TOWN OF ITHACA
NEW YORK

1992 OPEN SPACE REPORT

INCLUDING THE
OPEN SPACE INVENTORY,
ASSOCIATED MAPS,
AND OPEN SPACE INDEX TALLY

December, 1992

PREPARED BY

THE TOWN OF ITHACA CONSERVATION ADVISORY COUNCIL (CAC)

Current and Former Members of the CAC

Celia Bowers
Candace E. Cornell
Richard J. Couture
Richard Fischer
Eva Hoffmann
laura marks
John G. Whitcomb
Phillip Zarriello
Christiann Dean
Dooley Kiefer
Ruth Mahr

The Conservation Advisory Council is a group of Town residents who have volunteered thousands of hours of their time in the preparation of the Open Space Report to help maintain the Town of Ithaca's cultural, historical, and environmental heritage as we approach the 21st Century.

The CAC would like to express its deep appreciation to all the members of the Town of Ithaca Planning Department for their advice and assistance. We would also like to thank various other professionals, interested members of the public, and many volunteers, who gave their constructive opinions, expertise, and experience in the development of this report.

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December 1, 1992

FOREWORD TO THE ITHACA TOWN BOARD

The Ithaca Town Board established a Conservation Advisory Council (CAC) in February 1990. The Town Board outlined the primary initial task of the CAC to be as follows: "Conduct and maintain an inventory of the natural resources within the Town of Ithaca and maintain an up to date index of all open spaces as defined in Section 239-y of the General Municipal law, in public or private ownership within the municipality, including but not limited to natural landmarks; glacial and other geomorphic or physiographic features, streams and their flood plains, swamps, marshlands, and other wetlands; unique biotic communities; scenic and other areas of natural or ecological value. Such index shall include ownership, present and future uses of such open areas, so as to provide a base of information for recommendations by the council for their preservation and/or use."

New York State General Municipal Law (Article 12-F, Section 239-x-y, Appendix A) states that one of the primary duties of a CAC is to develop a Conservation Open Areas Inventory and Map to be adopted by the Town Board as an Open Space Index. Although the State requires that CACs develop these documents, little guidance is provided. With direction from their Town Boards, each CAC is therefore responsible for the development of an Open Space Index appropriate for its municipality and subsequent presentation to the local legislative body for adoption.

After consultations with the Town Board and Town Attorney, the Town of Ithaca CAC defined open areas (open space), set forth the rationale for conservation, and established guidelines for the Town staff and the Open Space Committee (OSC) to follow in this project.

To develop the Open Space Inventory, the CAC obtained and incorporated substantial data from aerial photographs, field checks, and existing land use maps into the Open Space Inventory. These include natural features, existing parks and recreational facilities, streams and their associated corridors, wildlife habitats, and agricultural lands. Additional

information on biological corridors, development buffer zones, cultural and historic sites, important scenic views, and park expansions will be added when available.

For the Town of Ithaca, the CAC defined an Open Space Inventory as a description of all open areas in the Town, based on significant ecological, cultural, and historical features. The open areas inventoried by the CAC include all undeveloped land characterized by a relative absence of structures. Some are areas of natural scenic beauty such as meadows and woods while others are associated with human land use including farms, cemeteries, playgrounds, golf courses, and parks. Although the open areas associated with human activities technically constitute developed space, they do retain a sense of openness for the community.

The 1992 Open Space Report emphasizes the importance of protecting or preserving significant ecological, cultural or historical *features,* rather than entire parcels of land. The spreadsheets (pages 39-47) and the seven maps at the end of the report depict these important features, as well as open areas set aside from subdivision plats, publicly owned open areas, and any open areas known to be preserved by private individuals or organizations.

The Open Space Index (Appendix C) tallies the environmentally important features listed in Table 1. A high number of features tallied in the Open Space Index does not mean that the entire acreage of the numbered area needs to be protected. Therefore, no ranking of specific properties or parcels of land is implied. Rather, areas containing sensitive ecological features will require careful scrutiny during the Town of Ithaca Environmental Review process for development approval. It is essential that these important environmental features be protected for the integrity of the ecosystem and for the benefit of our citizens and generations to follow. The Open Space Inventory, Index, and associated maps will become the official Town of Ithaca Open Space Index after acceptance and approval by the Town of Ithaca Town Board.

The CAC expects this Report and Index will assist the Town's comprehensive planning efforts by supplying environmental, cultural, and historical information. A future project of the CAC should be the

development of an Environmental Atlas. This document would contain detailed maps, giving exact locations and sizes of the sensitive ecological, historical, scenic, and cultural sites identified in the Open Space Report and Index. This Atlas would provide more detailed information to the Town of Ithaca as it continues to incorporate open space considerations into its planning decisions.[1]

The CAC urges prompt adoption of a resolution approving the Open Space Report, Inventory, Map, and Index in order for the Open Space Index to become of immediate help in the planning process of the Town of Ithaca. The CAC also requests designation as the Conservation Board of the Town of Ithaca by local law as soon as possible.

TOWN OF ITHACA CONSERVATION ADVISORY COUNCIL

John G. Whitcomb, Chair

[1] Steve Murphy. 1982. *The Atlas User's Manual.* Monroe County Environmental Management Council.

PREFACE

A MESSAGE FOR THE COMMUNITY

The Open Space Inventory Spreadsheet (Appendix B) and the Index (Appendix C) contained within this report identify the important ecological, cultural, and historical resources that give the Town of Ithaca the special character enjoyed by all its residents. The continued presence of many of these valuable resources is a tribute to the stewardship of the landowners of the Town. The CAC and the Town Board wish to recognize the contribution these landowners have made to preserve the present rural character of the Town. The Open Space Report will serve to compliment the efforts of these landowners.

This report will help Town officials and planners manage growth and development in an ecologically and socially responsible manner.[2,3] In both the Inventory Spreadsheet and the Index, the CAC is not recommending preserving the entire area on which sensitive ecological, cultural, or historical resources occur, but only the specific portions containing the sensitive features.[4] For example, if a 100 acre area identified in this report has an important historical site, major scenic fragile and scenic gorges, and streams leading to the City's watershed, the CAC is advising that any development occurring there avoid disturbing these sensitive features. By doing this, we will enable passing the legacy of the land on to future generations.

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[2] Michael A. Mantell, Stephen F. Harper, and Luther Propst. *Creating Successful Communities: A Guidebook to Growth and Management Strategies.* 1990. Island Press, Washington, D.C.

[3] Michael A. Mantell, Stephen F. Harper, and Luther Propst. *A Resource Guide for Creating Successful Communities.* 1990. Island Press, Washington, D.C.

[4] Frederic O. Sargent, P. Lusk, J. A. Rivera, and M. Varela. 1991. *Rural Environmental Planning for Sustainable Communities.* Island Press, Washington, D.C.

The various uses of this report that are expected for residents of the Town are outlined below.

TO ASSIST IN THE DECISION MAKING PROCESSES OF:

- Planning Staff
- Town Board, Planning Board and Zoning Board of Appeals
- Comprehensive Planning Committee
- Environmental Review Committee of the CAC
- Applicants of building and site plans in completing and reviewing proposals
- Greenbelt planning
- Voluntary land use protection
- Regulatory land use
- Possible land acquisitions
- Tourism Development

This document is intended to assist in planning for the betterment of the entire community and its natural environment. The CAC respects the right of private property as a basic right guaranteed by the United State Constitution. However, the social obligation of property rights implicit in Constitution also gives the community a right to preserve its quality of life and environment and to protect the welfare of its citizens. The Town has a well-founded objective to preserve sensitive areas possessing ecological, historical, and cultural significance.[5] Development of valuable

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[5] "It is a fundamental axiom of American constitutionalism that government exists to serve the public good. It is empowered to enact laws only in the public interest. Property rights are the creations of laws, and the law of property must, like all other law, serve a public purpose." Professor John A. Humbach, "Law and a New land Ethic," Minnesota Law Review, Vol. 74, No. 2, December 1989. The social obligation of property rights is implicit in the United States Constitution and has therefore been left for interpretation by the courts. Justice Holmes stated in Hudson County Water Co. v. McCarter, 209 U.S. 349 (1908): "It is sometimes difficult to fix boundary stones between the private right of property and the police power .....but it is recognized that the State.... has standing in the courts to protect the atmosphere, the water and the forests within its territory, irrespective of the assent or

environmental features such as wetlands and stream corridors are currently regulated by Federal, State, and local laws and ordinances. The CAC recognizes the importance of the stewardship of the landowners and it is the intent of this Town to cooperate with these landowners and provide them with incentives to maintain the open space whenever practical. This report will also benefit landowners by identifying the approximate locations of such features so that future development can be planned and designed to avoid or mitigate impacts that would compromise the environmental or aesthetic quality of the Town.

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dissent of the private owners of the land most immediately concerned." *id.* at 355. "All property in this country is held under the implied obligation that the owner's use of it shall not be injurious to the community." Mugler v. Kansas 123 U.S. 623, 665 (1887) (citing Beer Co. v. Massachusetts, 97 U.S. 25, 32 1877).

CHAPTER I

THE TOWN OF ITHACA OPEN SPACE INDEX

A. DEFINING AN OPEN SPACE INVENTORY AND INDEX

In a business, an inventory is a tally and listing of a company's assets and their relative value. Merchants perform these inventories on a regular basis to monitor the state of the company's resources. The Town of Ithaca also needs to identify its assets in terms of natural resources, and sites of cultural and historical significance. The Open Space Inventory simply lists all of the valuable resources while the Open Space Index tallies the environmentally sensitive features found in the Town.

B. PURPOSE OF THE TOWN OF ITHACA OPEN SPACE INVENTORY AND INDEX

The purpose of the Open Space Inventory and Index is to identify the valuable natural, historical, and cultural characteristics present within the community. The Open Space Inventory was created in response to the growing concern to maintain environmental quality. It will serve to inform the various governing boards, planning staff, and landowners of these valuable features in order to avoid or mitigate adverse developmental impacts. In order to do this, the CAC needs a baseline inventory of the environmental features in the Town. Specifically, the CAC supports the following open space planning objectives of the Town:[1]

- Protection of natural resources, open space, environmentally, historically, and culturally sensitive areas, and Unique Natural Areas[2] for present and future generations.
- Channel development toward areas within the Town that are least likely to be harmed by such development.

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[1] *Draft Town of Ithaca Comprehensive Plan, Chapter 3. May 11, 1992,* Comprehensive Planning Committee, Ithaca, New York.

[2] *Unique Natural Areas of Tompkins County.* The Tompkins County Environmental Management Council, 1990 Inventory. Tompkins County, New York.

- Protection of water and air quality by minimizing impacts from erosion, sedimentation, and drainage through protection of stream corridors, designated 100-year floodplains, wetlands, steep slopes, woodlots, and Cayuga Lake and its shore.
- Save taxpayers and developers unnecessary development costs by steering development away from environmentally unstable areas with potential for flooding, silting, or erosion.

The immediate emphasis of this Open Space Index is on the protection of environmentaly sensitive features. This does not suggest, however, that the CAC is diminishing the importance of protecting parks and recreational facilities, scenic panoramic views, buffer zones, or sites of historic and cultural significance. These other elements should receive greater attention in an extended Environmental Atlas, to be completed at a future date. Another area in need of further research is the protection of the water quality of Cayuga Lake. The lake is integral to the welfare of the local ecosystem and is a major water supply for the Town. Because of the scenic beauty of the Finger Lakes region and the many recreational opportunities Cayuga Lake and its environs provide, the lake is a major source of tourism revenues. The scope of this report is limited to activities affecting the water quality of the tributaries of Cayuga Lake in the Town.

C. THE NEED FOR THE OPEN SPACE INVENTORY AND INDEX

An open space inventory and index is a useful tool to foster wise and environmentally responsible land use decisions. The task of balancing the material and development requirements of a community with the need to conserve natural and cultural resources is extremely complex. At the present rate of growth (approximately one percent of the Town's population per year), a very small portion of the existing open space in the Town will be needed for development in the next twenty years. The challenge is to encourage development toward areas where it is appropriate and to promote the preservation of the environmentally, historically, or culturally important areas that give Ithaca its special character. These are the very amenities that attract new residents, businesses, and tourism to the Town.

One of the duties of the CAC is to assist the Town of Ithaca in making environmentally sound land use decisions. The CAC expects that some of the uses of the Open Space Report and Index may be to:

- Support the comprehensive planning process, including policy formation and planning preparation, relating to the environment, natural resources, agricultural land use, parks, and recreational areas.
- Assist all applicants and reviewers of development proposals in environmentally sound planning.
- Aid the Town in developing land use regulations.
- Guide the Town in the designation of green belts and biological corridors to prevent habitat fragmentation and protect biological diversity.[3]

During these financially challenging times, it may be difficult for some to justify focusing on protecting the environment. However, it is paramount that we recognize the human role in the stability of the environment.[4] For a healthy environment, there must be a diverse ecosystem that can survive sudden natural and human-related changes.[5] All species of plants and animals contribute in some fashion to the integrity of the local ecosystem. Open spaces that include many types of connected habitats are essential to maintain the genetic mixing and integrity of native species. It is the very essence of this genetic integrity and its inherent variability that sustains local species and their ecosystems during times of sudden climatic and other environmental changes. Open spaces provide the vital exchange of genetic material via habitat connection. Without genetic

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[3] Fred P. Bosselman. March 1992 Planning to Prevent Species Endangerment. AICP, *Land Use Law*, pp. 3-8.

[4] Lester R. Brown ed. *State of the World 1992.* World Watch Institute, W. W. Norton Press & Co., New York, 1992.

[5] Edward O. Wilson. 1988. *Biodiversity.* National Academy Press, Washington, D.S.

variability enabling the local species to survive sudden change, stressed local ecosystems collapse.[6,7]

Too often, human interests supersede and destroy the delicate balance that maintains healthy ecosystems. For every species lost or important habitat destroyed, the resiliency of the ecosystem is reduced. In this technological age, we must acknowledge that all of our actions have consequences for the environment. Unfortunately, many of these consequences may be devastating for all living things in the long run. Recognizing the importance of species diversity and the essential role that maintaining open space has in the survival of the ecosystem will help insure the opportunity for our children to have a healthy environment in which to live. [8,9]

Therefore, the preservation of open space is directly linked to a basic tenant of the Town's land use regulations -- "For the purpose of promoting the health, safety, morals or the general welfare of the community."[10] However, the value of preserving open areas goes beyond promoting air and water purity, preserving scenic views, encouraging agricultural production, providing for the recreational needs of residents, or

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[6] Arne Naess. 1984. The Paradox of Environmentalism. *Deep Ecology and Lifestyle.* Downview, Ontario, York University.

[7] Paul Ehrlich and A. Ehrlich. 1981. *A Extinction: The Cause and Consequences of the Disappearance of Species.* Random House, NY.

[8] Michael Soule and B.A. Wilcox (eds.). 1980. *Conservation Biology: An Evolutionary-Ecological Perspective.* Sinauer Associates, Inc., Sunderland, MA.

[9] Edward C. Wolf. 1978. *On the Brink of Extinction: Conserving the Diversity of Life.* World Watch Paper 78, World Watch Institute.

[10] *Zoning Ordinance of the Town of Ithaca, New York*, revised February 2, 1992. The right to regulate land use for the "public good." by municipalities is also implied and upheld by the U.S. Constitution (Amendment V).

maintaining the unique natural characteristics of the Town of Ithaca. Open space is essential for the continuation of healthy environments and ecosystems.[11] In 1990, the Town Board conducted a study to provide data for the establishment of policies that reflect the wishes of its citizens. The response to the "Residents Survey"[12] strongly supports protection of natural areas and concern for the environment. Nine out of ten respondents agreed or strongly agreed with the statement, "Town land use and growth management policies should protect environmentally sensitive areas.[13]"

Everyone pays a price for protecting the environment. Residents spend extra time sorting trash and recycling. Auto buyers pay extra for emission controls. Municipalities and developers must conduct botanical and zoological surveys, wetland delineations, detailed drainage calculations, and other environmental reviews. Businesses and consumers pay for compliance to environmental regulations. However, protection of environmentally sensitive areas can save taxpayers and developers unnecessary expenses. Construction and maintenance of public utilities and roads in environmentally fragile locations is very expensive. By directing development to more environmentally suitable sites, the Town can reduce the cost of public utilities and infrastructure. Taxpayers often are left liable for the future costs of "fixing" the mistakes of building on erodible soils, poorly drainage land, providing inadequate traffic designs, or the high costs of inappropriate water and sewer extensions. The Open Space Inventory and Index will be valuable tools to reduce these types of problems by serving as a guide for wise land use decisions.

Open space protection also makes economic sense (see Appendix D). Numerous studies support the premise that undeveloped land has a definite

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[11] Eugene P. Odum. *Ecology and Our Endangered Life-Support Systems*. 1989. Sinauer Associates, Inc., MA.

[12] *Town of Ithaca Residents Survey*, sponsored by the Town Board's Comprehensive Planning Committee, October 15, 1990, Question 8.

[13] Question 8 from the Residents Survey yielded a highly significant positive response. Robert G. Steel and J.H. Torrie. 1960 .*Principles and Procedures of Statistics.* McGraw-Hill Book Company, Inc. NY.

economic benefit to a community. These studies discredit the belief that only "developed" land makes a positive contribution to the tax base. Studies indicate and suggest the opposite. Conserving open land and carefully choosing those areas that should be developed is essential to the economic health of a community. For example, the annual public cost of maintaining open land in Boulder, Colorado, was $328/acre while the public cost of maintaining developed land was seven times as much at $2524 per acre.[14] The same study found that residential development in Dutchess County, New York, required $1.36 in services for every dollar contributed in property taxes whereas open land required only $0.48.[15] In neighboring Schuyler County, a similar 1992 study indicated that supporting residential development costs the towns of Reading and Montour $1.50 to $1.80 for each dollar of revenue generated. Conversely, open land cost the municipalities only $0.28-$0.32 per $1.00 of revenue.[16]

Construction and maintenance of public utilities and roads in environmentally sensitive locations further exacerbates the cost benefit

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[14] Holly L. Thomas. February 1991. *The Economic Benefits of Land Conservation.* Dutchess County Planning Department, Poughkeepsie, NY.

