement. The 4 E's of planning and developing trails. 1993

#12 Incorporating consideration of bicyclists and pedestrians into educational curricula and programs. 1992.
#13 A synthesis of existing bicyclist and pedestrian related laws and enforcement programs. 1993.
#14 Benefits of bicycling and walking to health. 1992.
#15 The environmental benefits of bicycling and walking. 1993.
#16 A study of bicycle and pedestrian programs in european countries. 1992.
#17 Bicycling and pedestrian policies and programs in Asia, Australia, and New Zealand. 1992.
#18 Analysis of successful provincial, state and local bicycling and pedestrian programs in Canada and the U.S.. 1993.
#19 Traffic calming, auto restricted zones and other traffic management techniques - their effects on bicycling and walking. 1994.
#20 The effects of environmental design on the amount and type of bicycling and walking. 1993.
#21 Integrating bicycling and pedestrian considerations into state and local transportation planning, design, and operations. 1992.
#22 The role of state bicycling and pedestrian coordinators. 1993.
#23 The role of local bicycling and pedestrian coordinators. 1993.
#24 Current planning guidelines and design standards being used by state and local agencies for bicycle and pedestrian facilities. 1992.

b,c *Planning Paths for Your Community*, Anne Lusk, Planning Commissioners Journal #10, May/June 1993.

The article begins with a very positive approach to developing of greenways by saying that money is available for greenways. This is made possible because of the new Intermodal Surface Transportation Efficiency Act which provides funding when communities plan trails as part of their overall transportation system.

In the article, the writer recommends a series of actions towards developing and funding of greenways:

1. Collect material and have it rewritten in newspaper articles.
2. Identify public land and destination points.
3. Bring potentially involved landowners into the planning process.
4. Seek guidance from state and local agencies, and local clubs.
5. Prepare a formal greenway plan and map.
6. Fund raising.
7. Easements are formally acquired.
8. Major plans and specifications are prepared.
9. Construction begins.
10. Say thank you.

The planning of greenways has brought a new dimension into the working of communities. Many planning commissions have taken the lead role in orchestrating planning for greenways, and accomplishing great successes. The writer of the article is well known for

her credentials within the field of planning and developing greenways.

a,b,c *Preserving Abandoned Railroad Rights-of-Way for Public Use*, Rails to Trails Conservancy, 1989.
The manual explores the current administrative law framework surrounding the discontinuance of current railroad use of rights-of-way. It presents steps that can be taken by public and private agencies to foster railroad rights-of-way conservation for public use. The focus of this report is on the use of corridors as a public recreational trail and park. This is a very useful document particularly for agencies that are active in the conversion of rails to trails for multi function uses.

a,b,c,d *Safety and Locational Criteria for Bicycle Facilities*, Federal Highway Administration (FHWA-RD-75-113)
The report presents a process for bicycle facility location. Outlines several guidelines for assessing the various factors which influence the acceptability of locating bikeways. It provides locational criteria to be used in developing a comprehensive bikeway plan.

The manual is written to aid technical and administrative personnel with currently available data. It is a valuable and very useful manual which can be used to educate community leaders in their efforts to plan bikeways.

b,d *Selecting and Designing Bicycle Routes - A Handbook*, Bicycle Federation of America, 1986.
The report is a technical manual/handbook intended for use by local transportation agencies and community organizations interested in planning and recommending routes for bicycling.

The report provides an extensive review of the literature related to bicycle route selection and designation. It presents reviews of selected case studies of current practices in the field. It contains a large section on liability aspects of bikeways designations.

b,d *State Recreational Trails Master Plan*, Colorado State Parks Office, 1992.
The plan provides an expanded list and review of issues concerning trails. Liability and economic benefits are fully discussed.

The plan also presents a list of 13 recommended actions that may be undertaken by local agencies in their planning of recreational trails.

a,b,c,d,e *Trails for the 21st Century - Planning, Design & Management Manual for Multi-Use Trails*, Karen-Lee Ryan & the Rails to Trails Conservancy, 1993.
This is one of the best manuals available for use in the area of planning, designing and managing multi-use trails. The report points out that local agencies and municipalities

are beginning to realize the opening up of abundant opportunities for developing multi-use corridors that offer routes for non-polluting means of transportation - a way of reducing congestion, promote energy conservation, and improving air quality. The report further points out that many multi-use trail corridors offer unexpected historical enrichment and education to users of the trails. The report is designed to guide through a step-by-step process for planning, design, and management of trails and thus maximize their potential. It provides an annotated resource directory by each chapter. An excellent report useful for public and private agencies active in trail planning and development.