[15] Bucknall, Christopher P., The Real Cost of Development. 1989. Scenic Hudson, Inc. The report compares the service costs of residential, commercial, and open space in three towns in Dutchess County. In the Town of Red Hook, servicing residential development costs $1.11 for every dollar generated by development in tax revenues while servicing open space costs $0.22 per tax dollar. In Fishkill, the ratio is $1.23 in residential services per tax dollar revenues compared to $0.74 per tax dollar revenue open space acreage. In the Town of Amenia, servicing residential development costs $1.23 for every dollar generated by development in tax revenues while servicing open space costs $0.17 per tax dollar. Communities searching for ways to reduce tax burdens often overlook the economic burden of continued residential growth and view it only as a contributor. The positive fiscal impact of open space is often disregarded in balancing municipality budgets.

[16] Schuyler County League of Woman Voters. *Fiscal Impact of Residential, Commercial and Agricultural Land Use in the Towns of Reading and Montour.* 1992. [Schuyler County, New York.]

ratio of the taxes paid by a community versus those contributed by new development. By encouraging development to occur in more environmentally suitable sites, a municipality reduces the cost of public utilities and infrastructure. Combined with savings to taxpayers and developers, the entire community can benefit from open space preservation.

Land protection does not preclude development of affordable housing. Through the transferal of development densities from sensitive areas to more buildable areas, affordable housing becomes more economically feasible. Incentive zoning allows building at a higher density in some areas while preserving open space and allowing for more affordable housing. Some municipalities require that a certain percentage of units in a residential development be dedicated for affordable housing.[17,18,19] Further, reserving community open space in a development provides all the residents with the benefits of open space, rather than limiting them to the few who can afford to buy large lots. These types of land regulations also spread the responsibility of creating affordable housing and open space to all developers instead of just a few.

D. USES OF THE INVENTORY AND INDEX

Preparing an inventory of open space information is the first step in the process of managing the existing resources of a community. The primary use of this report is for those who are directly responsible for making decisions that pertain to land use including the:

1. Landowners
2. Developers
3. Town Board
4. Planning Board
5. Planning Staff
6. Comprehensive Planning Committee
7. Environmental Review Committee (CAC)

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[17] Frank Benest. February, 1991 Winning Public Support for Low-Income Housing. *Planning Magazine.*

[18] Boulder Valley Comprehensive Plan. 1989. Boulder, Colorado.

[19] Neal Pierce. February 26, 1991. Boulder: Where Growth and Quality of Life Coexist. *Ithaca Journal.*

Other possible uses for the information contained in the Open Space Inventory and Index are:

- Greenbelt and Biological Corridor Planning and Development
- Landowners Using Voluntary Land Protection
- Regulatory Land Use Policies by the Town
- Possible Land Acquisitions by the Town
- Environmentally Sensitive[20] Mitigation Measures for Adjacent Site Disturbances

When future development is proposed on open space, the Planning Board or Zoning Board of Appeals can refer to the Open Space Inventory for additional information regarding environmentally, culturally, or historically sensitive features that exist within the immediate area. In most of the Town's open space areas there is some amount of land that could be built on without impairing the quality of the sensitive features in question. The acreage of sensitive areas identified in the Inventory is often relatively small when compared to the overall acreage of the open space area.

Likewise, the Inventory can be used by developers and landowners to assist in their preparation of building plans, site plans, and subdivision plans. Landowners interested in voluntarily protecting their land by donating it to a land trust or applying permanent deed restrictions would also benefit from this information.

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[20] An "environmentally sensitive" feature or area is an accepted term due to its predominance in the biological and legal literature, and its frequent usage in court decisions.

CHAPTER II

DEVELOPMENT OF THE INVENTORY AND INDEX

A. DEFINING THE TASKS

To fulfill the requirement of the Town Board to produce an Open Space Inventory, Open Space Map, and proposed Open Space Index, the CAC defined four specific tasks:

- Identification of all major open areas in the Town of Ithaca and division into 175 sections for mapping purposes
- Identification of the highest valued environmental, cultural, and historical resources in the Town for the Open Space Inventory
- Development of a method to tally the ecological features of importance in the Open Space Index
- Production of an Open Space Map which will, together with the Open Space Inventory and Index, become the official Open Space Index upon approval by the Town Board

B. CONSTRUCTING THE INVENTORY SPREADSHEET

Listing and categorizing open areas for this Open Space Inventory was a lengthy process and involved many hours of research by the Open Space Committee (OSC). Since there are few guidelines from the State on producing an Open Space Inventory and Index, many important procedural decisions had to initially be made. These decisions included: defining what constituted open space; researching the potential population, development, and economic growth projections of the Town; deciding the appropriate significant features to be included in the inventory (such as the topology, ecology, hydrology, history, land uses, and culture patterns of the Town); and studying the 1990 Residents Survey for guidance on the citizens' needs and expectations of their community.

Several open space inventories and natural resource inventories from other communities were studied to compare content and style. The OSC tried to parallel, whenever appropriate, the proposed comprehensive planning goals for the Town of Ithaca. The Open Space Inventory began by producing a map of all open areas in the Town using available information

from land-use maps, DEC wetland delineations, aerial photographs, and studies of the Nature Conservancy's Eldridge Wilderness, the Cornell Natural Areas, the Tompkins County Unique Natural Areas, and publicly owned land. This data was verified to the extent possible by field inspections.

Developed locations were identified first and removed from consideration as open space. These areas were then shaded in on the Town of Ithaca Map (Map 1). The Open Space Committee then divided the remaining open land in the Town into 175 open areas based primarily on physical characteristics, land use, and road divisions. Tax parcels were intentionally not identified to remove bias based on ownership although many area lines follow evident property lines.

Inventory information related to open space was tabulated using a computerized spreadsheet program "Microsoft Excel" according to: public or private ownership, acreage, vegetative cover, topography, land use, aquatic and biotic features, cultural, historic, and recreational features, special characteristics, zoning, development pressures (definitions in Appendix E and F), and existing protections (Chapter III). The spreadsheet describing these features forms the Open Space Inventory for the Town (Appendix B).

The present subdivision, development, or preservation status of the open spaces in the Town are demarcated in a special column on the spreadsheet. The 25 publicly owned properties are clearly distinguished from private land ownership in this column. The subdivision status ranges from preliminary approval, phasing of subdivisions, no construction, building in progress, and total completion. The utility of this column will be to enable simple updating of spreadsheet information as the Town develops and land is set-aside for preservation.

C. DESIGNING THE OPEN SPACE INDEX

At the present time, the Town has no need for a ranked open space inventory based on weighted feature values because there are no immediate plans for preservation through public acquisition. Therefore, an alternate tally method was chosen that highlights those ecologically vulnerable areas to fulfill the intent of the 1990 Town Board Resolution

to create the CAC for the purposes of Article 12-F, Section 239-x-y, of the State of New York General Municipal Law and to supply the various planning staff and boards with a useful tool for readily identifying the most ecologically fragile areas of the Town. The Open Space Index (Appendix C) tallies the number of features of significant conservation value for each open space (Table 1) assigning one point to each feature type. The tally points range from zero to ten. For example, if an area had three Class A streams, the tally would only reflect one point given for the presence of Class A streams. An area with two wetlands, two Class B streams, two steep slopes, and a pond would have a tally of 4 features, reflecting the four feature types. The tally can also facilitate subdivision proposals by supplying a checklist for the developer, planning staff, and Planning board to expedite the process of submitted proposals.

TABLE 1. FEATURE CATEGORIES IDENTIFIED IN THE OPEN SPACE INVENTORY: ECOLOGICAL FEATURES

(Enumerated in the Open Space Index Tally - Appendix C and illustrated on Maps 2-6.)

Town of Ithaca Critical Environmental Areas (CEA)
Endangered and Significant Wildlife Habitats (Plants and Animal)
Designated 100-year Floodplains
Wetlands
Ponds
Reservoirs
SCS Class I and II (prime) Agricultural Soils
SCS Highly Erodible Soils
Steep Slopes (>15% grade)
Tompkins County Unique Natural Areas (UNA)
DEC-Classified Streams A, B, C, Ct, D and "intermittent," and Corridors
Mature Forests (5 acres or larger)
Old-Growth Woods (over 100 years old)
Major Rock Gorges

LAND USE, HISTORICAL, AND CULTURAL FEATURES IN INVENTORY

(Not Counted in the Index Tally)

Active Farmland
Buffer Zones between land uses
Cultural (e.g., arboretums, nature preserves, cemeteries)
Historic (e.g., Native American settlements, historic landmarks)
Recreational (e.g., parks, trails, playgrounds, golf courses)
Contiguity (areas within 100 feet) to UNAs, CEAs or State Parks
[21,22,23]

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[21] Sources for these data were: verified existing land use maps and aerial photographs by the County, Town, and C.L.E.A.R.S (Cornell University); DEC and USACE wetland delineations; studies by the Nature Conservancy's Eldridge Wilderness and the Cornell Natural Areas; the

D. EXAMPLES OF USES OF THE OPEN SPACE INDEX

The Open Space Index tally (Appendix C) will tell the user what ecologically valuable features exist on a site. Landowners or builders could use the Index as a reference in preparing applications for the Town. In the same manner, the various Town boards and planning staff could cross-reference submitted applications with the features indicated on the inventory. Below are two examples of areas that might be the subject of hypothetical development applications. The first example points out many features that should be avoided while the second example shows that it is suitable for building in its entirety.

1. The Fall Creek Corridor (area #24) is a good example of an area with a total of eight important ecological features. These features are:

   Designated 100-year Floodplains
   Prime and Highly Erodible Soils
   DEC Protected Class B stream
   Significant Wildlife Habitat
   Steep Slopes
   Mature Woods Greater Than Five Acres
   Two Unique Natural Areas
   Pond (Beebe Lake)

Tompkins County Unique Natural Areas database; field inspections and extensive data collection by professional scientists with historical verification by the NYS Museum Collection, Albany, and the Vertebrate Collection at Cornell University; consultations with researchers in the Natural Resource, Geology, Soils Crops and Atmospheric Sciences, Bailey Hortorium, and Ecology Departments at Cornell University, and assistance from the NYS Heritage Program (a section of the NYS DEC).

[22] Soil Survey, Tompkins County, NY. US Department of Agriculture, Soil Conservation Service, Series 1961, No. 25.

[23] NYS Department of Environmental Conservation, Title 6 Conservation, Chapter X Division of Water Resources, 898.4, Ithaca East Quadrangle 3478 CN 1-15-67 Map L-14nw and Ithaca West Quadrangle 3476-CN 1-15-67 Map L-13ne.

2. Area #100 is an example of an area with only one important ecological feature and less sensitive to disturbance. Prime agricultural soil is the only ecologically important feature located on the area.

E. RESULTS OF THE OPEN SPACE INVENTORY AND INDEX

The Open Space Map (Map 1) illustrates that most development has occurred in the eastern third of the Town. The majority of remaining open areas are in the southern and western sections. Some of the sensitive areas with the highest tallies in the Open Space Index are:

- The Fall Creek (area #24), Cascadilla Gorge (area #28), and Six-Mile Creek (area #50) corridors
- Numerous areas with steep slopes dispersed throughout the Town
- Areas with active farmland in the western and southern sectors of the Town
- The wetlands of Inlet Valley (area #106 and #107), the South Hill (Clausen) Swamp (area #76), northeast (area #15) and the northwest corner of the Town (area #164)
- Selected Cornell University Natural Areas ,such as the Mundy Wildflower Garden (area #25), Bull Pasture Ponds (area #22), and Sapsucker Woods (area #14) and areas managed by the Cornell Plantations (area #26)[24]
- Sections in the Coy Glen corridor (area #135, #136, and #137#)

F. SUMMARY

The Open Space Inventory and Map 1 (the proposed Open Space Index) can be of immediate use to the Town (the planning staff, Town Board, Planning Board, Comprehensive Planning Committee, Zoning Board of Appeals, and the CAC's Environmental Review Committee). The environmental information compiled in this report should be considered for all development-related decisions affecting the remaining open areas in the Town.

Although only a small portion of the Town will be developed over the next 20 years, it is imperative that this growth is managed wisely. Utilization of the information contained in this report will help to create growth patterns that ensure local environmental stability by guiding future

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[24] Nancy Ostman and P. Marks. January 1990. *An Evaluation of Cornell's Natural Areas.* One Plantations Road, Ithaca, NY, 14850,

development away from environmentally sensitive areas and toward lands that are more appropriate for development. The proposed Open Space Index identifies areas that encompass combinations of features most worthy of safeguarding for future generations. A high number of features tallied in the Open Space Index does not necessarily mean that the entire acreage of the numbered area needs to be protected. Rather, areas containing sensitive ecological features will require careful scrutiny during the Town of Ithaca Environmental Review process for development approval. It is essential that these important environmental features be protected for the integrity of the ecosystem and for the benefit of our citizens and generations to follow.

CHAPTER III

FUTURE DIRECTIONS

Periodic updates of the Open Space Index will be necessary in order to accommodate additional information accumulated as our Town and global needs change. The CAC intends to follow this report with an "Environmental Atlas" that will precisely locate the inventoried significant features and quantify their size. The Atlas would be a more detailed source of information regarding the natural, cultural, and historical resources of the Town. The Atlas would serve the same functions as the Inventory and Index but with more detailed information than can be included in the Inventory at this time. Responsible planning for the Atlas requires additional information and data as well as conditional updates of existing information. Plans for future additions to the Open Space Report include the following projects:

- Formal delineation of all wetlands and streams corridors in the Town is necessary for creating Environmental Protection Overlay Districts.
- Additional information is also needed to identify significant biological habitats and sites of cultural and historic significance.[25,26,27,28]
- The relationship of different land uses to one another and the distribution of open areas within the Town should be given greater consideration in future planning decisions and editions of this document.

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[25] Samuel N. Stokes and A.E. Watson. 1989. *Saving America's Countryside: A Guide to Rural Conservation.* John Hopkins University Press, Baltimore.

[26] Charles E. Little. 1990. *Greenways for America.* Johns Hopkins University Press, Baltimore.

[27] Gay Mackintosh (ed.). 1989. *Preserving Communities and Corridors.* Defenders of Wildlife, 1244 Nineteenth Street, NW, Washington, D.C. 20036.

[28] Jon E. Rodiek and E. G. Bolen. 1991. *Wildlife and Habitats in Managed Landscapes.* Island Press, Washington, D. C.

Careful consideration of the findings and recommendations of this report will aid the Town in its current planning efforts and policy decisions and help ensure the protection of the attributes that give the Town of Ithaca its special character.

CHAPTER IV

METHODS OF GROWTH MANAGEMENT AND OPEN SPACE PROTECTION

Many methods of conserving significant natural, cultural, and historical open space resources are currently used in communities throughout our country and the world as the awareness of global degradation spreads. There is a vast array of techniques employed in *combinations* tailored to maintain the character of the municipality. These tools include comprehensive planning, public acquisition, conservation easements, zoning, local land use regulations, and state and federal land use regulations. There are many sensitive mitigation measures that can be required by a community to protect its significant ecological, cultural, and historical features. Below are descriptions of the most common tools and techniques used in our area.

A. BASIC PLANNING

The traditional combination of tools for growth management include:

- Community planning entails a comprehensive plan for the foreseeable future. The comprehensive plan may include specific small area plans such as a commercial corridor, directions for future housing and infrastructure, transportation systems, and preservation of important open space of ecological, historic, and recreational importance.
- The development of standard municipal land use regulations including zoning ordinances, environmental, building, and public health review standards, and subdivision ordinances.
- Capital improvement planning and budgeting which schedule future investments in public facilities such as streets, sewer and water lines, and future municipal park acquisition programs.

The growth management process of a town should be a synthesis of the community's goals, objectives, and policies with in depth analyses of projected growth trends. The growth management tools utilized need constant reevaluation and refinement to follow changing market and environmental conditions.

B. SPECIFIC GROWTH MANAGEMENT TECHNIQUES

1. LAND USE REGULATIONS

Local regulatory controls provide for additional levels of review for the public, and local, State, and Federal governments before development can proceed. These review processes enable the public to re-direct or restrict development on a particular site to minimize damage to the character of the town or its environment.

The authority for local land use planning and regulation is derived from the states' authority, granted by the U. S. Constitution and clarified by the Fifth, Tenth, and Fourteenth Amendments, and numerous Supreme Court decisions, to ensure the health, safety, and welfare of its citizens. States have delegated substantial portions of this regulatory authority to local governments. Some of the most influential regulatory techniques for managing growth are put forth in local zoning ordinances, subdivision regulations, and other innovative techniques outlined below:

a) ZONING ORDINANCE

Zoning is the most commonly used local tool for regulating land use. Zoning ordinances determine the location of land uses, the dimensional characteristics of permitted uses such as placement of structures on lots, minimum lot sizes and setbacks, development density, certain landscape features, signage, and traffic circulation. Under the current zoning ordinance, all of the Town is zoned for development. Specific zones for the protection of areas of environmental significance or prime agricultural land do not exist. Open space protection within the existing zoning ordinance includes a mandatory 10% reservation for park space in new subdivisions and a provision that allows the Planning Board to require clustered subdivisions. A comprehensive plan is being developed to realistically plan for the Town's future. Until further protections are enacted, however, zoning provides little protection of open space areas.

<u>OVERLAY ZONES</u>

For sensitive areas, overlay zoning regulations apply additional regulatory criteria to the underlying conventional zoning district necessitating additional levels of review before a project or development can be

approved. Many municipalities create historic overlay districts and floodplain zones using area designation of the National Flood Insurance Program (Appendix E).

An Environmental Protection Overlay District (EPOD) is a zone of specific environmentally sensitive areas, such as steep slopes, wetlands, and stream corridors that are important to keep in open space or large lot use.[29,30] The review criteria of EPODs are designed to minimize adverse effects on the sensitive resource for the integrity of the natural environment and the public's safety and welfare. EPOD legislation is most effective in agricultural and moderate-density residential districts such as R15 and R30 zones where development has been minimal. Despite the additional environmental review and the resulting permit process, EPODs do not provide absolute protection for sensitive areas.

CONSERVATION DISTRICT ZONING

The creation of conservation zoning provides comprehensive protection for fragile environments and is most appropriate in *large areas with important combinations of environmentally sensitive features.* There are several potential areas of the Town that would be appropriate for conservation zoning districts. These large tracts have combinations of rare plants and animals, representative old growth trees, unique geomorphology, and important stream corridors. These potential conservation zones are susceptible to degradation by pollution from nearby developments, recreational over-use, destruction of sensitive habitats, and the presence of highly erodible soils that could easily be destroyed resulting in lowering the water quality of the stream corridors. The important difference between EPODs and conservation district zoning is that EPODs are designed to protect a specific environmental feature while conservation districts encompass large combinations of habitats and features.

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[29] Mark A. Chertok, Sive, Paget & Riesel Associates. *The Multi-Tiered Regulation of Wetlands*, presented at the Association of Towns 1991 Annual Meeting, February 1991.

[30] Daniel Riesel and Chertok, Mark A., Sive, Paget & Riesel Associates. *An Analysis of Steep Slope Regulation* for the Association of Towns 1991 Annual Meeting, February 1991.

AGRICULTURAL ZONING

Agricultural zoning encompasses a wide variety of techniques used in farmland preservation that are highly variable in scope and effectiveness. The four basic types are:

- Exclusive agricultural zoning
- Cluster zoning
- Performance based zoning
- Large lot residential zoning
- Sliding Scale Zoning

Other non-zoning techniques often include purchase or transfer of development rights, various easement programs, local tax incentive programs, and the New York State Agricultural District classification. Exclusive agricultural zoning and performance based zoning are described below. The other techniques are described in various sections of Chapter IV due to their versatility as forms of land use regulation.

EXCLUSIVE AGRICULTURAL ZONING [31]

Exclusive agricultural zoning strictly controls or prohibits uses unrelated to agricultural operations such as non-farm dwelling units. A "farm" is defined according to economic or other performance standards.

PERFORMANCE BASED ZONING

Performance based zoning is usually based standards such as land use compatibility and soil quality. This technique is most commonly used in rural areas lacking sophisticated planning and administrative capabilities facing immediate and intense developmental pressures. The effectiveness of this zoning is dependant on the thoroughness of the established performance standards and must be tailored for the specific municipality. The community must also have the planning machinery for reviewing the adequacy and accuracy of site plans and subdivision proposals.

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[31] Mantell, Michael A., Harper, Stephen F., and Luther Propst. 1990. Creating Successful Communities: A Guidebook to Growth management Strategies. Island Press, Washington, D.C.

LARGE LOT ZONING

Large lot zoning sets minimum lot sizes that usually range from five to 50 acres each. If used in conjunction with other land use regulations tools, this can be an effective method of maintaining rural settings by limiting development density and providing open space. However, if large lot zoning is over-relied on, the net effect to community is land consumption and inefficient low-density sprawl.

INCENTIVE ZONING

Incentive Zoning gives a developer permission to build at greater density or building height in exchange for community benefits, such as preserving open space and/or providing affordable housing for lower income families.

SLIDING SCALE ZONING

Sliding scale zoning is a special district in a zoning ordinance applicable to agricultural areas. It permits a decreasing proportion of subdivision lots as the size of a parcel increases. For example, in a prime agricultural district, two dwelling units might be allowed on ten acres of farmland while four subdivided units might be permitted on a forty acre farm. The rationale is to allow the sale of lots to subsidize the farm while preserving the greatest amount of prime farmland.[32]

b) SUBDIVISION REGULATIONS

Subdivision regulations are widely used to regulate development. In the Town of Ithaca, these regulations include many standards regarding subdivision design, topography, public utilities, streets, sidewalks, landscaping, storm water management, and safety access. The Town of Ithaca requires subdivision proposals to set aside 10% of the land for use as public park or open space. Since these areas cannot be developed at a future date, they are protected as parks in perpetuity. In general, these "pocket parks" are too small to protect habitats or environmentally sensitive areas. However, they provide valuable open space for recreation or as land-use buffers within developments.

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[32] Draft of the Town of ithaca Comprehensive Plan, Ithaca, New York. 1992. Chapter IV.

c) SITE PLAN REVIEW

This is the normal process the Town Planning Board engages in whenever it considers a Business, Industrial, Multiple Residence, or R5 residential zone proposal. During the review process, the Planning Board evaluates the State Environmental Quality Review (SEQR)[33] assessment, prepared by the Town planning staff and developer, and considers any applicable local laws and zoning restrictions.

d) CLUSTERED SUBDIVISIONS AND PLANNED UNIT DEVELOPMENT (PUD)

Clustered Subdivisions and Planned Unit Developments may be required by the Town of Ithaca on sites of five acres or more in all residential districts except in R9.[34] Clustering and PUDs allow flexible layout design and concentration of the development in higher densities on the most appropriate portions of the subdivision parcel. Clustering provides the same number of dwellings as traditional lot layouts while preserving more open space. Clustering and PUDs can limit development encroachment on environmentally sensitive areas, preserve farmland, and reduce the necessity and overall cost of additional road construction, utilities, and public services. As a result, these layouts effectively reduce housing costs and can be used to promote affordable housing.

e) TOWN OF ITHACA ENVIRONMENTAL REVIEW LAW[35]

A local version of the State Environmental Quality Review (SEQR) Regulations was first adopted in 1977. Most proposed development activities in the Town require that boards considering approval or action must first make a determination of environmental significance.

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[33] *The State Environmental Quality Review Act: The SEQR Handbook.* January 1983. NYS Department of Environmental Conservation, Division of Regulatory Affairs.

[34] *Town of Ithaca Subdivision Regulations*, amended and adopted by the Town Board, March 12, 1984.

[35] *Environmental Review Regulations, Town of Ithaca Local Law No. 8*, 1988.

Environmental Assessments of proposed actions are reviewed by staff and by the CAC's Environmental Review Committee (ERC). The ERC's recommendations are then forwarded to the appropriate boards. Some of the local environmental review considerations are more stringent than those of the NYS SEQR law.

f) CRITICAL ENVIRONMENTAL AREA DESIGNATION (CEA)[36]

Environmentally important areas can be designated as a CEA under Article 8 of New York's Environmental Conservation Law. All projects in CEAs are considered Type I Actions (they are likely to be environmentally significant and require a full Environmental Assessment Form (EAF), public comment, and intense review). Although a designation of CEA does not guarantee protection, it ensures thorough scrutiny during review and allows for ample public comment of the Environmental Impact Statement. Sections of Coy Glen comprise the only designated CEA in the Town of Ithaca at this time.

g) DEVELOPMENT EXACTIONS AND IMPACT FEES

"Development Exactions" is a generic term encompassing mechanisms by which communities require dedication of land or facilities or payment of fees in lieu of land or facilities. Exactions can be "dedications," "linkage requirements," "mandatory tithing," and "mitigation requirements." Exactions are either mandated in development regulations or negotiated on a case-by-case basis in rezoning or special permit negotiations. Subdivisions developers may be required to provide on-site infrastructure including roads, parks, sewers and drainage facilities. If the required parks would be inadequate or inefficient, the community could accept a comparable fee to be used in more sensible settings.

Recently, impact fees have been required from developers to finance an expanding variety of public facilities and services. The fees imposed on the developer are usually based on a uniform formula rather than by

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[36] The Town of Ithaca Town Board designated the first and only CEA in the Town by a resolution passed on October 19, 1978. The CEA encompasses especially environmentally sensitive areas in Coy Glen that will automatically necessitate a Type I action under SEQR for any work proposed in that area.

negotiation. Impact fees are especially useful in financially troubled communities to assist in connecting large-scale development infrastructure to current facilities, establish affordable housing, support police and fire protection, fund the expanding school system, improve transit, and establish parks and day care facilities required by increased off-site pressures on the established community.

h) TRANSFER OF DEVELOPMENT RIGHTS (TDR)[37]

TDR permits all or part of the density potential of one tract of land to be transferred to a noncontiguous parcel, even if these two parcels have different ownership. The development rights become a separate article of the property, which can be sold to a landowner whose property is better suited to greater densities. After selling the development rights, the land owner retains title and all other rights to the land. These remaining rights permit farming, forestry, some recreational uses, and other low impact uses. The owner may sell or exchange the title on the open market at anytime. This technique is advantageous for owners of land with restrictive development constraints can continue with their current land use. Since the development rights are only a portion of the property value, this type of acquisition is economical for municipalities with limited land conservation funds.

i) PURCHASE OF DEVELOPMENT RIGHTS (PDR)

PDRs are a more expensive land protection measure than a TDR but are also effective. Instead of transferring development potential to another parcel, the potential rights are purchased outright by the municipality. PDRs are especially effective if the municipality has designated certain areas as highly valued open space and are unable to purchase the land outright.

j) SPECIAL PARK DISTRICTS

Residents can petition to establish a special park district for their neighborhood to acquire and maintain open space. The cost of acquisition and maintenance is added to the taxes of the nearby residents. Inactive

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[37] Natural Resources Inventory, 1990. Town of Perinton, New York, prepared by the Perinton Conservation Board, Chapter 3.

park districts are useful when open space is of primary value to these adjacent landowners.

k) CITY AND STATE OWNERSHIP

State ownership of land within the Town is primarily in the form of park land. The City of Ithaca owns a significant amount of land in the Six-Mile Creek Valley to protect its water supply. No major change in the land use of any of these properties is anticipated.

C. ACQUISITION

Public ownership is the most widely used form of open space protection at this time. Land owned by public entities should be managed not only for the public benefit but also for the protection of its sensitive ecosystems. Unfortunately, many public lands, such as State Parks, are showing the effects of human overpopulation. The over-use of many parks is resulting in serious degradation of indigenous plant and animal species and their habitats. It is critical to acquire more public lands and establish programs for sensible public land maintenance.

Occasionally, problems arise when governments change their policies of land protection. A local example was the proposed sale of the Hector Land Use Area in the 1980's. Local citizens presented a strong case to the government for keeping these lands under Federal protection. The land was not sold and became the Finger Lakes National Forest.

Funding for land acquisition is often generated by local property taxes, sales taxes, real estate transfer taxes, bond issues, and qualifying state, Federal, and local government grants.

1. FEE SIMPLE AND LESS-THAN-FEE-SIMPLE INTEREST ACQUISITIONS

The ownership of land has numerous components including the right to control access to the land, the right to develop the property, mining rights, and hunting rights. If a single person owns all the rights to a piece of property it is called "fee simple." However, the rights to a property can be divided and owned separately by different parties. Each portion of these rights is called a "less-than-fee interest."

Local governments generally acquire fee simple ownership of properties needed by the community for uses such as parks, schools, and landfills. Fee simple ownership provides the greatest number of rights to a parcel of land but is also the most costly mode of ownership. In addition to the considerable purchase and benefit costs, fee simple acquisition by municipalities completely removes the land from the tax rolls and can result in significant maintenance costs.

Many municipalities and land trusts can only afford the alternative partial rights ownership of land by "less-than-fee interest" rather than full ownership in fee. In this way, the municipality or conservation organization can purchase the development rights to a property for its preservation while allowing the other owner(s) to use of the land for hunting or access.

2. DONATIONS OF LAND

An extremely valuable resource for open space preservation is the donation of land for public protection by generous landowners, industries, and institutions. Land gifts can be in the form of direct donations or testamentary gifts to the conservation organization or municipality. These lands can also be earmarked by the donor to be sold to generate funds for other land acquisition.[38]

3. ESTABLISHING A TOWN LAND BANK[39]

Many municipalities across the state and country have established land banks to accumulate funds for land acquisition. Section 247 of the NYS General Municipal Law allows municipalities to acquire interest and rights in real property for the preservation of open spaces. Land acquisition funds can purchase or transfer development rights, or buy outright a property with important open space value to the community.

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[38] Stephen J. Small. 1990. *Preserving Family Lands.* P.O. Box 2242, Boston, MA. ISBN 0-9624557-0-9.

[39] Nantucket Land Bank Commission, 18 Broad Street, Nantucket, MA. (508) 228-7240.

It is important to have a rational connection between the source of revenue and an open space conservation program. One possible connection is a real estate transfer tax.[40] Taxes levied on sales of unimproved land that is slated for development can be used to purchase other lands that could be permanently slated for open space uses. In some municipalities in the State, there is a sales tax on the transfer of developed land to obtain revenue in order to conserve the remaining open space for the benefit of the entire community. The current 10% set-aside policy in the Town[41] could also generate money for open space. Developers could contribute to a land acquisition fund in lieu of donating the required 10% set-aside of land.

Other methods for generating funds for land acquisition include establishing endowments by the sale of less valuable public lands, imposing impact fees on public services for new development, creating special tax districts with localized real estate taxes, and using a small percentage of sales taxes.[42] Occasionally, grants from the State, Federal, and the private sector are made available for land acquisition programs. Flexibility built into the system will inherently be more beneficial to the entire community.

D. EASEMENTS AND AGREEMENTS

Privately protected open space are valuable additions to maintaining the rural character of communities. Because the land remains privately controlled, there are often limitations regarding its public use. The greatest benefit is providing undisturbed habitats for local plant and animal species.

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[40] City Ordinances of Boulder, Colorado

[41] Town of Ithaca Subdivision Regulations, Article IV, Section 22, no. 1-4, adopted by the Town Board March 12, 1984.

[42] Sylvia Lewis. April 1990. The Town That Said No to Sprawl, pp. 14-19, *Planning*.

1. CONSERVATION EASEMENTS

Voluntary conservation easements for open space conservation have been used successfully in New York State and are become increasingly more common in the current economic climate. New York State law defines a conservation easement as "an easement, covenant, restriction or other interest in real property .... for the purpose of preserving or maintaining the scenic, open, historic, archaeological, or natural condition, character, significance or amenities of real property ..." It is a voluntary legal agreement between a landowner and a land trust or other qualified organization, in which the landowner places restrictions on the use of his or her property in order to protect the natural values of the land.

The easement can be designed in a variety of ways to meet the needs of both grantor and grantee. The easement becomes a permanent part of the land title, recorded by the County Clerk, to ensure the continued protection of the land. Future owners must comply with all terms of the easement. The landowner retains most rights to the land including the right to sell, lease, transfer, or mortgage. The land owner can use the land in any way that is consistent with the established easement consistent with local regulations.

The landowner benefits by permanently preserving the land and financially by reduced income taxes, estate taxes, and property taxes. Three very active private organizations, the Finger Lakes Land Trust.[43] The Trust for

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[43] Finger Lakes Land Trust, P.O. Box 4745, Ithaca, NY 14852-4745. (607) 838-3590.

Public Lands,[44] and the Nature Conservancy,[45] are prominent local agencies that establish conservation easements with local landowners.[46]

2. PERMANENT DEED RESTRICTIONS

Permanent deed restrictions are a strong form of voluntary private protection and can be placed on properties to prohibit or limit development. These restrictions are passed on to future owners within the deed to the property.

3. CORNELL NATURAL AREAS AND LAND ACQUISITION PROGRAM

Cornell University, part public and part private, owns and maintains many valuable areas of significant environmental importance in the Town and neighboring communities. Many of these sites, designated as Cornell Natural Areas (CNA), are ecologically fragile and are restricted for educational purposes and are not officially open to the public.[47]

4. PRIVATE PRESERVES

Private preserves can be established by institutions and individuals in order to protect specific tracts of land. The Nature Conservancy owns the Eldridge Preserve on South Hill and allows public access. There are no other privately owned preserves in the Town at this time.

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[44] Trust For Public Lands, 82 Second Street, San Francisco, CA 94105. (415) 495-4014.

[45] The Central NY Nature Conservancy, 315 Alexander Street, Rochester, NY 14606. (716) 546-8030. The Nature Conservancy Regional Office, 1736 Western Avenue, Albany, NY 12203. (518) 869-0453.

[46] Russell L. Brenneman and S. M. Bates. 1984. *Land-Saving Action.* Island Press, Covelo, California.

[47] Use of the Natural Areas of Cornell Plantations. Cornell Plantations Natural Areas Subcommittee, One Plantations Road, Ithaca, NY 14850.

5. NEW YORK STATE EASEMENT PROGRAM

The State of New York has a highly under-utilized permanent voluntary easement program that provides landowners State tax benefits.

6. FEDERAL EASEMENT PROGRAM

Granting a conservation easement lowers the value of the property which can be claimed by the landowner as a charitable contribution for federal income tax purposes. This program only applies to permanent easements. The New York and Federal Easement Programs can be incorporated in the voluntary conservation easement program outlined in Chapter IV-B-1.

7. LEASES AND MANAGEMENT AGREEMENTS

Leases and management agreements are flexible legal instruments that can be tailored to satisfy the landowner and the party leasing or managing the property. In many cases, the second agent is a Land Trust, such as the Finger Lakes Land Trust. These agreements provide temporary control or influence over a property without the expense of ownership. Leases specify an amount of time that the second party oversees the land, while management agreements specify the terms and restrictions under which the landowner continues to manage the property. Both devices are recorded in the land records and remain in force for their full term even if the land changes ownership.

8. RIGHTS-OF-FIRST-REFUSAL

Rights-of-First-Refusal is an arrangement between a landowner and a second party in which the landowner agrees that if he receives a legitimate offer from a third party to buy the property, he will notify the second party in order to allow them to make an offer on the land. Land trusts accept purchase or accept donations of Rights-of-First-Refusal to facilitate land acquisition. If a potential buyer with conservation intentions for the property makes an offer, the land trust may decide not to exercise its right-of-first-refusal. To strengthen the land trusts's legal position, there is usually a written contract for right-of-first-refusal prepared by a lawyer at a minimal cost.

9. DONATION OF BARGAIN SALE

In addition to municipalities or land trusts purchasing land for conservation purposes at its full fair market value, land can be acquired through generous donors at highly reduced rates or gratis. Donation is the option of choice for conservation because it affords the donor numerous and substantial tax benefits. the selling price of bargain-sale properties are substantially below fair market value and may give the seller tax benefits as well as direct cash payment.

E. EXISTING STATE AND FEDERAL REGULATIONS RELEVANT TO TOMPKINS COUNTY RESIDENTS

1. NEW YORK DEPARTMENT OF ENVIRONMENTAL CONSERVATION (DEC), STATE POLLUTANT DISCHARGE ELIMINATION SYSTEM (SPDES) PERMIT PROGRAM

The SPDES program is designed to eliminate the pollution of New York waters and to maintain the highest quality of water possible in the interest of the public health and enjoyment of these resources, protection and propagation of fish and wildlife, and industrial development in the State.

New York law requires that a permit be obtained before the following activities may be undertaken:

- Construction or use of an outlet or discharge pipe ("point source pollution") of wastewater discharging into the surface waters or groundwater of the State.
- Construction or operation of disposal systems such as sewage treatment plants.
- Changes of bulkheads into streams, rivers, and lakes.