STATE, REGIONAL, AND LOCAL PLANS

Annotated Bibliography listed alphabetically by Title.

a,b *Abandoned Rails for Recreational Trails - Lehigh Valley Railroad*, Tompkins County Planning Department, 1979.

The fact sheet describes the various branches of the Lehigh Valley Railway system in Tompkins County.

i. The East Ithaca-Freeville branch.
ii. The Dryden-Groton branch
iii. The Village of Dryden-Cortland County branch.

Early 1970's railroad abandonment activities were raising serious questions as to whether the abandoned rights-of-way should be controlled by public agencies or sell in bits and pieces to local adjacent property owners. The report, citing Interstate Commerce Commissions Regulations and other regulatory laws governing the sale or lease of abandoned railroad rights-of-way, raised the a countywide community consciousness to convert the corridors to recreational trails. The report highlighted the usefulness of the RR ROW as a linear outdoor recreational way, and recommended its use for the following activities: hiking, biking, jogging, snowmobiling, nature study, horseback riding, cross-country skiing, and access to fishing areas. The report was a great public relations resource providing valuable information on liability, security, maintenance and other details sufficient to raise initial interest in the community. And it did!

a,b *Bicycle & Pedestrian Planning and Promotion*, New York State Department of Transportation, Planning Division

This is a memo providing a listing of State Agencies and their functional responsibilities including bicycle planning and use.

b *Bicycle Safety*, Bicycle Safety Advisory Committee, New York State Division of Motor Vehicles,1983.

This is an advisory report on bicycle safety in NYS. It is educational, promotional and covers a wide range of public interests. The report highlights 4 major areas of bicycle safety:

1. Educational - informing all highway users on the potential benefits and hazards of

bicycle use.

2. Enforcement - of laws and ordinances designed to promote bicycle safety.
3. Engineering - providing facilities that are compatible with safe, efficient, and convenient use of bicycles.
4. Encouragement - of increased bicycle safety for recreation and transportation/commutation.

The report is not specific enough to address the use of bicycles in communities that experience severe and prolonged winters, excessive grades, origin/destination, and land use information. These natural and man-made features should be considered by all communities as part of their planning for bicycle safety.

b *Biking Up East Hill*, Dave Nutter, 1992.

This is a privately published booklet describing several suggested bicycling routes for commuters, shoppers, and recreational riders. The routes are essentially within the City of Ithaca and Cornell University.

a,b,c,d,e *Building Greenways for Tompkins County: An Action Plan*, Tompkins County Greenway Coalition, July 1995.

The report is an excellent advocacy statement that provides a much needed action plan for local municipalities to consider incorporation into their policy plans for local community review and implementation. The report is presented in a very readable form with attractive and artistic graphic. An enjoyable reading both for young and old. Not only does the report respond to the Board of Representatives' resolution, but takes the next step of interpreting the resolution into viable, realizable plans. It incorporates several identified greenway plans, such as, the Finger Lakes Trail, the Black Diamond Trail, and others, and builds into a comprehensive plan of greenways for Tompkins County.

Another strength of the Plan is its extensive dimension of support both from public officials as well as private citizens. Captions on the left and right margins of practically every page adds not only to the credibility of the plan but also brings in potential support for strong action.

Indeed, the plan is a strong statement advocating comprehensive greenways planning for Tompkins County. It is itself a comprehensive statement putting together the rationale for the why and what of greenways. A third strength of the plan is its presentation in chapter 3, of types of corridors and their uses. This makes the plan more relevant to the Transportation Trail/Corridor Study underway for incorporation by the end of 1995 into the 2015 Long Range Plan of the *ITCTC*. While the above action plan does not simplify nor detail multi-use, the current study will address that need. Essentially it is to identify potential transportation trails that will encourage and enhance their utilization by bicyclists and walkers to bike and walk to work, to school, and to shopping.

The Building Greenways Action Plan is a must reading for every community planner and

developer in Tompkins County. Such a valuable plan deserves a serious look by local decision makers for short and long range community development. Now that we have a good plan, how long will it be until we see at least parts of it built?

b,c *Cayuga Inlet Trail*, NYSOPRHP, 1989.