No SPDES permit is required for a facility whose total discharges to the groundwater are less than 1,000 gallons per day of sewage wastewater containing no industrial or other non-sewage wastes. However, such discharges from cesspools or septic systems will require approval from the appropriate municipal or county health departments. Other DEC permits or other agency approvals may also be required depending on the individual situation.

2. ARMY CORPS OF ENGINEERS WATERWAYS AND WETLAND PERMITS[48]

The United States Army Corps of Engineers (USACE) has jurisdiction over all navigable waters in the United States under section 404 of the Clean Water Act.[49] In the Town of Ithaca, the USACE requires permits for dredging, drilling, filling, and other activities involving Cayuga Lake and its inlets. The USACE also has regulatory authority for all wetlands in the United States. Land owners must obtain a permit from the USACE before altering a wetland of less than 12.4 acres. The Permit process requires a land owner to go through an additional review process to prove that the project benefits outweigh the negative consequences. Therefore, this permit process does not prohibit the alteration of wetlands. The USACE will often grant a letter of permission (a Blanket Nationwide Permit) for projects that require filling less than an acre of wetland. For larger projects, they may require an independent wetland delineation paid for by the landowner.

3. NEW YORK DEPARTMENT OF ENVIRONMENTAL CONSERVATION (DEC) WETLAND PERMITS

The DEC has jurisdiction for wetlands 12.4 acres or greater. Permits are available for projects that will not significantly impact on these areas. The DEC regulations also apply to projects involving hazardous or solid waste materials, the location of liquefied natural gas and petroleum gas facilities, and any mining activities.

4. NATIONAL FLOOD INSURANCE PROGRAM

In order to qualify and maintain eligibility for the National Flood Insurance Program (NFIP), the Town of Ithaca adopted Local Law #5-1985 and amended it with Local Laws #9-1987 and #3-1989. The purpose of these laws is to control the alteration of natural flood plains, stream channels, and natural protective barriers and to regulate land use in flood-prone locations (identified by the NFIP). The NFIP is not meant to prohibit

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[48] Article 24 and Title 23 of Article 71 of the Environmental Conservation Law, NYS Department of Conservation.

[49] Thomas J. Schoenbaum and R..H. Rosenber. 1991. *.Environmental Policy Law.* The Foundation Press, Inc., Westbury, N.Y., pp. 236-291.

development in flood-prone locations, but to establish minimum standards with which development must comply.

5. NEW YORK STATE AGRICULTURAL DISTRICTS

Many active agricultural lands in the Town of Ithaca are designated New York State Agricultural Districts. New York State's Agricultural District Law was enacted in 1971 to provide farmers with some relief from property taxes and to limit the number of restrictions a municipality can place on agricultural practices. Agricultural districts help to preserve farming as a viable economic activity, thereby maintaining land in active agricultural use. Land in agricultural districts can easily be withdrawn by its owner and developed. Therefore, it is not a reliable long-term protection of open space.

F. LOW IMPACT MITIGATION MEASURES

Low-impact development causes minimal disturbance to the land and little need for mitigation measures. Cluster development with environmentally sensitive low impact construction concurrent with efficient energy and waste systems is highly desirable. Low impact mitigation measures can also involve building away from sensitive areas while incorporating any special features in the landscaping layout of the minimally developed site. An example would be an office building designed to include an artificial pond in front of an office building that overflows into a naturally existing wetland. These aquatic features provide an attractive landscaping features and an enjoyable wildlife habitat. Employees could utilize these areas for relaxation and picnicking. If the system is designed correctly, with collector troughs, the wetland could also process the oil run-off from the parking lot as well as semi-processed sewage generated from the office building.

APPENDIX A

ENABLING LEGISLATION

A. THE 1990 ITHACA TOWN BOARD RESOLUTION

The Ithaca Town Board established a Conservation Advisory Council (CAC) in February 1990. The Town Board outlined the primary initial task of the CAC to be as follows: "Conduct and maintain an inventory of the natural resources within the Town of Ithaca and maintain an up to date index of all open spaces as defined in Section 239-y of the General Municipal law, in public or private ownership within the municipality, including but not limited to natural landmarks; glacial and other geomorphic or physiographic features, streams and their flood plains, swamps, marshlands, and other wetlands; unique biotic communities; scenic and other areas of natural or ecological value. Such index shall include ownership, present and future uses of such open areas, so as to provide a base of information for recommendations by the council for their preservation and/or use."

B. EXCERPTS OF THE STATE OF NEW YORK GENERAL MUNICIPAL LAW, ARTICLE 12-F, THAT ARE PERTINENT TO THE ESTABLISHMENT OF CAC'S AND THEIR OPEN SPACE REPORT MISSION

1. SECTION 239-x. CREATION OF [A] CONSERVATION ADVISORY COUNCIL.

The local legislative body of any city, town, or village may create a conservation advisory council, hereafter called the council, to advise in the development, management and protection of its natural resources. Such council shall direct itself toward accomplishing the following:

a) Conduct researches into the land area of the municipality for which it was created;

b) Seek to coordinate the activities of unofficial bodies organized for similar purposes and to cooperate with other official municipal bodies active in the area of community planning for the particular municipality;

c) It may advertise, prepare, print and distribute books, maps, charts, plans and pamphlets which in its judgement it deems necessary for its work;

d) *It shall keep an inventory and map as defined in section two hundred thirty-nine-y [239-y] of the article, of all open areas within the municipality with the plan of obtaining information pertinent to proper utilization of such open lands including lands owned by the state, any other municipality within the state or by the particular municipality itself;* [Italics added for emphasis.]

e) *It shall keep an inventory and map of all open marsh lands, swamps and all other wetlands in a like manner, and may recommend to the governing body of the municipality a program for ecologically suitable utilization of all such areas;* [Italics added for emphasis.]

f) It shall keep accurate records of its meetings and actions and shall file an annual report with the local legislative body of the municipality on or before the thirty-first day of December of each and every year. Once approved, such legislative body shall forward a copy of this report to the state commissioner of environmental conservation;

g) In addition to the foregoing, carry out any other duties, tasks, or responsibilities, consistent with the objectives of this article, assigned to it by resolution of the local legislative body creating the said council.

[Sections 239-x-2.-8. are omitted since they deal with less pertinent administrative details.]

2. SECTION 239-y. DESIGNATION OF [A] COUNCIL AS [A] CONSERVATION BOARD

As used in this section, the following words and phrases shall have the following meanings:

a) *"Open area." Any area characterized by natural scenic beauty or, whose existing openness, natural condition or present state of use, if preserved, would enhance the present and potential value of abutting or surrounding development or would establish a desirable pattern of development or*

would offer substantial conformance with the planning objectives of the municipality or would maintain or enhance the conservation of natural or scenic resources. [Italics added for emphasis.]

b) *"Conservation open areas inventory." An inventory of open areas within the municipalities with each such area identified, described, and listed according to priority of acquisition or preservation.* [Italics added for emphasis.]

c) *"Conservation open areas map." A map or maps identifying open areas within the municipality which are earmarked for preservation, including, but not limited to, open areas that are required to be set aside out of subdivision plats, publicly owned open areas, open areas preserved by non-public organizations, and open areas having conservation, historical, or scenic significance.* [Italics added for emphasis.]

d) *"Open space index." The Conservation Open Areas Inventory and the Conservation Open Area Map, after acceptance and approval by the Town Board, becomes the Open Space Index.* [Italics added for emphasis.]

2. The local legislative body of any city, town or village, which has heretofore created a conservation advisory council may, by resolution, redesignate such council as a conservation board provided such council has prepared and submitted to the local legislative body the conservation open area inventory and map which are accepted and approved by the local legislative body as the open space index of the municipality.

3. General powers and duties of conservation boards. To further assist a city, town or village in the development of sound open area planning and assure preservation of natural and scenic resources on the local level, a conservation board shall:

a) Review each application received by the local legislative body or by the building department, zoning board, planning board, board of appeals or other administrative body, which seeks approval for the use or development of any open area listed in the open space index. The conservation board shall submit a written report to the referral body within forty-five days of receipt of such application. Such report shall evaluate the proposed use or development of the open area planning objectives of the municipality and shall include the effect of such use or

development on the open space index. The report shall make recommendations as to the most appropriate use or development of the open area and may include preferable alternative use proposals consistent with open areas conservation. A copy of every report shall be filed with the legislative body;

b) Make available for public inspection at the office of the conservation board copies of all such reports of the conservation board;

c) Notify the Department of Environmental Conservation of its creation within thirty days of the resolution of the legislative body;

d) Perform any duties assigned to it by resolution of the legislative body.

4. In addition to the foregoing a conservation board may:

a) Exercise any of the functions and responsibilities heretofore granted to conservation advisory councils;

b) Request the assistance of the department of environmental conservation in the preparation of any report.

APPENDIX B

OPEN SPACE INVENTORY SPREADSHEET

Key to Abbreviations:

Ac	=	Acre
Ag.	=	Agriculture
CEA	=	Critical Environmental Area
Cult.	=	Cultural
DEC	=	New York State Department of Conservation
DR	=	Dryden
EN	=	Enfield
Hist.	=	Historical
IT	=	Ithaca
Rec.	=	Recreational
UNA	=	Unique Natural Area
USACE	=	United States Army Corps of Engineers

Zoning:

AG	=	Agriculture
C	=	Commercial
LI	=	Light Industrial
MR	=	Multiple Residence
R9	=	Residential 9
R15	=	Residential 15
R30	=	Residential 30

REFER TO MAPS 1 THROUGH 6 FOR THE APPROXIMATE DEPICTION OF ALL FEATURES LISTED IN THE SPREADSHEET AND TALLY.

AREA NUMBER	APPROX. ACRES	ZONING	PRESENT LAND USE	VEGETATIVE COVER	OLD GROWTH FOREST	SLOPES	SOILS	AQUATIC/TERRESTRIAL FEATURES
1	19	R15/MR/E	Open	Woods >5ac		Moderate/Steep Slope/4 Gorges		Wildlife Habitat
2	16	R15	Open	Brush/Woods		Moderate/Steep Slope/2 Gorges		Wildlife Habitat
3	3	R15	Open	Woods >5ac		Moderate/Steep Slope/Gorge		Wildlife Habitat
4	1	R15	Open	Woods		Steep Slope		
5	8	R15	Cemetary	Lawn		Slight/Steep Slope		
6	29	R15	Education/Recreation	Lawn		Slight/Steep Slope		
7	1	R15	Park	Lawn		Steep Slope	Prime	
8	5	R15	Open	Woods >5ac/Brush		Steep Slope	Prime	Wildlife Habitat/Wetland
9	18	R15	Education/Recreation	Lawn		Steep Slope		
10	11	R15	Education/Recreation	Lawn		Steep Slope	Prime	
11	3	R15	Open	Woods		Steep Slope		
12	36	R15	Open	Woods >5ac		Steep Slope	Prime	Wildlife Habitat/Wetland
13	2	R15	Park	Lawn		Steep Slope	Prime	
14	52	R15	Education	Woods >5ac		Steep Slope	Prime	Wildlife Habitat/Wetland/Pond
15	47	R15	Open	Woods >5ac/Brush		Steep Slope	Prime	Wildlife Habitat/Wetland
16	2	R15	Park	Brush/Field/Woods		Steep Slope		
17	86	R30	Golf Course	Lawn		Slight/Moderate/Steep Slopes	Prime	Wildlife Habitat
18	1	R30	Cemetary	Lawn		Slight/Moderate Slopes		
19	144	R30	Golf Course	Lawn		Slight/Moderate/Steep Slopes	Prime/Highly Erodible	Wildlife Habitat
20	22	R30	Agriculture	Brush/Field		Slight/Moderate Slopes	Prime	Wildlife Habitat
21	29	R30	Open	Woods/Brush		Slight/Moderate/Steep Slopes	Prime	Wildlife Habitat/Wetland/2 Ponds
22	153	R30	Agriculture	Field		Slight Slope	Prime	Wildlife Habitat/Pond
23	29	R30	Open	Woods >5ac		Slight Slope	Prime	Wildlife Habitat/Wetland
24	135	R30	Open	Woods >5ac		Slight/Moderate/Steep Slopes	Prime/Highly Erodible	Wildlife Habitat/Floodplain/Reservoir (Beebe Lake)
25	5	R15	Education/Recreation	Field/Wildflowers/Woods		Slight/Moderate/Steep Slopes	Prime/Highly Erodible	Wildlife Habitat/Wetland/Floodplain
26	155	R30	Agriculture/Education/Recreation	Woods >5ac/Lawn/Field		Slight/Moderate/Steep Slopes	Prime/Highly Erodible	Floodplain/2 Pond
27	11	R30	Recreation	Lawn		Slight Slope		
28	49	R30	Open	Woods >5ac		Slight/Moderate/Steep Slopes	Prime/Highly Erodible	Wildlife Habitat/Wetland/11 Ponds/Floodplain
29	149	R30	Agriculture	Woods		Slight/Moderate/Steep Slopes	Prime/Highly Erodible	Wildlife Habitat
30	17	R30	Open	Woods >5ac		Slight Slope	Prime	Wildlife Habitat/Pond
31	18	R30	Agriculture	Field		Slight/Moderate/Steep Slopes	Prime/Highly Erodible	
32	9	R30	Trail	Trail/Brush/Woods		Slight/Moderate/Steep Slopes	Prime/Highly Erodible	Wildlife Habitat/Floodplain
33	20	R30	Cemetary	Lawn/Woods		Slight/Moderate/Steep Slopes	Prime	
34	145	R30	Agriculture	Field		Slight/Moderate/Steep Slopes	Prime	
35	54	R30	Agriculture	Woods >5ac/Brush/Field		Slight/Moderate/Steep Slopes	Prime	Wildlife Habitat/2 Wetlands
36	16	R30	Agriculture/Recreation	Woods >5ac/Brush/Field		Slight/Moderate/Steep Slopes	Prime	Wildlife Habitat/Wetland
37	54	R30	Agriculture/Open	Woods >5ac/Field		Slight/Moderate/Steep Slopes	Prime	
38	67	R30	Agriculture/Open	Woods >5ac/Field		Slight/Moderate/Steep Slopes	Highly Erodible	Wildlife Habitat
39	7	R9/R15/R30	Trail	Trail/Brush/Woods		Slight/Steep Slopes	Prime	Wildlife Habitat
40	3	R15	Open	Brush		Slight/Steep Slopes	Prime	Wildlife Habitat
41	8	R15/MR	Open	Brush		Slight/Moderate Slopes	Prime	
42	7	R15	Open	Brush		Slight/Moderate Slopes	Prime/Highly Erodible	
43	2	R15	Park	Lawn		Slight/Moderate Slopes		
44	7	R15	Open	Brush		Slight/Moderate Slopes		Wildlife Habitat/Wetland/Pond
45	47	R15	Open	Woods >5ac		Slight/Moderate/Steep Slopes	Prime	Wildlife Habitat
46	2	R15	Park	Lawn		Moderate/Steep Slopes		

STREAMS	HIST., CULT., REC., and SCENIC SIGNIFICANCE	OTHER FEATURES	EXISTING PROTECTION	DEVELOPMENT APPROVALS	STAGE OF CONSTRUCTION	AREA NUMBER
4 DEC Class D		UNA IT 29				1
2 DEC Class D		UNA IT 29				2
1 DEC Class D		UNA IT 19	Cornell Natural Area			3
		UNA IT 29				4
	Burial Site	Contiguous to UNA IT 29				5
1 DEC Class D	Playfield	Contiguous to UNA IT 29				6
	Town Park		Town Owned			7
1 DEC Class D			USACE			8
1 DEC Class D	Playfield					9
1 DEC Class D	Playfield					10
						11
1 DEC Class D	Nature Preserve	Contiguous to UNA DR 54	Cornell Natural Area/USACE			12
	Town Park/Play Structure		Town Owned			13
2 DEC Class D	Nature Preserve	UNA DR 54	Cornell Natural Area/DEC Class I Wetland			14
2 DEC Class D		UNA DR 54	USACE	37.8 Acres/Final-Phase 1	Partial	15
	Town Park		Town Owned			16
1 DEC Class D	Golf Course					17
	Burial Site					18
	Golf Course	UNA IT 14 &15				19
		UNA IT 15				20
1 DEC Class D		UNA IT 15	Cornell Natural Area/USACE			21
		UNA IT 14				22
			Cornell Natural Area/USACE			23
1 DEC Class B	Cayuga Club Trail	UNA IT 14 & 21/Contiguous to UNA IT 13 &15	Cornell Natural Area			24
1 DEC Class B	Arboretum/Nature Preserve	UNA IT 13	Cornell Natural Area			25
1 DEC Class B	Arboretum	Contiguous to UNA IT 13 &14	Cornell Natural Area			26
	Playfield	Contiguous to UNA IT 17				27
1 DEC Class C		UNA IT 17 & 33	Cornell Natural Area			28
		Contiguous to UNA IT 33 & 35				29
		UNA IT 35	Cornell Natural Area			30
1 DEC Class C		Contiguous to UNA IT 33				31
1 DEC Class C	Town Trail	UNA IT 33	Town Owned			32
	Burial Site					33
		Contiguous to UNA IT 33	Cornell Natural Area			34
2 DEC Class A			USACE			35
2 DEC Class A			Cornell Natural Area	16 Acres/Final-All Phases	None	36
			Cornell Natural Area			37
						38
2 DEC Class A	Town Trail		Town Owned			39
1 DEC Class A						40
	Buffer Zone		Town Owned			41
1 DEC Class A	Buffer Zone					42
	Town Park		Town Owned			43
			USACE			44
1 DEC Class A						45
1 DEC Class A	Town Park/Play Structure		Town Owned			46

AREA NUMBER	APPROX. ACRES	ZONING	PRESENT LAND USE	VEGETATIVE COVER	OLD GROWTH FOREST	SLOPES	SOILS	AQUATIC/TERRESTRIAL FEATURES
47	11	R15	Park	Lawn/Woods		Slight/Moderate/Steep Slopes	Prime	Wildlife Habitat
48	1	R30	Park	Lawn		Slight Slope		
49	36	R15	Agriculture/Open	Woods >5ac		Moderate/Steep Slope		Wildlife Habitat
50	545	R30	Agriculture/Open	Woods >5ac		Slight/Moderate/Steep Slopes/Gorge	Prime/Highly Erodible	Wildlife Habitat/Floodplain/Wetland/2 Ponds/2 Reservoi
51	28	R30	Open	Woods >5ac/Brush		Slight/Moderate/Steep Slopes	Prime/Highly Erodible	Wildlife Habitat
52	12	R30	Open	Woods >5ac/Brush		Slight/Moderate/Steep Slopes	Prime/Highly Erodible	Wildlife Habitat
53	4	R30	Open	Woods >5ac		Slight/Moderate/Steep Slopes	Highly Erodible	Wildlife Habitat/Floodplain
54	28	R15/R30	Agriculture	Woods >5ac/Vineyard		Slight/Moderate/Steep Slopes	Highly Erodible	Wildlife Habitat
55	16	R30/R15	Open	Woods >5ac		Slight/Moderate/Steep Slopes	Highly Erodible	Wildlife Habitat
56	43	R30	Open	Woods >5ac		Slight/Moderate/Steep Slopes	Prime/Highly Erodible	Wildlife Habitat
57	30	R9/LI	Open	Woods >5ac/Brush		Slight/Moderate/Steep Slopes	Prime	Wildlife Habitat
58	11	R15/R30	Open	Woods >5ac		Slight/Moderate Slopes		Wildlife Habitat
59	125	R30	Open	Woods >5ac/Brush		Slight/Moderate/Steep Slopes	Prime/Highly Erodible	Wildlife Habitat
60	15	R9/R15/R30	Trail	Woods >5ac/Field		Railway/Slight/Moderate/Steep Grade	Prime/Highly Erodible	Wildlife Habitat
61	125	R30	Agriculture/Open	Woods >5ac/Brush		Slight/Moderate/Steep Slopes	Prime/Highly Erodible	Wildlife Habitat/4 Ponds
62	253	R30	Agriculture/Open	Woods >5ac/Field		Slight/Moderate/Steep Slopes	Prime/Highly Erodible	Wildlife Habitat
63	33	R30	Open	Woods >5ac/Brush		Slight/Moderate/Steep Slopes	Highly Erodible	Wildlife Habitat
64	1	R30	Park	Lawn		Slight/Moderate Slopes		
65	90	R30	Open	Woods >5ac/Brush		Slight/Moderate/Steep Slopes	Prime/Highly Erodible	Wildlife Habitat/Pond
66	1	R30	Cemetary	Lawn		Slight/Moderate Slopes		
67	78	R30	Open	Woods >5ac/Brush		Slight/Moderate/Steep Slopes	Highly Erodible	Wildlife Habitat/Pond
68	122	R30	Open	Woods >5ac		Slight/Moderate/Steep Slopes	Highly Erodible	Wildlife Habitat
69	9	R30	Open	Woods >5ac		Moderate Slope		
70	107	R30	Open	Woods >5ac/Brush		Slight/Moderate/Steep Slopes	Highly Erodible	Wildlife Habitat
71	10	R30	Agriculture	Field		Slight/Moderate/Steep Slopes		Wildlife Habitat
72	20	R30	Agriculture	Field		Slight/Moderate Slopes		
73	3	R15	Park	Field		Moderate Slope		
74	23	MR	Open	Brush		Slight/Moderate Slopes	Prime	Wildlife Habitat/Wetland/Pond
75	19	R15	Open	Field		Slight/Moderate Slopes		
76	76	R15/R30	Open	Woods >5ac/Brush		Slight/Moderate/Steep Slopes	Prime	Wildlife Habitat/Wetland
77	207	R15/R30	Agriculture/Open	Woods >5ac/Brush		Slight/Moderate/Steep Slopes	Prime	Wildlife Habitat/Pond
78	1	R15	Park	Lawn, Woods		Slight Slope	Prime	
79	148	R15	Education/Recreation	Woods >5ac/Lawn/Field		Slight/Moderate/Steep Slopes	Prime	Wildlife Habitat/2 Ponds
80	182	R30	Open	Woods >5ac/Brush		Slight/Moderate/Steep Slopes	Prime	Wildlife Habitat/Wetland/Pond
81	10	MR	Open	Brush/Woods		Slight/Moderate/Steep Slopes		
82	1	R30	Park	Lawn		Slight/Moderate Slopes		
83	2	MR	Open	Brush		Slight Slope	Prime	
84	240	R15/R30	Open	Woods >5ac/Brush		Slight/Moderate/Steep Slopes	Prime	Wildlife Habitat/3 Wetlands/12 Ponds
85	59	R30	Agriculture/Open	Woods >5ac/Brush		Slight/Moderate/Steep Slopes	Prime	Pond
86	33	R15	Open	Brush		Slight/Moderate/Steep Slopes	Prime	Wildlife Habitat/Wetland
87	1	R30	Park	Lawn		Slight Slope		
88	65	C/R15/MR	Agriculture/Open	Woods >5ac/Brush		Slight/Moderate/Steep Slopes	Prime/Highly Erodible	Pond
89	7	S1	Open	Brush		Slight/Moderate Slopes	Prime	Pond
90	108	R30	Open	Woods >5ac/Brush		Slight/Moderate/Steep Slopes	Prime/Highly Erodible	Wildlife Habitat
91	2	R9	Cemetary	Lawn		Slight/Moderate Slopes	Prime	
92	4	R9	Open	Woods >5ac/Lawn		Slight/Moderate Slopes	Prime/Highly Erodible	Wildlife Habitat

STREAMS	HIST., CULT., REC., and SCENIC SIGNIFICANCE	OTHER FEATURES	EXISTING PROTECTION	DEVELOPMENT APPROVALS	STAGE OF CONSTRUCTION	AREA NUMBER
	Town Park/Play Structure		Town Owned			47
	Town Park/Play Structure		Town Owned			48
						49
11 DEC Class A	Recreation Area	UNA IT 9/Two Reservoirs	City Owned/Ag. District			50
1 DEC Class A		UNA IT 9				51
	Buffer Zone	UNA IT 9	Town Owned			52
1 DEC Class A		UNA IT 9				53
	Vineyard	UNA IT 9				54
		UNA IT 9	Finger Lakes Land Trust			55
2 DEC Class A		Contiguous to UNA IT 9				56
		UNA IT 9				57
1 DEC Class A		UNA IT 9		8.2 Acres/Final-All Phases	None	58
5 DEC Class A		UNA IT 9	Finger Lakes Land Trust			59
8 DEC Class A	Town Trail	UNA IT 9	Town Owned			60
7 DEC Class A		UNA IT 9				61
5 DEC Class A		UNA IT 9	NYS Ag. District			62
1 DEC Class A						63
	Town Park					64
2 DEC Class A		UNA IT 16	NYS Ag. District			65
	Burial Site					66
1 DEC Class A	Nature Preserve	UNA IT 16	The Nature Conservancy			67
2 DEC Class A		UNA IT 16		122 Acres/Final-All Phases	None	68
		UNA IT 16				69
3 DEC Class A						70
1 DEC Class A						71
1 DEC Class A						72
	Town Park		Town Owned			73
1 DEC Class A		UNA IT 8		23 Acres/Final-All Phases	Partial	74
1 DEC Class A		UNA IT 8				75
1 DEC Class A	Nature Preserve	UNA IT 8	Cornell Natural Area			76
1 DEC Class A		Contiguous to UNA IT 8				77
	Town Park		Town Owned			78
1 DEC Class D	Town Park	UNA IT 8				79
		UNA IT 8				80
	Buffer Zone	UNA IT 8	Town Owned			81
	Town Park		Town Owned			82
	Buffer Zone		Town Owned			83
1 DEC Class B			USACE			84
		Contiguous to UNA IT 16				85
				33 Acres/Preliminary-Phase 2	None	86
	Town Park/Trail		Town Owned			87
		Contiguous to UNA IT 27				88
	Buffer Zone		Town Owned			89
1 DEC Class B		Contiguous to UNA IT 27				90
	Burial Site	Contiguous to UNA IT 27				91
1 DEC Class B		Contiguous to UNA IT 27				92

AREA NUMBER	APPROX. ACRES	ZONING	PRESENT LAND USE	VEGETATIVE COVER	OLD GROWTH FOREST	SLOPES	SOILS	AQUATIC/TERRESTRIAL FEATURES
93	2	R9	Open	Woods		Slight/Moderate Slopes		
94	106	R9/I	Open	Brush		Slight/Moderate/Steep Slopes	Prime	Wildlife Habitat/Wetland/3 Ponds
95	119	R9/I	Open	Woods >5ac/Brush		Slight/Moderate/Steep Slopes	Highly Erodible	Wildlife Habitat
96	18	R9	Open	Woods >5ac		Slight/Moderate/Steep Slope/Gorge	Highly Erodible	Wildlife Habitat
97	522	R30	Park	Woods >5ac		Slight/Moderate/Steep Slope/2 Gorges	Prime/Highly Erodible	Wildlife Habitat/Wetland/Floodplain/Reservoir
98	94	R30	Agriculture/Open	Woods >5ac/Brush		Slight/Moderate/Steep Slopes	Prime/Highly Erodible	Wildlife Habitat
99	8	R30	Open	Field		Slight/Moderate/Steep Slopes	Prime	
100	2	R30	Open	Woods		Slight Slope	Prime	
101	234	R30	Agriculture	Woods >5ac/Field		Slight/Moderate Slopes	Prime/Highly Erodible	Wildlife Habitat
102	117	R30	Agriculture	Woods/Field		Slight/Steep Slope	Prime	2 Ponds
103	53	LI/R30	Agriculture/Open	Woods >5ac		Slight/Moderate/Steep Slopes	Prime/Highly Erodible	Wildlife Habitat/Floodplain
104	43	R30	Open	Woods >5ac		Slight/Moderate/Steep Slopes/1 Gorge	Prime/Highly Erodible	Wildlife Habitat
105	131	R30	Open	Woods >5ac		Slight/Moderate/Steep Slopes/2 Gorges	Prime/Highly Erodible	Wildlife Habitat/Wetland/Floodplain
106	253	R30	Agriculture/Open	Woods >5ac/Brush/Field		Slight/Moderate/Steep Slopes	Prime/Highly Erodible	Wildlife Habitat/Wetland/Pond/Floodplain
107	123	R15/R30/LI	Agriculture/Open	Woods >5ac/Brush/Field		Slight/Moderate Slopes	Prime	Wildlife Habitat/Wetland/Floodplain
108	194	LI/R30	Agriculture	Field		Slight/Moderate/Steep Slopes	Prime/Highly Erodible	Wildlife Habitat/2 Wetland/2 Ponds
109	2	R30	Cemetary	Lawn		Slight/Moderate/Steep Slopes	Highly Erodible	
110	75	R30	Agriculture/Open	Woods >5ac/Brush		Slight/Moderate/Steep Slopes	Prime/Highly Erodible	Wildlife Habitat/Wetland/Pond
111	118	R30	Agriculture/Open	Woods >5ac/Field		Slight/Moderate/Steep Slopes	Prime/Highly Erodible	Wildlife Habitat/2 Wetland/2 Ponds
112	0.2	R30	Cemetary	Woods >5ac/Lawn		Slight/Steep Slopes	Prime	
113	12	R30	Agriculture	Woods >5ac/Field		Slight/Moderate Slopes	Prime	
114	7	R30	Agriculture	Field		Slight/Moderate Slopes	Prime/Highly Erodible	Wildlife Habitat
115	258	R30	Park	Woods >5ac/Brush		Slight/Moderate/Steep Slope/Gorge	Prime/Highly Erodible	Wildlife Habitat
116	21	R30	Open	Woods >5ac/Brush		Slight/Moderate/Steep Slopes	Highly Erodible	
117	5	R30	Mining	Disturbed site		Gravel Pit/Steep Slope	Highly Erodible	
118	111	R30/AG	Agriculture/Open	Woods >5ac		Slight/Moderate/Steep Slope/Gorge	Prime/Highly Erodible	Wildlife Habitat
119	40	AG	Agriculture	Woods >5ac/Field		Slight/Moderate/Steep Slopes	Prime/Highly Erodible	Wildlife Habitat
120	51	AG	Open	Woods >5ac		Steep Slope/Gorge	Prime/Highly Erodible	Wildlife Habitat
121	135	AG	Agriculture	Woods >5ac/Field		Slight/Moderate/Steep Slopes	Prime/Highly Erodible	Wildlife Habitat/Pond
122	57	AG	Open	Woods >5ac/Brush		Slight/Moderate/Steep Slopes	Prime/Highly Erodible	
123	41	AG	Open	Woods >5ac		Moderate/Steep Slope/Gorge	Highly Erodible	Wildlife Habitat
124	210	AG	Agriculture	Woods >5ac/Field		Slight/Moderate/Steep Slopes	Prime/Highly Erodible	Wildlife Habitat/Wetland/2 Ponds
125	70	R30/AG	Open	Woods >5ac/Brush		Slight/Moderate/Steep Slopes	Highly Erodible	Wildlife Habitat
126	276	R30/AG	Open	Woods >5ac/Brush		Slight/Moderate/Steep Slopes	Prime/Highly Erodible	Wildlife Habitat
127	21	R30	Agriculture	Woods >5ac/Field		Moderate/Steep Slope	Prime/Highly Erodible	
128	156	R30	Open	Woods >5ac		Slight/Moderate/Steep Slopes	Prime/Highly Erodible	
129	150	AG	Agriculture	Woods >5ac/Field		Slight/Moderate Slopes	Prime	Wildlife Habitat/Wetland/2 Ponds
130	295	AG	Agriculture	Woods >5ac/Field		Slight/Moderate/Steep Slopes	Prime	
131	0.3	AG	Cemetary	Lawn		Slight Slope		
132	32	R30	Open	Woods >5ac		Slight/Moderate/Steep Slopes		
133	199	AG	Agriculture/Open	Woods >5ac/Field		Slight/Moderate/Steep Slopes	Prime/Highly Erodible	Pond
134	99	R30/AG	Agriculture/Open	Woods >5ac/Brush		Slight/Moderate/Steep Slopes	Prime/Highly Erodible	Wildlife Habitat
135	44	R30	Open	Woods >5ac		Slight/Moderate/Steep Slopes	Prime/Highly Erodible	Wildlife Habitat
136	121	R30	Open	Woods >5ac		Slight/Moderate/Steep Slopes/Gorge	Prime/Highly Erodible	Wildlife Habitat
137	41	R30	Open	Woods >5ac		Steep Slope/Gorge	Highly Erodible	Wildlife Habitat
138	116	R30	Agriculture/Open	Woods >5ac/Brush/Field		Slight/Moderate/Steep Slopes	Prime/Highly Erodible	Wetland/Wildlife Habitat

STREAMS	HIST., CULT., REC., and SCENIC SIGNIFICANCE	OTHER FEATURES	EXISTING PROTECTION	DEVELOPMENT APPROVALS	STAGE OF CONSTRUCTION	AREA NUMBER
	Buffer Zone		Town Owned			93
			USACE			94
1 DEC Class D						95
1 DEC Class D		UNA IT 27				96
5 DEC Class B/C/D	State Park	UNA IT 6 & 27	State Owned/DEC			97
2 DEC Class D		UNA IT 27				98
		Contiguous to UNA IT 27				99
						100
4 DEC Class D	Finger Lakes Trail	Contiguous to IT 7				101
		Contiguous to UNA IT 27				102
		UNA IT 7				103
1 DEC Class D	Finger Lakes Trail	UNA IT 7				104
2 DEC Class D		UNA IT 7				105
8 DEC Class B		UNA IT 7/Contiguous to UNA IT 6	DEC Class I Wetland/USACE			106
5 DEC Class C/D	Iroquois Village Site	UNA IT 5 & 34/Contiguous to UNA IT 6	DEC Class I Wetland/USACE			107
4 DEC Class D	Recreation Area	UNA IT 5	NYS Ag. District/USACE			108
	Burial Site					109
2 DEC Class D		Contiguous to UNA IT 24	NYS Ag. District/USACE			110
2 DEC Class D		UNA IT 25	NYS Ag. District/USACE			111
1 DEC Class D	Burial Site		NYS Ag. District			112
2 DEC Class D		UNA IT 25				113
		UNA EN 4				114
3 DEC Class B	State Park	UNA EN 4	State Owned			115
						116
		Disturbed site				117
1 DEC Class D		UNA EN 4				118
1 DEC Class D		UNA EN 4	NYS Ag. District			119
1 DEC Class D		UNA IT 25	NYS Ag. District			120
1 DEC Class D			NYS Ag. District			121
1 DEC Class D	Buffer Zone		Town Owned			122
1 DEC Class D		UNA IT 24	NYS Ag. District			123
4 DEC Class D			NYS Ag. District			124
						125
6 DEC Class D			NYS Ag. District			126
1 DEC Class D						127
2 DEC Class D			NYS Ag. District			128
1 DEC Class D			NYS Ag. District			129
3 DEC Class D			NYS Ag. District			130
	Burial Site					131
1 DEC Class D						132
2 DEC Class D						133
1 DEC Class D		Contiguous to UNA IT 24	NYS Ag. District			134
	Designated Open Space	UNA IT 4	NYS Ag. District/Cornell Natural Area			135
1 DEC Class D		Town of Ithaca CEA/UNA IT 4	NYS Ag. District			136
1 DEC Class D	Designated Open Space	Town of Ithaca CEA/UNA IT 4	Cornell Natural Area			137
		Town of Ithaca CEA/UNA IT 4	NYS Ag. District/USACE/Cornell Natural Area			138