A 12 mile multi-use trail for hiking, jogging and bicycling that will connect four State Park facilities in Tompkins County and neighborhoods along its way. The trail will run in a general north-south direction between Taughannock Falls State Park in the Town of Ulysses, and Robert H. Treman State Park in the southwest corner of the Town of Ithaca. This is a three phase project. The Cayuga Inlet Trail is planned to be a multi-use trail with potential access to the North Country National Scenic Trail and the Finger Lakes Trail, an east-west biking trail traversing the Southern Tier. The section of the Cayuga Inlet Trail, about 1 mile, has already been completed.

b,c *The City in the Country - An Open Space Plan for Saratoga Springs*, Board of Directors of the Saratoga Institute, 1994.

The Plan is prepared to help local government protect the critical boundary between rural landscape and town, a vital urban center with an identifiable rural edge. The report is intended to safeguard the survival of Saratoga's economic health and visual appeal. In this framework appears a section on (#18 & #19 - page 8) the development of walkways, bikeways, paths for skiing, and equestrian activities. Trails have been considered as an essential element of the overall fabric of the City of Saratoga Springs - an example for community planners to consider in their endeavors for the preparation of local plans.

a,b,c *Comprehensive Park and Open Space Plan*, Town of Ithaca, New York, 1975.

This study was coordinated with state, county, and city open space planning and development activities. Open space and recreation needs are explored on a neighborhood by neighborhood basis. Methodologies for specific site planning and neighborhood input are outlined.

The draft was approved by both the Town Board and the Planning Board. A sum of $130,000 was set aside as capital reserve fund for development of parks.

a,b,c *Comprehensive Park and Open Space Plan*, Town of Ithaca, 1977 update.

This update further illustrates the sites identified in the original 1975 draft. an inventory of regional parks shows a total of some 2,500 acres of park lands maintained by the Finger Lakes Parks and Recreation Commission. A listing of neighborhood open space needs and related standards are specified. The plan includes a section on recommended measures to be taken to preserve open space and develop a greenway. Appendix A is the text of a local law establishing policies for the dedication of land for park and open space in subdivisions by developers. Additional appendices provide background information for the plan.

a,b,c *Comprehensive Park and Open Space Plan*, Town of Ithaca, 1984 update.

Provides a detailed description of existing and proposed parks and bikeways.

a,b,c,d *Conserving Open Space in New York State - A summary of the Plan*, December, 1992.

This is New York State's first open space conservation plan. It was prepared jointly by the NYS Department of Environmental Conservation and the Office of Parks, Recreation, and Historic Preservation. The plan proposes what open space should be preserved for NYS's future and describes how that open space can be conserved and managed in an affordable way.

The report provides:

1. An objective analysis of the State's resources;
2. The knowledge and insight of professionals inside state agencies;
3. The informed and valuable ideas of the public, local government, and the private sector.

The full report provides details of the plan and the Final Generic Environmental Impact Statement - June '92. The report provides a forum of significant public participation, environmental design opportunities and a guide for local conservation planning. It is one of the best open space conservation plans prepared to serve as model for similar state agencies elsewhere.

a,b,c,e *Conserving Open Space in New York State*, NYSDEC & OPRHP, 1992.

For the first time in New York State history a comprehensive Open Space Conservation Plan for conserving New York's remarkable open spaces and historic resources has been completed and ready for implementation. The report which was authorized by a 1990 act of the State Legislature, was prepared through a joint effort by the Dept. of Environmental Conservation (DEC) and the Office of Parks, Recreation and Historic Preservation (OPRHP) in conjunction with nine regional advisory committees appointed jointly by the state and county governments. One of the strengths of the plan is its effort to go beyond public land acquisition, to encouraging private land stewardship. The plan recommends several priorities for state action to conserve open space and cultural resources. The enhanced value and acceptance of the plan comes from the various Regional Advisory Committees appointed to advise the Department and the Office on the creation and implementation of an open space conservation program. The plan provides a section on Major Linear Systems which includes an element on important trails. The trail which has been planned is the Finger Lakes Trail which crosses through the southern towns of Tompkins County in an east west direction.
One of the projects which has been identified as priority in the Plan is located in Tompkins County. The Cayuga Inlet Corridor Trail connects four State parks (Taughannock Falls, Allan H. Treman, Buttermilk Falls, and Robert H. Treman.)