AREA NUMBER	APPROX. ACRES	ZONING	PRESENT LAND USE	VEGETATIVE COVER	OLD GROWTH FOREST	SLOPES	SOILS	AQUATIC/TERRESTRIAL FEATURES
139	37	R30	Open	Woods >5ac		Slight/Moderate/Steep Slopes	Prime/Highly Erodible	Wildlife Habitat
140	13	R30	Cemetary	Woods >5ac/Lawn		Slight/Moderate Slopes	Prime	
141	76	R15	Open	Woods >5ac/Brush		Slight/Moderate/Steep Slopes	Highly Erodible	Wildlife Habitat
142	56	R15/R30	Open	Woods >5ac/Brush		Slight/Moderate/Steep Slopes	Highly Erodible	Wildlife Habitat/3 Ponds
143	51	R30	Open	Woods >5ac/Brush		Slight/Moderate/Steep Slopes	Prime/Highly Erodible	Wildlife Habitat
144	8	R30	Open	Woods >5ac/Brush		Slight/Moderate/Steep Slopes	Prime/Highly Erodible	Wildlife Habitat
145	16	R30	Open	Woods >5ac/Brush		Slight/Moderate Slopes	Prime	
146	54	R15	Open	Brush		Slight/Moderate Slopes	Prime	
147	158	R15	Agriculture/Open	Woods >5ac/Brush		Slight/Moderate Slopes/Gorge	Prime	
148	170	R30	Agriculture	Woods >5ac/Field		Slight/Moderate Slopes/Gorge	Prime	Pond
149	127	R30	Open	Woods >5ac/Brush		Slight Slope	Prime	Pond
150	77	AG	Agriculture/Open	Woods >5ac/Brush/Field		Slight Slope	Prime	Wildlife Habitat/Wetland/Pond
151	231	AG	Agriculture/Open	Woods >5ac/Brush/Field		Slight/Moderate Slopes	Prime	3 Wetlands/Wildlife Habitat
152	265	AG	Agriculture	Woods >5ac/Field		Slight/Moderate/Steep Slopes	Prime	Wildlife Habitat/2 Wetland/2 Ponds
153	265	AG	Agriculture	Woods >5ac/Field		Slight/Moderate Slopes	Prime	Pond/Wetland
154	92	R15	Agriculture/Open	Woods >5ac/Brush/Field		Slight/Moderate Slopes/Gorge	Prime	
155	152	R15	Agriculture	Woods >5ac/Field		Slight/Moderate/Steep Slopes	Prime/Highly Erodible	Wildlife Habitat
156	6	R15	Open	Woods >5ac		Moderate/Steep Slopes	Prime	
157	192	AG	Agriculture	Woods >5ac/Field		Slight Slope	Prime	Wildlife Habitat/2 Wetlands
158	168	AG/R15	Agriculture	Field		Slight/Moderate Slopes	Prime	Wildlife Habitat/4 Wetlands
159	155	AG	Agriculture/Open	Woods, Brush		Slight/Moderate/Steep Slopes	Prime	Wildlife Habitat/Pond/Wetland
160	4	R15	Cemetary	Lawn		Slight/Moderate Slopes	Prime	
161	4	R15	Cemetary	Lawn		Slight Slopes	Prime	
162	85	AG	Agriculture	Woods >5ac/Field		Slight/Moderate/Steep Slopes	Prime/Highly Erodible	Pond
163	69	S6	Agriculture/Open	Woods >5ac/Field		Slight/Moderate Slopes	Prime/Highly Erodible	Wildlife Habitat
164	142	AG	Agriculture/Open	Woods >5ac/Brush/Field		Slight/Moderate Slopes	Prime	Wildlife Habitat/2 Ponds/Wetland
165	94	AG	Agriculture/Open	Woods >5ac/Brush/Field		Slight/Moderate Slopes	Prime	Pond/Wetland
166	110	AG	Agriculture	Field		Slight/Moderate Slopes	Prime	
167	26	R30		Field		Slight Slope	Prime	Pond
168	3	R15	Park	Brush/Lawn		Slight Slope	Prime	
169	24	R15	Open	Brush		Slight Slope	Prime	2 Ponds
170	19	R30	Open	Brush		Slight/Moderate Slopes	Prime/Highly Erodible	
171	9	R30	Open	Brush		Slight/Moderate Slopes	Prime/Highly Erodible	
172	65	R30	Open	Woods >5ac/Brush		Slight/Moderate Slopes	Prime	
173	186	R15/R30	Open	Woods >5ac	Woods >100 yrs old	Slight/Moderate/Steep Slopes	Prime/Highly Erodible	Wildlife Habitat
174	186	R15/R30	Open	Woods >5ac/Brush	Woods >100 yrs old	Moderate/Steep Slope/4 Gorges	Highly Erodible	Wildlife Habitat
175	39	R30	Open	Woods >5ac/Brush	Woods >100 yrs old	Slight/Moderate Slopes	Prime	Wildlife Habitat

STREAMS	HIST., CULT., REC., and SCENIC SIGNIFICANCE	OTHER FEATURES	EXISTING PROTECTION	DEVELOPMENT APPROVALS	STAGE OF CONSTRUCTION	AREA NUMBER
2 DEC Class D		Town of Ithaca CEA/UNA IT 4				139
	Burial Site	Contiguous to UNA IT 4				140
		UNA IT 28				141
		UNA IT 28/Contiguous to UNA IT 4/Town of Ithaca CEA	Cornell Natural Area	44.5 Acres/Final-All Phases	Complete	142
		UNA IT 4/Town of Ithaca CEA				143
		UNA IT 4				144
						145
1 DEC Class D						146
1 DEC Class D						147
1 DEC Class D			NYS Ag. District			148
		Contiguous to UNA IT 4	NYS Ag. District/Cornell Natural Area			149
1 DEC Class D			NYS Ag. District			150
2 DEC Class D			NYS Ag. District			151
2 DEC Class D			NYS Ag. District			152
1 DEC Class D			NYS Ag. District			153
1 DEC Class D			NYS Ag. District			154
2 DEC Class D			NYS Ag. District	152 Acres/Final-Phase 1	Partial	155
1 DEC Class D						156
2 DEC Class D			NYS Ag. District			157
2 DEC Class D			NYS Ag. District			158
2 DEC Class D						159
	Burial Site					160
	Burial Site					161
1 DEC Class D			NYS Ag. District			162
			NYS Ag. District	Prelim-All Phases	None	163
5 DEC Class D		UNA IT 30	NYS Ag. District/DEC Class II Wetland/USACE			164
2 DEC Class D			NYS Ag. District			165
2 DEC Class D		UNA IT 30				166
1 DEC Class D				10 Acres/Final-All Phases	None	167
	Town Park		Town Owned			168
	Town Park			24 Acres/Final-All Phases	None	169
1 DEC Class D				19 Acres/Final-All Phases	Partial	170
1 DEC Class D						171
2 DEC Class D						172
3 DEC Class D		UNA IT 26				173
4 DEC Class D		UNA IT 26				174
1 DEC Class D		UNA IT 26				175

APPENDIX C

THE OPEN SPACE INDEX TALLY

The Open Space Index tallies the number of features of significant conservation value for each open space (Table 1) assigning one point to each feature type.

E = Highly Erodible Soils
P = Prime Soils
C = Cornell Natural Area
U = Tompkins County Environmental Management Council's Unique Natural Area
CEA = Town of Ithaca Critical Environmental Area

AREA NUMBER	WOODS >5ACRES	OLD GROWTH FOREST	STEEP SLOPES	GORGE	PRIME (P)/HIGHLY ERODIBLE (E) SOILS	WILDLIFE HABITAT	100 YEAR FLOODPLAIN	WETLANDS	AREA NUMBER	POND	RESERVOIR	STREAMS	CO. UNAs (U), CNAs (C), OR TOWN CEAs (CE)	TOTAL OF FEATURE COLUMNS
1	•		•	• • • •		•			1			•	U	6
2			•	• •		•			2			• •	U	5
3	•		•	•		•			3			•	U/C	6
4			•						4				U	2
5			•						5					1
6			•						6			•		2
7			•		P				7					2
8	•		•		P	•		•	8			•		6
9			•						9			•		2
10			•		P				10			•		3
11			•						11					1
12	•		•		P	•		•	12			•	C	7
13			•		P				13					2
14	•		•		P	•		•	14	•		• •	U/C	8
15	•		•		P	•		•	15			• •	U	7
16			•						16					1
17			•		P	•			17			•		4
18									18					0
19			•		P/HE	•			19				UU	4
20					P	•			20				U	3
21			•		P	•		•	21	• •		•	U/C	7
22					P	•			22	•			U	4
23	•				P	•		•	23				C	5
24	•		•		P/HE	•	•		24	•		•	UU/C	8
25			•		P/HE	•	•	•	25			•	U/C	7
26	•		•		P/HE				26	• •		•	C	6
27									27					0
28	•		•		P/HE	•	•	•	28	• • • • • • • • • • •		•	UU/C	9
29			•		P/HE	•			29					3
30	•				P	•			30	•			U/C	5
31			•		P/HE				31			•		3
32			•		P/HE	•	•		32			•	U	6
33			•		P				33					2
34			•		P				34				C	3
35	•		•		P	•		• •	35			• •		6
36	•		•		P	•		•	36			• •	C	7
37	•		•		P				37				C	4
38	•		•		HP/HE	•			38					4
39			•		P	•			39			• •		4
40			•		P	•			40			•		4
41					P				41					1
42					P/HE				42			•		2
43									43					0
44						•		•	44	•				3
45	•		•		P	•			45			•		5
46			•						46			•		2
47			•		P	•			47					3

AREA NUMBER	WOODS >5ACRES	OLD GROWTH FOREST	STEEP SLOPES	GORGE	PRIME (P)/HIGHLY ERODIBLE (E) SOILS	WILDLIFE HABITAT	100 YEAR FLOODPLAIN	WETLANDS
48								
49	•		•			•		
50	•		•	•	P/HE	•	•	•
51	•		•		P/HE	•		
52	•		•		P/HE	•		
53	•		•		HE	•	•	
54	•		•		HE	•		
55	•		•		HE	•		
56	•		•		P/HE	•		
57	•		•		P	•		
58	•		•			•		
59	•		•		P/HE	•		
60	•		•		P/HE	•		
61	•		•		P/HE	•		
62	•		•		P/HE	•		
63	•		•		HE	•		
64								
65	•		•		P/HE	•		
66			•					
67	•		•		P/HE	•		
68	•		•		P/HE	•		
69	•							
70	•		•		HE	•		
71			•			•		
72								
73								
74					P	•		•
75								
76	•		•		P	•		•
77	•		•		P	•		
78					P			
79	•		•		P	•		
80	•		•		P	•		•
81			•					
82								
83					P			
84	•		•		P	•		• • •
85	•		•		P			
86			•		P	•		•
87								
88	•		•		P/HE			
89					P			
90	•		•		P/HE	•		
91					P			
92	•				P/HE	•		
93								
94			•		P	•		•

AREA NUMBER	POND	RESERVOIR	STREAMS	CO. UNAs (U), CNAs (C), OR TOWN CEAs (CE)	TOTAL OF FEATURE COLUMNS
48					0
49					3
50	• •	• •	• • • • • • • • • •	U	11
51			•	U	6
52				U	5
53			•	U	7
54				U	5
55				U	5
56			• •		5
57				U	5
58			•	U	5
59			• • • • •	U	6
60			• • • • • • • •	U	6
61	• • • •		• • • • • • •	U	7
62			• • • • •	U	6
63			•		5
64					0
65	•		• •	U	7
66					1
67	•		•	U	7
68			• •	U	6
69				U	2
70			• • •		5
71			•		3
72			•		1
73					0
74	•		•	U	6
75			•	U	2
76			•	U/C	7
77	•		•		6
78					1
79	• •		•	U	7
80	•			U	7
81				U	2
82					0
83					1
84	• • • • • • • • • • • •		•		7
85	•				4
86					4
87					0
88	•				4
89	•				2
90			•		5
91					1
92			•		4
93					0
94	• • •				5

AREA NUMBER	WOODS >5ACRES	OLD GROWTH FOREST	STEEP SLOPES	GORGE	PRIME (P)/HIGHLY ERODIBLE (E) SOILS	WILDLIFE HABITAT	100 YEAR FLOODPLAIN	WETLANDS	AREA NUMBER	POND	RESERVOIR	STREAMS	CO. UNAs (U), CNAs (C), OR TOWN CEAs (CE)	TOTAL OF FEATURE COLUMNS
95	•		•		HE	•			95			•		5
96	•		•	•	HE	•			96			•	U	7
97	•		•	• •	P/HE	•	•	•	97		*	• • • • •	UU	10
98	•		•		P/HE	•			98			• •	U	6
99			•		P				99					2
100					P				100					1
101	•				P/HE	•			101			• • • •		4
102			•		P				102	• •				3
103	•		•		P/HE	•	•		103				U	6
104	•		•	•	P/HE	•			104			•	U	7
105	•		•	• •	P/HE	•	•	•	105			• •	U	9
106	•		•		P/HE	•	•	•	106			• • • • • • • •	U	8
107	•				P	•	•	•	107			• • • • •	UU	7
108			•		P/HE	•		• •	108	• •		• • • •	U	7
109			•		HE				109					2
110	•		•		P/HE	•		•	110	•		• •		7
111	•		•		P/HE	•		• •	111	• •		• •	U	8
112	•		•		P				112			•		4
113	•				P				113			• •	U	4
114					P/HE	•			114				U	3
115	•		•		P/HE	•			115			• • •	U	6
116	•		•		HE				116					3
117			•		HE				117					2
118	•		•	•	P/HE	•			118			•	U	7
119	•		•		P/HE	•			119			•	U	6
120	•		•	•	P/HE	•			120			•	U	7
121	•		•		P/HE	•			121	•		•		6
122	•		•		P/HE				122			•		4
123	•		•		HE	•			123			•	U	6
124	•		•		P/HE	•		•	124	• •		• • • •		7
125	•		•		HE	•			125					4
126	•		•		P/HE	•			126			• • • • • •		5
127	•		•		P/HE				127			•		4
128	•		•		P/HE				128			• •		4
129	•				P	•		•	129	• •		•		6
130	•		•		P				130			• • •		4
131									131					0
132	•		•						132			•		3
133	•		•		P/HE				133	•		• •		5
134	•		•		P/HE	•			134			•		5
135	•		•		P/HE	•			135				U/C	5
136	•		•	•	P/HE	•			136			•	U/CEA	7
137	•		•	•	HE	•			137			•	U/CEA	7
138	•		•		P/HE	•		•	138				U/C/CEA	6
139	•		•		P/HE	•			139			• •	U/CEA	6
140	•				P				140					2
141	•		•		HE	•			141				U	5

AREA NUMBER	WOODS >5ACRES	OLD GROWTH FOREST	STEEP SLOPES	GORGE	PRIME (P)/HIGHLY ERODIBLE (E) SOILS	WILDLIFE HABITAT	100 YEAR FLOODPLAIN	WETLANDS	AREA NUMBER	POND	RESERVOIR	STREAMS	CO. UNAs (U), CNAs (C), OR TOWN CEAs (CE)	TOTAL OF FEATURE COLUMNS
142	•		•		HE	•			142	• • •			U/C/CEA	6
143	•		•		P/HE	•			143				U/CEA	5
144	•		•		P/HE	•			144				U	5
145	•				P				145					2
146					P				146			•		2
147	•		•		P				147			•		4
148	•		•		P				148	•		•		5
149	•				P				149				C	3
150	•				P	•		•	150	•		•		6
151	•				P	•		• • •	151			• •		5
152	•		•		P	•		• •	152	• •		• •		7
153	•				P			•	153	•		•		5
154	•		•	•	P				154			•		5
155	•		•		P/HE	•			155			• •		5
156	•		•		P				156			•		4
157	•				P	•		• •	157			• •		5
158					P	•		• • • •	158			• •		4
159			•		P	•		•	159	•		• •		6
160					P				160					1
161					P				161					1
162	•		•		P/HE				162			•		4
163	•				P/HE	•			163					3
164	•				P	•		•	164	• •		• • • • •	U	7
165	•				P			•	165	•		• •		5
166					P				166			• •	U	3
167					P				167	•		•		3
168					P				168					1
169					P				169	• •				2
170					P/HE				170			•		2
171					P/HE				171			•		2
172	•				P				172			• •		3
173	•	•	•		P/HE	•			173			• • •	U	7
174	•	•	•	• • • •	HE	•			174			• • • •	U	8
175	•	•			P	•			175			•	U	6

THE ECONOMIC BENEFITS OF LAND CONSERVATION

By Holly L. Thomas, Senior Planner
Dutchess County Planning Department

There is a long-held belief about undeveloped land—that even though it may be nice to look at it's not economically productive, and that it only really carries its weight in the local tax base after it is developed. Communities in growing areas are finding out that this belief is wrong. More and more studies are showing that conserving open land and choosing carefully those areas that should be developed is not contrary to economic health, but essential to it.

The choice we face is not one of environment and aesthetics versus economics, after all. Instead, the fact is that land conservation is a sound investment. Studies comparing the fiscal impacts of development to those of open space protection have found that open space preservation has a more positive impact on a community's economy than most conventional forms of suburban-style development, even when property is preserved through public dollars.

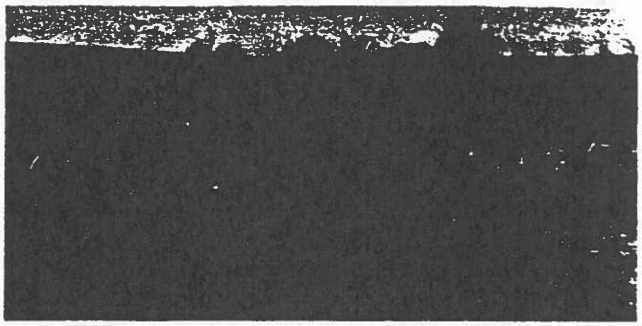
This does not mean that open space protection should be used as an excuse to exclude the diverse housing, schools, roads, businesses, and services needed to keep a community accessible and sound. In fact, providing affordable housing and infrastructure and protecting open space all involve using land appropriately and concentrating development where it can best be served.

What the findings that land conservation is a sound investment **do** mean is that development is not a sure-fire economic boon and protecting the resource base pays off. Development that destroys community resources and natural features is both economically and environmentally wasteful.

Economic Benefits

The following seven points indicate the range of economic benefits of land conservation.

1. ***Land conservation is often less expensive for local governments than suburban-style development.***



The old adage that cows do not send their children to school expresses a documented fact—that farms and other types of open land, far from being a drain on local taxes, actually subsidize local government by generating far more in property taxes than they demand in services. The opposite is true of most suburban forms of residential development. In other words, maintaining a substantial open space system is one important way of controlling the costs of government.

To cite one example, a recent study of Boulder, Colorado's open space program costs found the following:

Average Annual Public Cost of Maintaining Public Open Space Lands (including debt service on land purchases and administrative costs) $328/acre

Average Annual Public Cost of Maintaining Developed and Developable Lands $2,524/acre

Closer to home, a 1990 study of revenues and expenditures for various types of land uses in Red Hook, Fishkill, and Amenia, by Scenic Hudson, Inc. found **that residential land required $1.11 to $1.23 in services for every dollar**

it contributed in revenue, while open land required only $0.17 in services in Amenia, $0.22 in Red Hook, and $0.74 in Fishkill for each one dollar contribution.