This plan is a very valuable resource for relating regional conservation activities on open space and trail development to Tompkins County. Its counterpart in Tompkins County is the recently published (July 1995) Action Plan on Building Greenways for Tompkins County. These two plans with the New York State Finger Lakes Bicycle Routes Plan, along

with numerous other local open space plans, make Tompkins County one of the best and most planned counties for open space and corridors/trails in the nation.

a,b *Cornell Cycles: A New Call for Transportation Alternatives*, Cornell University Office of Transportation Services, 1992.
In an endeavor by Cornell University to reduce dependence on cars and parking facilities on the campus the office has conducted a comprehensive study of bicycling needs for the campus. The study included an extensive survey, analysis of current needs and conditions, and outlined specific recommendations for system-wide improvements.

a,b,c,d,e *County Bikeway Study*, Tompkins County Planning Department Study File (EMC Coordinator) Study File, 1991.
The file begins with a memorandum from the USDOT/FHWA, dated March 28, 1991 informing local communities of its intent to initiate a National Bicycling and Walking Study. The first objective of the study is indicated to determine "current levels of bicycling and walking and to identify the reasons why they are not better used as a means of transportation." this study was reviewed and presented under ELEMENT 2.1 above. It was completed in 1994 and is one of the most thorough and comprehensive studies ever published.

The file contains the survey forms of the study mentioned above. Correspondence with NYSDOT, Cornell University, Rails-to-Trails Conservancy, USDOT/FHWA, USEPA, and Bicycling are kept in the file.

The file also contains a 1987 copy of the Highway Design Manual, a 1989 copy of "Bicycle Security Devices" Prepared by the San Diego County Bicycle Coalition and several other articles and reports useful primarily for urban planners of bikeways.

a,b *East Ithaca Recreation Way - A Local Commuter Linkage*, Town of Ithaca.
The Town of Ithaca proposes to upgrade the existing abandoned Lehigh Valley Railroad right-of-way which stretches for approximately 1/2 mile between Honess Lane and Maple Avenue. The plan is schematic, illustrating the location, potential linkages, and specifications of the way.

a,b,d *Environmental Image: Tompkins County Comprehensive Plan Studies*, Phase III, Tompkins County Planning Department, 1975.
The report represents an analysis of environmental characteristics which affect development, such as bedrock, groundwater, flooding potential, etc.., and man-made features, such as roads and utility systems. From these mapped characteristics the most suitable areas for future urban and rural development areas were determined. A compilation of standards of land for major land use types was made and applied to the population and employment projections for the planning period (to 1995) to determine the amount of land needed. The report provides historic, recreational, educational, unique environmental and

physical background for the development of trails.

a,b *Final Report - Task Force on Traffic Issues*, City of Ithaca, New York, 1994.
The report provides information including an analysis of traffic flow through specific neighborhoods, discussions of bicycle, pedestrian, and transit needs. Prepared by an advisory committee of interested residents.

a,b,c,d,e *Genesee Valley Greenway: Guidelines for Action*, Genesee Valley Greenway Steering Committee, New York Parks and Conservation Association, National Parks Service Rivers, Trails and Conservation Assistance Program, 1993.
The Genesee Valley Greenway is an action plan, an opportunity to preserve a 50 mile natural corridor between Letchworth State Park and Lake Ontario in Rochester, N.Y. The vision is broader than just a hiking and bicycling trail. It addresses a variety of activities, such as, boating, picnicking, fishing, cross-country skiing, horseback riding, and snowmobiling (excluding motorized recreation vehicles). One of the main goals of the plan is to "Develop a recreational trail ---along the abandoned canal and railroad right-of-way." this goal has resulted in a recommendation specifying linkages between local trails and regional trails such as the Finger Lakes Trail in Letchworth State Park, which trail also crosses Tompkins County. The plan recommends that the trail follow the historic route of the railroad to the greatest extent possible. The trail is considered as a multi-use recreation way. Other recommendations include, privacy for adjacent landowners, environmental compliance, signs, materials and design. An appendix provides a long list of funding sources and useful publications. The plan as a policy document for action and public participation is a very useful resource for communities facing similar opportunities.

The report also lists a set of goals and recommendations, types of trail development, use, safety, liability and management/maintenance. The trail/greenway is recommended as a day use trail with no overnight facilities because camping presents difficult management problems. However, a list of nearby Hotels and Bed & Breakfast places is given with signs and trail literature. The report presents a section on environmental compliance, another section on funding sources, and a list of useful publications at the end. This report is one of the best of its kind in providing a comprehensive approach to trail planning, design, development in a larger context of the community and its environs. A wealth of practical information helpful as a handbook.

b,e *Implementation Options for Setting up a Greenways System in Tompkins County, N.Y.*, Frank Daphnis, Jr.
This report presents an overview of available options for the protection of land and waterways in Tompkins County. A basic assumption of the report is that local governments will act in concert with the Greenway Coalition's objections. Does this mean that if local government is not fully sympathetic or respond on a timely basis to the Coalition's requests that the Coalition would fail? Yes, according to the author of this report. But fail or not, the writer has some good points worth discussing. The author begins with a statement on open space acquisition that will serve two purposes:

1. Entertainment/leisure, such as, national parks, forests, and golf courses, and
2. Environmental/ecological, such as, wetlands, rivers, linkages (bikeways & trails), hedgerows, etc.