A 1989 study by Cornell Cooperative Extension of Dutchess County and the American Farmland Trust found that in Beekman and North East, residential lands required $1.12 to $1.36 for every dollar they contributed, while agricultural land required only $0.21 for every dollar it contributed in North East, and $0.48 for every dollar it contributed in Beekman.

Studies throughout the country are showing similar results. Researchers in Wright County, Minnesota, for example, found that the average annual shortfall between taxes paid and the cost of services required was $490 for developed house lots larger than one acre, and $114 for quarter-acre lots. The extent to which undeveloped land subsidizes development, particularly the kind of large-lot suburban development that consumes more space than it really needs, is beginning to hit home.

The Scenic Hudson and Cooperative Extension studies and others have shown that commercial and industrial land uses also demand less in services than they pay in taxes. However, **it is important to remember that commercial and industrial growth encourages residential growth. Working farms do not.**

Although the methods used in the two Dutchess County studies do not address all variables, the magnitude of the differences between the costs of serving agricultural or other undeveloped land and residential developments is striking. **Their findings agree with experience; taxes increase as farms turn into suburbs.**

2. *Giving land conservation a high priority encourages more cost-efficient development.*

Clustering involves grouping buildings on parts of a piece of property instead of spreading them out in a way that consumes the entire parcel. The concept of clustering can be applied to single-family detached homes as well as multi-family or townhouse styles and non-residential uses. Clusters are frequently referred to as open space subdivisions because they can be designed to keep the most important undeveloped land on a site—such as productive farm fields or wildlife corridors—intact.

The National Association of Home Builders first documented the economic benefits of clustering in 1976. In evaluating this tool for encouraging development and land conservation at minimal public cost, the association found that a sample 472-unit cluster cost 34% less to develop than a conventional grid subdivision.

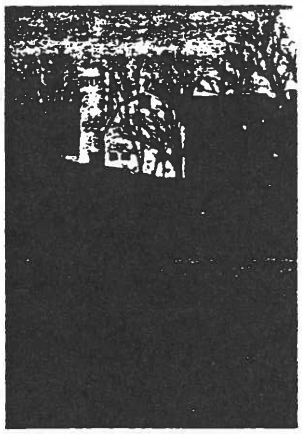
These costs vary from site to site, but follow the general principle that well-designed clusters—both high-density clusters in community centers and low-density clusters of detached units in rural areas—consume less land, require shorter roads and pipes, and fit in better with traditional community densities than do the suburban grids and spider-webs that are spreading across our landscape. They also allow for the preservation of natural systems and agricultural resources whose true value cannot be calculated.

When communities make it clear that protecting open space is a high priority and that unsatisfactory designs will not be accepted, developers are encouraged—or required—to find attractive ways to increase the cost-efficiency of their proposals.

Responsible open space protection involves deciding where and how development should occur as well as where it should not. By retaining the most important natural, scenic, historic, recreational, or agricultural assets, it concentrates development where it fits best, and leads to better decisions about how and where tools such as clustering should be used and where investments in roads, water supplies, and sewers should be made.

3. *Communities with well thought-out land protection programs may improve their bond ratings.*

Bond ratings are measures of the financial community's faith in the ability of a government to meet its obligations and manage its debts. Favorable ratings save governments money by enabling them to raise money for capital improvements at relatively low costs. The poorer the bond rating, the higher the interest the government has to pay to attract investors, and the greater the chance that potential investors will place their money elsewhere.



Bond ratings are beginning to reflect the fact that unlimited or mismanaged growth can threaten a community's fiscal health, while land conservation and sound planning can help sustain it. The rating assigned to Howard County, Maryland, which lies in the rapidly growing Baltimore to Washington, D.C. corridor, is one example. Howard County has one of the most innovative farmland preservation programs in the country. It stretches public dollars by combining installment purchases of development rights with property tax abatements.

In May, 1990, Fitch Investors Service gave the county a AAA bond rating for the issuance of over $55 million in bonds for capital projects **because of its record and its specific plans for limiting and managing growth.** In its report on the bond issue, Fitch states

> The recently completed general plan for future county development is an example of the county's superior planning skill. **A conscious decision has been made,**

> **after discussions with residents and business, to control future growth within the county to ensure that the quality of life continues to be desirable.** Components of the plan include maintaining a rural character in parts of the county, adopting adequate public facilities ordinances to require that infrastructure is in place before permitting development, and providing a contribution of funds to ensure that state roads are in a condition necessary to provide adequate transportation access.

The report goes on to state that

> **an important and unique part of the capital improvement plan is the agricultural preservation program under which development rights are purchased by the county to control growth and maintain the area's character.**

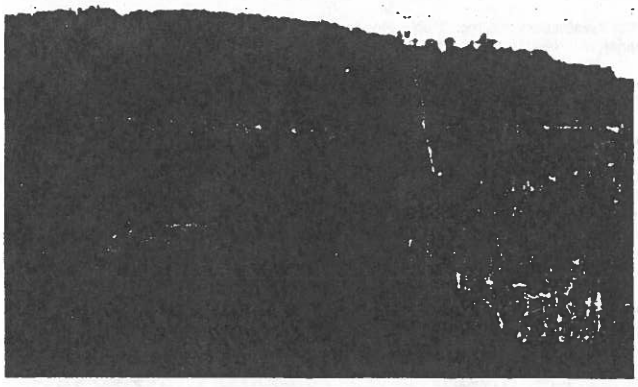
In other words, the development limits the county has put in place, including a farmland preservation program financed by public dollars, enhance the county's fiscal integrity by demonstrating the county's commitment to to maintaining the quality of life and controlling the costs of development.

In its presentation to the Fitch Investors Service, the county argued that because its programs limited the amount of land that could be developed, they limited the amount of infrastructure the county would have to provide. This meant that the county would not have to go into as much debt for infrastructure construction, and could more easily carry any other debt it incurred. In awarding the AAA rating, Fitch Investor Service agreed. It acknowledged that rationally limiting growth would be significantly less expensive than allowing growth to continue unconstrained.

The Howard County agricultural development rights purchase program won the Government Finance Officers 1990 national award for innovation in financial management and continues to attract national attention.

4. Open space protection saves public funds by preventing development of hazardous areas.

Floodplains function well as emergency drainage systems—for free—when they are left undisturbed. The public pays a high price when misplaced or poorly designed development interferes with this function. Human encroachment on the natural flood corridors often increases the risk to downstream homes and businesses by increasing the volume of runoff and altering the flood path. The resulting demands for costly drainage improvements, flood control projects, flood insurance, and disaster relief are all, ironically, preventable by conserving and respecting the floodplains from the outset. **Rockland County's greenways acquisition program was inspired by the county's dismay over the costs of coping with drainage problems caused by encroachment into floodplain systems.**



5. Conserving land allows nature to continue its valuable work.

Two functions that wetlands provide for free—groundwater recharge and water purification—are lost when those wetlands are developed. **Suffolk County's groundwater recharge area acquisition program was triggered by public awareness that uncontrolled growth threatened the quality and quantity of the county's water supply. The county's voters realized that protecting the groundwater system by buying important areas above it made better economic sense than finding another water source.**

As noted above, the ability of a natural floodplain to channel floodwaters efficiently—for free—can cause a public emergency when development gets in the way. The remedies needed to protect life and property after floodplains are improperly developed are limited and costly.

Steep slopes are another example of natural systems that operate best when left alone. Woodlands hold fragile soils in place on steep terrain—for free—when they are left undisturbed. Too often when those slopes are cleared for development, their soils erode and clog streams, lakes, and drainage ways. Soil is an irreplaceable resource and the cost of dredging streams and lakes is prohibitive.

Wooded slopes also help absorb rain water and slow the rate of stormwater runoff. When too much pavement replaces the vegetation, the costs of preventing more serious and frequent floods and of maintaining water quality skyrocket.

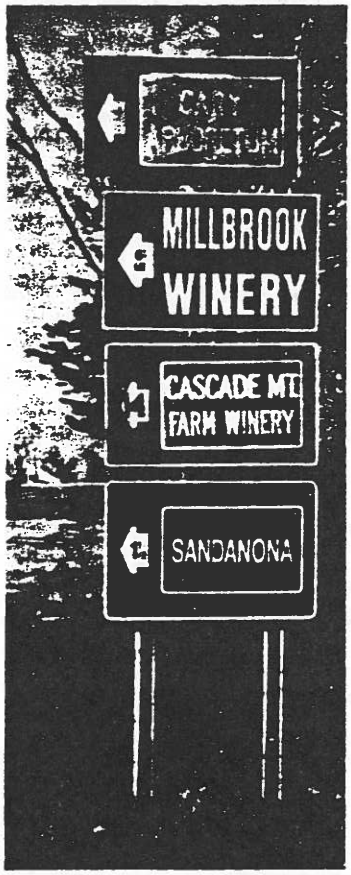
6. Open space increases the value of nearby or adjacent property.

Results of a 1978 study of Boulder, Colorado's greenbelt indicated that **property value decreased by $4.20 for every foot of distance from the public open space.** More recent studies of greenway corridor paths, park lands, and lands under conservation easements throughout the country, in settings ranging from the most urban to rural, have also found that **access to protected open space is a valuable amenity in the real estate market.**

7. Outdoor recreation, tourism, and agriculture are big business.

Tourism and agriculture are vital components of Dutchess County's economy, and both depend on the resources and

amenities that open landscapes provide. According to the 1987 Census of Agriculture, **Dutchess County's farmers sold $38 million worth of agricultural products in 1987 and employed 1,500 people on farms and another 2,000 to 2,500 in farm-related goods and services.** They spent over $33 million on goods and services, which multiplied to an infusion of over $100 million into our local economy.



Tourism is also a multi-million dollar business in Dutchess County. Statistics from the Dutchess County Tourism Promotion Agency show that **tourists spent over $127 million here in 1988, up nine percent from 1987.** The agency estimates that this represented an economic benefit to the county of $376.8 million. The tourism business employed over 8,850 persons in 1988, one in every ten of the county's workers.

The county's historic buildings and sites are important tourism attractions. Many of these historic features are linked to natural and scenic settings that are relatively unprotected. Conserving these landscapes would help sustain the appeal of the cultural sites, thereby protecting both their historic integrity and their economic contribution.

Outdoor recreation is a major component of the tourism economy, but also serves the county residents who consider access to parks, Hudson River views, historic sites, fishing streams, forest trails, hunting areas, or rural scenes important elements of the quality of life that drew them here.

Conclusion

The value of a productive farm field, a healthy wetland system, or an irreplaceable scenic vista goes far beyond dollars and cents. It is important, however, that we understand the real economic benefits of protecting open space. As these examples show, the benefits can range from filtering water and channelling floods for free, or avoiding the increased costs of serving homes arranged in sprawling grids, to attracting tourist dollars to the region, or influencing the bond ratings that govern the costs of long-term debt.

Too often our communities are presented with a false choice between economic growth and environmental protection. Success in attaining and sustaining economic health depends on recognizing the economic contribution that undeveloped land already makes.

> In choosing which areas should develop, and how, we owe it to ourselves and to our heirs to ensure that important natural systems and our most productive landscapes remain intact. We should also provide for development that will meet community needs for housing, jobs, recreation, and services, and insist that such development respects and complements the values of open lands. By following these principles we can join the growing number of communities throughout the country that have found that a public commitment to combining land stewardship with well-designed development pays off.

References

Note: Many of the concepts included here were presented in 1979 by the New Jersey Conservation Foundation, in Open Space Pays: The Socioenvironomics of Open Space Preservation. The following sources were used to update, augment, and amend the 1979 information to reflect current knowledge and facts relevant to Dutchess County.

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APPENDIX E

DEFINITIONS

1. GENERAL DEFINITIONS

Open Areas (Open Space)

The CAC's definition of open areas (open space) Is all undeveloped land characterized by an absence of structures. Some are minimally disturbed areas of natural beauty such as meadows and woods while other open areas, such as farms, cemeteries, playgrounds, golf courses, and parks, have been altered by human activities. Although the open areas associated with human activities technically constitute developed space, they retain a sense of openness for the community.

Open Space Inventory

The CAC defines an Open Space Inventory as an objective detailed description of all open areas in the Town based on their ecological, cultural, and historical significance.

Open Space Index

The Open Space Index tallies the environmentally important features found in each open space area (Appendix C). The Open Space Inventory, Map 1, and Index will become the official Town of Ithaca Open Space Index after its acceptance and approval by the Town of Ithaca Town Board.

Mitigation Measures

Mitigation often has negative connotations. This reputation stems from rampant elimination of wildlife habitat with measures insufficient to compensate. Often important habitats, such as a wetland, is filled in for a development with the promise to create a new one. The new "wetland" fails to duplicate the ecological functions of the previous area resulting in the loss of an important resource and habitat.

Another insufficient method is allowing ancient forests to be clear-cut in return for planting new seedlings. This results in the loss of countless species that depended on the forest ecosystem for food and shelter.

There are preferable "low impact" forms of mitigation ranging from total avoidance of the sensitive resources to sensible siting of construction using techniques to prevent siltation, pollution, emissions, erosion, and degradation of valuable habitats. Many sensitive ecological features can be creatively incorporated into the landscape design of the construction project. If there is absolutely no alternative, the developer could supply funds for the municipality to purchase a similar habitat elsewhere as permanently protected public open space.

2. PHYSICAL FEATURES REFERRED TO IN THE REPORT AND INVENTORY (REFER TO MAPS 1 THROUGH 6 FOR THE APPROXIMATE DEPICTION OF ALL FEATURES LISTED IN THE SPREADSHEET AND TALLY.)

The following features are of particular environmental significance to the Town of Ithaca and describe the open areas on the Open Space Inventory Spreadsheet (Appendix B). Not all the features below have point values on the Open Space Index tally (Appendix C).

Active Agricultural Lands

Agriculture is a traditional land use that provides an important economic resource for the Town of Ithaca and maintains large expanses of open space. Accordingly, it is essential that local agricultural lands be protected. There are approximately 5,000 acres of active and inactive farmland. A 1990 survey of farmers in the Town reported more than 70% of their land was being actively farmed.[50]

Areas Contiguous to UNAs, CEAs, or State Parks

The CAC recognizes that the protection of certain open areas is important due to their proximity to highly sensitive environments such as UNAs, CEAs, and State Parks. To insure their conservation, it is important to

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[50] 1992 Draft of *Planning for Agriculture in the Town of Ithaca*, prepared by the Agriculture Committee of the Town of Ithaca Conservation Advisory Council.

discourage development within 100 feet of these sensitive environments. These buffer zones also act as riparian corridors for species movement.

Biological Corridors

Wildlife corridors are narrow thoroughfares, allowing for the safe travel of animals between habitat blocks. Stream corridors provide riparian connections for species movement. Biological corridors, however, must have greater acreage to provide functional biodiversity of all native species. These corridors serve as linkages between fragmented habitats and preserve biodiversity by allowing for the physical interaction of species and their genetic material over time.[51]

Brushlands

Successional scrub brushlands occur on sites that were once cleared for agriculture or by logging. Brushlands provide diverse habitats for species that require at least a 50% shrub cover. If left undisturbed, brushlands will eventually become woodlands. Although these environments are valuable to wildlife, brushlands are not given point values in the ranking index due to their abundance in the Town and their transitory status.

Buffer Zones

Buffer zones are restricted, undeveloped expanses of land that separate existing land uses. They are important in protecting sensitive environments from development on adjacent properties. Buffers also create quiet zones within developed localities and separate disparate human uses.

Cemeteries and Burial Sites

Cemeteries have great cultural and historical significance for the Town as well as provide additional green space. Sections 292 and 296 of the State of New York's Town Law and Article 15 of the State's Not-for-Profit Corporation Law regulate cemetery property. Buildings cannot be constructed where bodies are interred. This does not prevent the owner of the cemetery (either the municipality or a non-profit corporation) from disinterring the bodies, moving them to an approved cemetery, and selling

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[51] Lowell W. Adams and L. E. Dove. 1989. *Wildlife Reserves and Corridors in the Urban Environment: A Guide to Ecological Landscape Planning and Resource Conservation.* National Institute for Urban Wildlife, Maryland, and Fish and Wildlife Service, Washington, D. C.

the property for development. This can only be done if the cemetery has been abandoned (no new burials within the last 14 years). There may also be provisions for eminent domain.

Cayuga Lake and its Shoreline

The water quality of Cayuga Lake may be the best indicator of the environmental health of this region. Cayuga Lake is an important part of the regional ecosystem and is a public water supply for the Town of Ithaca and surrounding communities. It is a major component of many scenic views and a source of recreational enjoyment. The Town of Ithaca has no special lake shore zoning or protective measures.

Cultural Sites

Sites of cultural significance such as arboretums, nature preserves, religious institutions, cemeteries, and school properties contribute to both the human environment and open space value of the Town.

Endangered and Significant Wildlife Habitats

The habitats of rare, endangered, or threatened flora and fauna are essential for their survival. Significant wildlife habitats[52][53] of non-threatened species are defined as "good examples" of local plant or animal communities. Significant wildlife habitats of native flora and fauna wildlife species occur within the boundaries of the Town of Ithaca. The DEC and the Tompkins County Planning Department have completed a

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[52] If significant habitats are not recognized as community assets, these areas will be degraded. Eventually the flora and fauna endemic to these areas will decrease in number and be placed on the NYS DEC's and/or Federal lists as "species of concern." As their habitats continue to vanish and their populations further diminish, they will move up these lists to "threatened," "endangered," and eventually "extinct." The most effective way to prevent this step-wise progression is to value and preserve these common significant habitats before they irrevocably degraded.

[53] Michael E. Soule and Kathryn A. Kohm (eds.). 1989. *Research Priorities for Conservation Biology.* Island Press, Washington, D. C. Chapters 4-6.

rudimentary study of wildlife habitats for a limited number of fauna (including the white-tailed deer and wild turkeys).