He follows his statement by presenting several options for the Coalition's consideration:

A. Fee Simple Purchase - considered to have the highest level of control over land and water.
B. Purchase/Leaseback is a land use control tool that helps alleviate market pressures exerted on the property.

The author presents the following five techniques for acquiring ownership of a targeted property:

i. *Fair Market Value Sale* - if financial resources are available.
ii. *Land Exchange* - relatively as low cost transaction but may create difficulty in compatibility of use.
iii. *Eminent Domain* - government acquires the property upon payment of "just compensation". This is a time consuming option and should be considered as a last resort.
iv. *Tax Foreclosure* - acquired by government when owners fail to pay property taxes.
v. *Gift/Donation* - excellent option but needs much public relations.

C. Lease - good, inexpensive but short term control only.
D. Easement - easier to negotiate with landowners and provides control on development rights. The amount to be paid to the landowner will usually be much less than would have to be disbursed for an outright purchase.
E. Deed Restrictions - resemble easements but are more long range oriented. The owner sets the rules and insure a reasonable protection of the property.
F. Zoning - this kind of control is accomplished by government on behalf of the "protection agency." The following are some techniques used in zoning ordinances:
   i. *Large-Lot Zoning*
   ii. *Carrying Capacity Zoning* - determined by the area's physical or natural capacity.
   iii. *Cluster Zoning* - Open spaces are created by the grouping together of large or smaller size lots.
   iv. *Planned Unit Development*
   v. *Performance Zoning* - a difficult tool because it is associated with establishing appropriate criteria and measures for environmental impacts such as the level of subjectivity involved, and finding an acceptable balance between environmental protection and permitted use of the property.
   vi. *Preservation Overlay* - a preservation area overlaid over other already zoned areas.
G. Subdivision Exactions - either provide a specified amount of space for parks and playgrounds in a proposed new subdivision, or pay an amount of money in trust for such open space use.

Having presented a set of options for acquiring or reserving and preserving open spaces for greenways and trails, the study would have been more complete and effective if some empirical data were presented. How similar options adopted by other communities have met expected goals for preserving greenways and establishing community trails.

a,b,c,d *Ithaca's Bikeways*, Cornell University Landscape Architecture Graduate Program, 1975.

This is a brief report describing physical features of the Ithaca Urban Area; survey results of Ithaca Bicycle users; a plan showing class I, II, and III Bikeways; an implementation schedule of recommendations to the City and Town of Ithaca governing bodies to implement the plan as funds are made available. A bibliography is included.

The introductory portion of the report gives a weak rationale for the development of a bikeway. It is not fuel shortages that have forced many communities in Europe to have a large number of bicyclists for daily commuting, but rather a combination of tradition, economics, and short commuting distances. However, with the expansion of many cities in Europe, communities are expanding public transit systems rather than bikeways.
Currently U.S. cities are experiencing a growth trend in developing bikeways, and register increased sale in bicycles.

The report is generally a graphic presentation of the natural and man-made urban features of the Ithaca area. It follows with an analytic section on information gathered from Ithaca area bicyclists and limitations of such riders. The road systems joining the city flats to the uplands and the residential neighborhoods on the hills surrounding the city create the initial difficulty. Steep grades well over 10% and the long cold winters
with icy roads make it extremely dangerous and impractical for those who bike their way to school and work.

The section on "Getting It Done" is perhaps the best part of the report. Three main recommendations are presented for consideration by local government:

1. Generate support for bicycle riding in Ithaca.
2. Build a bikeway network step by step as part of a long range community plan.
3. Provide support facilities, such as bike racks, bikeway lighting, shelters, and service centers, to make bicycling more practical and attractive.

The report concludes with a list of resources to help in planning, financing and developing bikeways.

a,b *Ithaca-Tompkins County Bike Network*, Tompkins Coalition for Bicycle Transportation, 1993.

This is a proposal, by local cycling advocates and planning professionals, for the development and maintenance of a countywide on-road bike route network. Low cost improvements have been identified to facilitate bicycle travel in the County.

a,b,c,d,e *Lehigh Valley Railroad Right-of-Way: East Ithaca-Freeville*, Tompkins County Planning

Department, 1977.
On October 20, 1977 the NYSDOT notified local municipalities in Tompkins County of it's intent to abandon the East Ithaca-Freeville section of the Lehigh Valley Railway system. On December 1, 1977, LVRR was notified by the Tompkins County Board of Representatives of their intent to petition the NYSDOT to allow the County to exercise a preferential right of negotiation in concert with Cornell University, City of Ithaca, Towns of Ithaca and Dryden, and the Village of Freeville. The report provides detailed descriptions of the abandoned rights-of-way. Enumerates the tax map numbers of all the properties involved in the rights-of-way. Acreage details, structures by type, length, and descriptions, culverts and intersections, land use and other activities were all inventoried. The report also provided an extensive and complete list of community activities contiguous to the abandoned rights-of-way. There is a separate section on Recreation Trails. A multi-use trail was recommended to provide opportunity for hiking, biking, jogging, horseback riding, snowmobiling, skiing, fishing and nature study.

a,b,d *NY Statewide Trails Plan*, Office of Parks, Recreation, & Historic Preservation, 1994.
The report points out the all season nature of trails because of the increasing numbers of bicyclists, pedestrians, equestrians, snowmobilers, the disabled and others seeking extended outdoor opportunities and transportation alternatives.

The report identifies that New York has over 16,000 miles of trails exclusive of many miles of bike lanes being established as part of the state highway system. It provides a list of nine recommended actions in order to make trails a more integral part of the state's recreation, tourism, transportation and conservation heritage. In chapter 4, Major Trail & Greenway Planning Initiatives, several pages are dedicated to rail-trail conservancy trail system. A network of foot paths, bikeways and parks as components of a greenway system is being developed.

a,b,d *NYSDOT Highway Design Manual*, Chapter 18 (revised), New York State Department of Transportation, 1986.
The report is prepared primarily describing facilities for pedestrians and bicyclists. Extensive guidelines and design standards concerning the handicapped, pedestrians and bicyclists are provided which may be very useful to community planners in their efforts to prepare plans for trails, bikeways, and pedestrian ways. A more up-to-date version may have more relevant standards and design details for planning purposes.

a,b,c,d,e *Proposal for a Transportation Management Information System*, Anthony Richardson and Arnim Meyburg, 1987.
This report was done to primarily develop a transportation model to plan for future road networks, and for planning for improvements in the local and area wide road network and for maintenance. To develop the transportation model, which came to be known as the MacTrans Modeling package, an extensive community wide survey was conducted, one of the most sophisticated of its kind. The household survey helped develop a plan of "desire lines" throughout the County community and paved the way for planning different

transportation modes including bikeways. It is the reviewer's suggestion that this kind of a plan be updated regularly and provide a strong analytic basis for effective planning of community transportation corridors including bikeways.

a,b,c *Scenic Roads in Tompkins County*, Tompkins County Scenic Roads Committee, 1969.
A scenic route combines the natural and cultural features along a corridor that provides an outstanding visual experience as one travels through. With this definition the report expands into documenting scenic roads in Tompkins County.
Initially the committee had identified over 15 possible routes. A final five recommended sites were determined by a combination of decisions from the committee, a panel of informed local people, and an opinion survey of the Board of Representatives. Most of the report is devoted to the documentation of the five scenic routes along existing state highways in Tompkins County.

a,b,c,d *The Village of Lansing Greenway Plan*, Village of Lansing Greenway Committee, 1994.
The report is a guide for the development of a comprehensive network of parks and recreation facilities consisting of bikeways, walkways, park land and designated natural areas. The purpose of the plan is to create a "walking village." Various surveys are used to assist in the development of short and long range strategies to develop and maintain greenway trails and associated park and recreation spaces. Given the political will and community support this plan may become a reality.

a,b,c *1993 City of Ithaca Bicycle Plan*, City of Ithaca Bicycle Advisory Council, 1993 (draft).
A Citizen Advisory Committee was appointed in 1990 to work on a proposal for making the City of Ithaca a "bicycle friendly" community. The draft plan has served as the basis for a successful project application under the *ISTEA* Enhancement program. In some ways the objectives of the plan have been successful to the point of being included in the credible transportation planning framework of the *ISTEA*. As such it may receive greater attention and consideration for adoption by the City.

a,b,c,d *2015 Long Range Plan*, *Ithaca-Tompkins County Transportation Council*, December, 1994.
The plan was created as part of the Tompkins County Metropolitan Planning Organization's initial efforts to address the requirements of the *Intermodal Surface Transportation Efficiency Act of 1991* (*ISTEA*). The plan provides a twenty-year projection for the transportation system in Tompkins County urban area and represents the product of an extensive public participation effort by the MPO. A fiscal plan for the 20-year projection is included. Over $666 million are estimated to be spent over a span of 20 years to address the goals and objectives of the plan and accomplish it's recommendations.

The plan is a policy-oriented document for the development of a transportation system in Tompkins County. It is designed to provide a planning process that is "continuing, cooperative, and comprehensive."

The plan provides a brief section at the beginning explaining the origin of the Tompkins County Metropolitan Planning Organization and its present structure to address the issues raised by the *ISTEA* of 1991.

This plan is one of the most promising efforts to date that has the potential of becoming a conducive environment for many great ideas for the improvement of moving people and goods in and around Tompkins County. The plan is designed to address multi-use and multimodal travel. Under Bicycle Issues, the creation of a local transportation system that is bicycle-friendly is highlighted; under Pedestrian Issues, the creation of a safe and efficient network for pedestrian travel is stressed; under Environmental Issues, the ensuring of transportation programs and projects for the preservation and enhancement of the existing community fabric is recommended; under Mobility, management of the transportation system to balance the "supply" and "demand" for transportation resources is stressed.

The plan contains a wealth of data that serves to strengthen its analytic base and provide a strong rationale to plan. And indeed the plan does provide a clear direction for community based planning. One of the strengths of the plan is its vision statements in the form of goals and objectives. Special sections are provided to Bicycle and Pedestrian issues in the context of the overall package of transportation issues.

A set of maps describing the County Federal-Aid Functional Classification system, the 1994 Public Transit Routes, Intermodal Facilities, Existing and Proposed Bikeways and Recommended Pedestrian Links are provided. A set of congested areas that have been identified in the urban area are presented in graphic form. Another strength of the plan is one of its concluding chapters on Policies and Recommendations without which a plan would indeed be incomplete.

Additional Pamphlets on Trails:

Cornell Plantations Path - A walking tour of horticulture, geology, and natural history at Cornell University. Public Affairs Office at Cornell Plantations

Six Mile Creek Gorge: South Hill Recreation Way in the Town of Ithaca - A Short Nature Trail. Town of Ithaca Planning Department, August, 1994.

Walk Ithaca - The Circle Greenway providing for a walk among the natural and man-built features of the City and Town of Ithaca.

APPENDICES

USER GROUP INTERVIEWS

In the interest of providing public information and creating communication conduits for this project, the Consultant Team sought local groups who may be interested in the planning and outcome of the Transportation Trail/Corridor Study. Sixteen groups were contacted individually in October, 1995 and asked questions such as:

1. General description of each group (purpose, size, meeting times, etc.)
2. Scope of group's interest in trail development and use.
3. Group's perceived needs and dreams (what they might do if they could).
4. Is the group actively engaged in future planing?
5. How could the *ITCTC* study be useful to this organization?
6. What alliances does this group have or desire to have?
7. Concerns: conflicts of use, competition for space, safety, liability, etc.).

The following groups were identified as potential local users for trail corridors in Tompkins County. Responses are intended to provide a succinct picture of the group's organization, interests, activities and plans. Each group offered a contact person.

The Dryden/Caroline Drifters Snowmobile Club

This is the largest snowmobile club in the County, with membership of 200 to 300 people. Founded in 1987, the club meets monthly. Group has its own insurance. Surface of proposed trails is of no importance. Snowmobiles may aid in grooming trails in winter. Funds available for trail development for snowmobiles through the State. One positive use of the proposed trail system would be to bring other snowmobile groups, such as those in Schuyler and Yates counties who can already get to the Trumansburg area, into Ithaca and other parts of the County.
Contact: Mark Allen 255-2966.

Cayuga Dressage and Combined Training Club

The largest equestrian group (about 80 members) in Tompkins County, representing a wide range of horse and riding interests. Group's interests are primarily education and training techniques but information, such as new trail development, would be welcome. There are members who would use these trails. Multiple-use is a concern. Could be useful if the trails were wide enough to accommodate passing bikes or pedestrians. Also, trail entry points providing space so a trailer could load or unload horses would be helpful. Would be interested in receiving information updates.
Contact: Carol Morris, club president, 170 North Street, P.O.Box 139, Dryden, NY 13053, 844-8211 (ext. 4425).

Finger Lakes Running Club

Some 400 members, some from other counties and states, who gather for about eight trail races a year. They run primarily on earth trails although gravel greenways can form part of their route. They are very interested in being in the information loop.
Contact: Joe Dabes, 844-3872 or Herb Engman, club president, 255-2536.

The Hash House Harriers

Eighty members, with 20 to 30 runs per year. Like the Finger Lakes Running Club, they run primarily on earth trails although gravel greenways can form part of their route.
Contact: John Czamanske, 273-6260.

City of Ithaca Bicycle Advisory Council

Seven representatives of City bike issues who are appointed by the Mayor. Involved in long term bicycle planning; several of the *ITCTC* proposed routes may link to the City system. Lois Chaplin, who is a member of the ITCTC Steering Committee is also a member of the Advisory Board and would be a good information conduit.
Contact: Jon Meigs, City of Ithaca Planning Department, 274-6550.

Tompkins County Greenway Coalition

A proactive volunteer organization representing many of the greenway, trail development, land use planning, recreation and environmental conservation interests of the County. In 1995 the Coalition prepared and published (in conjunction with the *ITCTC*) the report Building Greenways for Tompkins County: An Action Plan. Meets monthly to discuss current greenway-related activities in the County. Has sponsored public lectures and informational workshops and has contributed significantly to the approach and conclusions of the *ITCTC* study.
Contact: Candace Cornell, 257-6220 or Nancy Ostman, 255-9638.

Circle Greenway

Now under the aegis of the City of Ithaca Parks Commission, this greenway offers a ten and a half mile route through the City and is intended to "expose the City to view". The Greenway is seen as an urban pedestrian pathway that connects various City neighborhoods and links to County trails that radiate from the City core.
Contact: John Ullberg, 255-8115.

Village of Lansing Greenway Committee

A municipal group actively working for several years with the Village Planning Board to develop the greenway plan that has been adopted by the Village. Could provide a connection with the County system at several locations.
Contact: Carol Klepack, 257-8310.

Lansing Trailways Committee

Active greenway group responsible for planning the Libertyville Trail in the South Lansing area. Libertyville Trail offers potential connections to the County trail system.
Contact: Dan Broadway, 533-7078 or Gay Nicholson, 257-9487.

Finger Lakes Land Trust

Established in 1989 to receive and manage gifts of land in Tompkins County the Finger Lakes region. May be particularly useful in terms of establishing conservation easements for trails. Interested in being in the information loop as development of the trail system progresses.
Contact: Gay Nicholson, 275-9487 or Herb Engman, 255-2536.

Nordic Ski Club Of Ithaca

Founded about 10 years ago and now has 70 to 80 members. Group events about once a week when there is snow and feel that cooperation with snowmobiles on established trails would be useful. Although some members prefer challenging trails with significant changes in grade, others would prefer the long level stretches that a railroad corridor offers.
Contact: David Blanpied, 257-0396.

Cayuga Nature Center

A private nonprofit organization dedicated to environmental education. As the State's proposed Black Diamond Trail will intersect Nature Center property on Route 89 in the Town of Ulysses, the Center is interested in linking its own five miles of trails to a potential County system.
Contact: Janet Hawkes, 273-6260.

Ithaca Youth Bureau

Besides supplying a large number of potential trail users, the bureau organizes community conservation corps every summer. In the past, these work groups have been very active throughout the County building bridges and trails. The bureau is interested in the results of this *ITCTC* study and feels that involvement of local youth in building or maintaining trails creates a positive sense of ownership in this aspect of the community.
Contact: Ric Deitrich, 273-8364.

Tompkins County Senior Citizen Council

Represents fourteen separate units in the County and is, therefore, a major conduit for information to senior citizens. The Council hosts a health walk every spring with about 200 participants. Currently preparing walking pamphlets for their membership and are interested in the idea of a trail system that features railroad corridors because of safety issues and ease of grades.
Contact: Mimi Hardy, Health and Wellness Director, 273-1511.

PUBLIC MEETING SURVEY

TECHNICAL MEMORANDUM NO. 1

TECHNICAL MEMORANDUM NO. 2

TYPICAL SECTION SKETCH DRAWINGS