Highly Erodible Soils: Soils of Unstable and Severely Erodible Quality
These soils are classified by their limitations due to erosion when disturbed. Predominantly these soils have steep slopes (20 - 60 % slope) and are subject to extreme runoff. The Inventory designates major zones of the following local soils: Bath/Valois (25-35%); Howard/Palmyra (25-60%); channery silt loam (25-70%); Hudson/Dunkirk (20-45%); Lordstown (35-75%); and Bath/Valois/Lansing (35-60%). Not all soil types that are classified as unstable and highly erodible have steep slopes, such as Hudson silty clay, which because of its high clay content and looseness, are subject to erosion on relatively gentle slopes of 12-20 percent. These soils are best suited for wildlife habitat, woodlands, and pastures.[54]

Floodplains
Floodplains are lands adjacent to streams that accommodate seasonal storm flooding. The 100-year floodplain is identified by the United States National Flood Insurance Program (NFIP) rate maps. In order for the Town of Ithaca to participate in this insurance program, certain restrictions on zoning and construction practices apply within the designated 100-year floodplain areas. All development and substantial improvements to existing structures within the floodplain must be designed and built to withstand the 100-year storm (a severe storm with a one percent chance of occurring in any given year). Usually this is accomplished by elevating the structures above the 100-year floodplain level.

Historic Sites
Historic areas include sites of former Native American settlements, burial sites, buildings listed on the historical register, and other places important to local history. Protection of these areas will enable present and future generations to appreciate our local history.

Major Rock Gorges
The Finger Lakes Region was covered by two continental Pleistocene glaciers which gave rise to two types of gorges. Long interglacial gorges were formed between continental glaciations and shorter gorges formed

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[54] *Soil Survey, Tompkins County, New York*, U. S. Department of Agriculture, Series 1961, No. 25, p. 40-41, and maps in back.

after the most recent glaciation. The gorges, for which this region is most notable, were postglacial and where formed by large tributaries which eroded the relatively fragile shales. These include Fall Creek, Buttermilk Falls, Cascadilla Creek, and Enfield Falls (Robert H. Treman Park). Other smaller yet important gorges are Lick Brook, Twin Glens, Renwick Brook, Williams Brook, Indian Creek, and Linderman Brook. Numerous streams have interweavings of interglacial and postglacial gorges. As an example, the widest sections of Six-Mile Creek and Beebe Lake on Fall Creek are remnants of interglacial gorges.[55] Because of their steepness these rock-cut gorges offer unique wildlife habitat and aesthetic attributes and limited recreational use.

Mature Woods (5 acres or larger)

Mature woods of at least 5 acres provide a wide variety of floral and faunal habitats and micro-climates ranging from the forest floor to its canopy. Forests are essential to purifying the air and support many animal and plant species. Woods also contribute significantly to the aesthetic beauty, and recreational opportunities of the Town of Ithaca and its environs. For the purposes of this report, if a woodlot less than five acres on one designated area is a continuation of a larger woodlot (greater than five acres) on an adjacent area, the smaller woodlot is noted as being greater than five acres. Woodland size was determined by the Comprehensive Plan maps, field evaluations and the EMC's identifications.

Meadows

Meadows provide scenic views and are essential habitats for open area species. They occur on sites that have been cleared, plowed, and kept in cropland or abandoned. Most meadows are periodically mowed, although some are created by fires, blow-downs, and the activities of beavers. Because of their transient nature, meadows had no point values in the index.

Moderate Slopes (10-14% grade)

Moderate slopes are often found on the tops of the steeper slopes as evidence of the Pleistocene glaciations. These slopes can present an erosion problem if they are composed of highly erodible soils. Moderate

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[55] O.D. von Engeln. 1961. *The Finger Lakes Region: Its Origin and Nature.* Cornell University Press, Ithaca, N.Y. Chapter 6.

slopes are less suitable for cultivation than flatter areas. To determine the percentage grade of a slope, divide its vertical rise by its horizontal distance.

Old Growth Woods

Woods that have been determined to have a majority of trees over 100 years old. Old Growth Woods are unique established ecosystems because of the height of their canopy, microclimate, and niche that they provide for flora and fauna.

Other Physical Features

These include active gravel pits and other site disturbances due to mining; mowed lawns and recreational fields; dedicated open space; and facilities for educational purposes.

Ponds

Ponds provide essential feeding and nesting habitat for numerous fauna, including birds, insects, reptiles, amphibians, fish, and mammals. These aquatic habitats are dominated by highly productive aquatic plants particularly adapted for shallow water.

Prime Soils (United States Soil Conservation Service (SCS) Class I and II Prime Agricultural Soils)

The SCS soil classification system divides soils into eight "soil capability classes," based on their capacity for supporting crops. The highest producing agricultural soils are called "prime farmland soils." These are soils that have the best combinations of physical and chemical characteristics for producing food, feed, forage, fiber, and oil seed crops. Prime soils, Classes I and II, produce the most food or fiber with the least inputs of fertilizer and labor. Prime soils are also very important natural resources capable of supporting the largest diversity of trees and other vegetation than the other soil classes. Approximately one-third of the Town's 19,105 acres are classified as prime soils.

Recreational Facilities

Designated recreational facilities such as golf courses, parks, playgrounds, and trails provide for leisure and recreation and contribute to Town open space.

Reservoirs

Reservoirs impound a river or stream by a dam to collect water for municipal water supplies and recreation. They are also important habitats for numerous species of wildlife. There are two reservoirs located on Six-Mile Creek that are part of the City of Ithaca's water supply and two other local reservoirs (Beebe Lake on Fall Creek, used for hydropower generation, and Lake Treman, on Buttermilk Creek, used for recreation).

Steep Slopes (15% grade or greater)

Steep slopes afford the Town of Ithaca its unique characteristic beauty and provide vantage points of the Cayuga Lake Basin. The stability of these steep slopes is dependent on their soil types and are important for preventing soil erosion into Cayuga Lake. Highly and severely erodible soils are often found on these steep areas.

Soil erosion is a serious consequence of disturbing steep slopes by development. Slope instability is commonly evidenced by sloughing, ravelling, or gullying are caused by water seepage and run-off. Mitigation measures such as interception ditches, permeable blanketing, and ditches are effective in limited circumstances. Surface water run-off from erodible soils is particularly serious on sand or silt cut or fill slopes and drainage channels. Because of the expense of building on steep slopes and the tax burden of maintaining the infrastructure, these locations are discouraged by the Town.

Streams and Their Corridors

In 1966 the DEC classified all streams according to their water quality and consequent "best usage." Streams suitable for drinking water are classified AA, while Class D streams are not suitable for drinking and can receive treated sewage effluent. Streams classified AA, A, B, C, and Ct (t indicates trout habitat) are highly regulated by the DEC while streams of lower classification (Class D and intermittent Class D) are moderately monitored. Stream corridors[56] include the lands surrounding streams that protect the water quality and provide habitat for the associated riparian flora and fauna.

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[56] *Stream Corridor management: A Basic Reference Manual.* 1986. New York State Department of Environmental Conservation, Albany, New York.

Tompkins County Environmental Management Council Designated Unique Natural Areas (UNA)

New York State Law allows Environmental Management Councils to designate areas that have outstanding environmental qualities and deserve special attention for preservation in their natural state as Unique Natural Areas. These areas are important for preserving endangered and rare species of flora and fauna, excellent examples of ecosystems or biotic communities, unique geologic features, and outstanding scenic beauty. The Tompkins County Environmental Management Council (EMC) has identified 35 areas in the Town in its revised 1990 Unique Natural Area report.

Town of Ithaca Critical Environmental Areas (CEA)

New York State Town Law allows towns to designate areas with significant ecological, geological, hydrological, social, cultural, historic, and recreational value as Critical Environmental Areas. These areas often include wildlife habitats, forests, open space, and sites of aesthetic or scenic quality.

Wetlands

Freshwater wetlands serve numerous crucial functions for the health and safety of the community. Wetlands filter groundwater, recharge aquifers, detoxify pollutants, reduce the ozone deficit, and retard flood water. [57,58] Wetlands also provide unique nesting, migratory, and wintering habitats for a myriad of wildlife species including many classified as endangered, threatened, or "of special concern" on the New York State and Federal Endangered Species Lists. Wetlands are regulated by the U.S. Army Corps of Engineers and the N.Y.S. Department of Environmental Conservation (if larger than 12.4 acres).

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[57] Jon A. Kusler. 1990. Our National Wetland Heritage. The Environmental Law Institute, Washington, D.C.

[58] Paul F. Scodari. 1990. *Wetlands Protection: The Role of Economics*. Environmental Law Institute, Washington, D.C.

APPENDIX F

DEVELOPMENT PRESSURES

1. INFRASTRUCTURE: PUBLIC SEWER AND WATER SERVICE

The Town's policy to direct development towards locations already served by public utilities is generally supported by the CAC. However, some of the existing and planned extensions of water and sewer were approved without full consideration of the environmental impact on the area serviced. In the future, the environmental information contained in this report will assist in making decisions about service extensions. The availability of roads and of public water and sewer service in the Town invites and encourages development that could affect existing open space; infrastructure can be in conflict with the retention of open space.

2. ZONING ORDINANCE

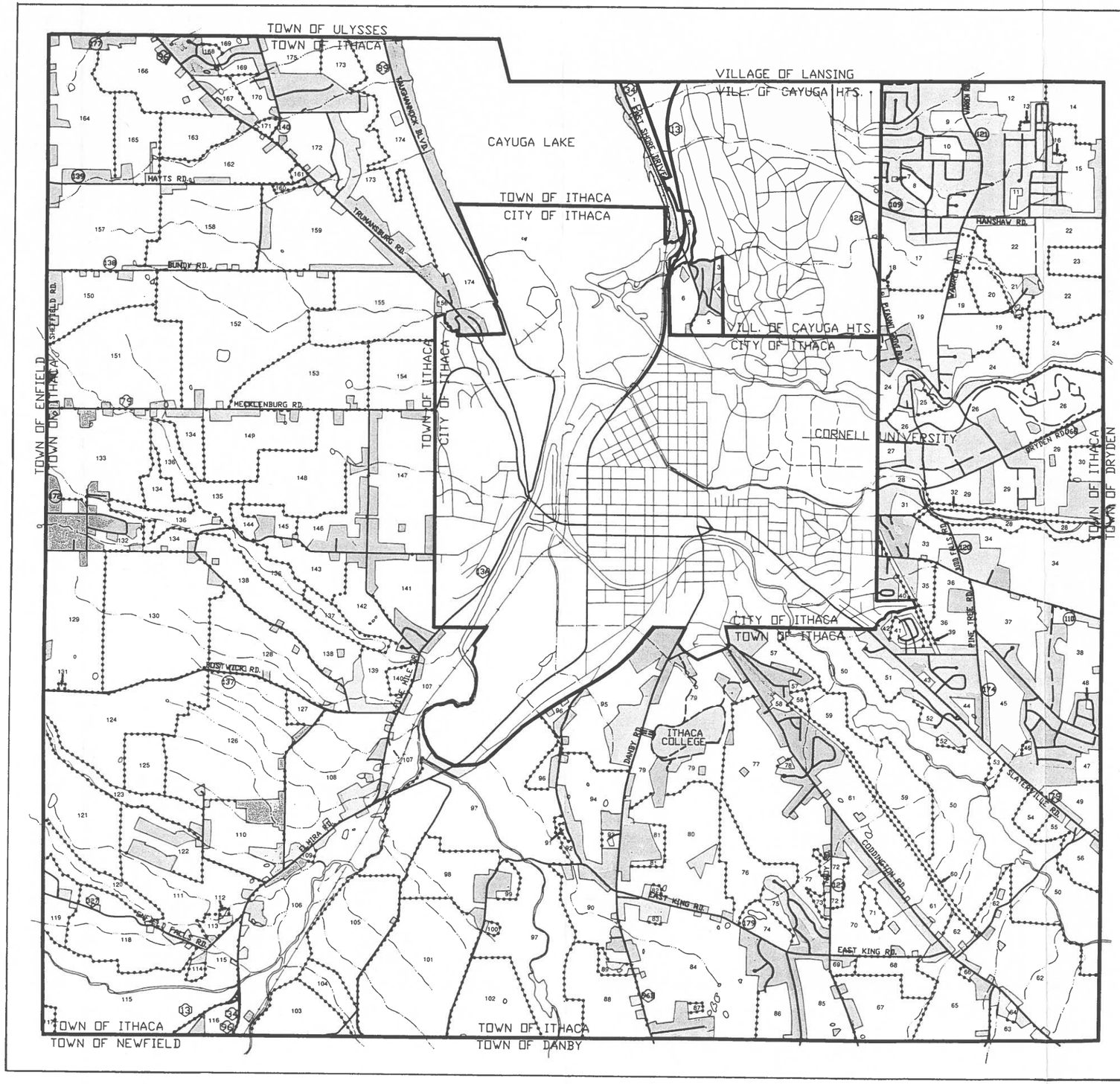
There are various types of uses allowed in the Town of Ithaca. Please refer to the Town's Zoning Ordinance for specific zoning details.

3. AGRICULTURE ZONE

Open space located in the Agriculture Zone (AG) appears to be the least vulnerable to development (Map 2). Suitable agricultural land should be protected whenever possible. The low-density development (a one- or two-family dwelling per tax parcel) allowed in this district provides some protection of open space. However, there are few specific mechanisms for protecting or maintaining the quality of open space in this zone.

4. EXISTENCE OF SPECIFIC DEVELOPMENT PROPOSALS

Development and subdivision proposals already presented or approved by the Town will affect the proposed site as well as nearby and adjacent open areas. These proposals set a precedent for the extension of development in their section of the Town.



TOWN OF ITHACA OPEN SPACE MAP

- DEVELOPED AREAS
- OPEN AREA AND NUMBER
- PUBLIC ROAD
- PRIVATE ROAD
- MUNICIPAL BOUNDARY

SOURCE:
Town of Ithaca Planning Dept. Interpretation, 1992, Draft 1992 Town of Ithaca Comprehensive Plan, LAND USE 1990

TOWN OF ITHACA
1992 OPEN SPACE REPORT

TOWN OF ITHACA
CONSERVATION ADVISORY COUNCIL
126 EAST SENECA ST.
ITHACA, N.Y. 14850

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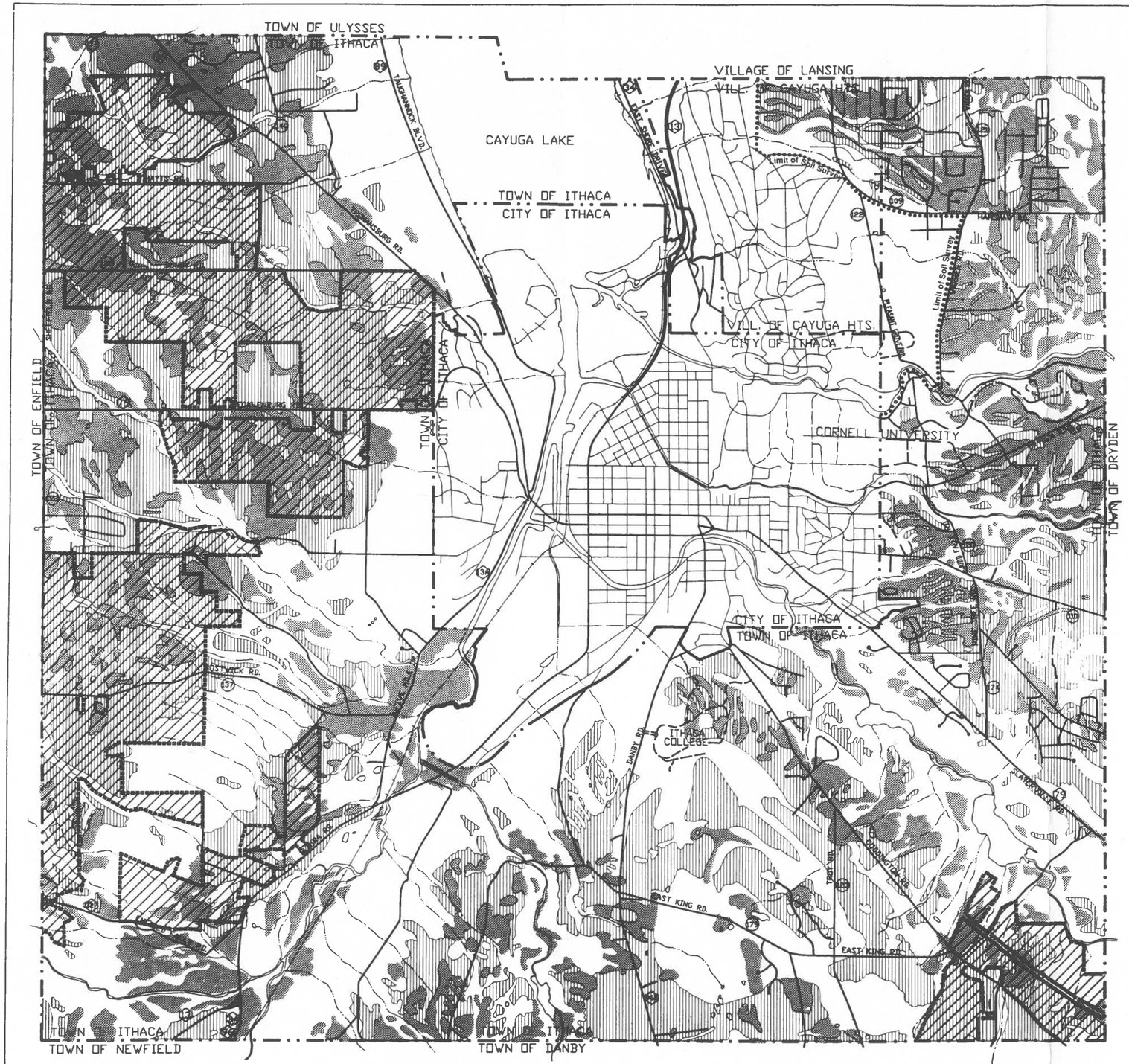
DATE: AUGUST 1992

MAP NO. 1



AGRICULTURAL DISTRICTS AND IMPORTANT SOILS

- PRIME AGRICULTURAL SOILS (CLASSES I & II)
- OTHER IMPORTANT AGRICULTURAL SOILS (CLASS III)
- NEW YORK STATE AGRICULTURAL DISTRICT
- LIMIT OF SOIL SURVEY *

NOTE:
The soil survey only covered a portion of the Town of Ithaca.

SOURCE:
Draft 1992 Town of Ithaca Comprehensive Plan, U.S. Soil Conservation Service, "Soil Survey of Tompkins County", 1961, C.L.E.A.R.S. soils mapping, 1986, Tompkins County Planning Dept.

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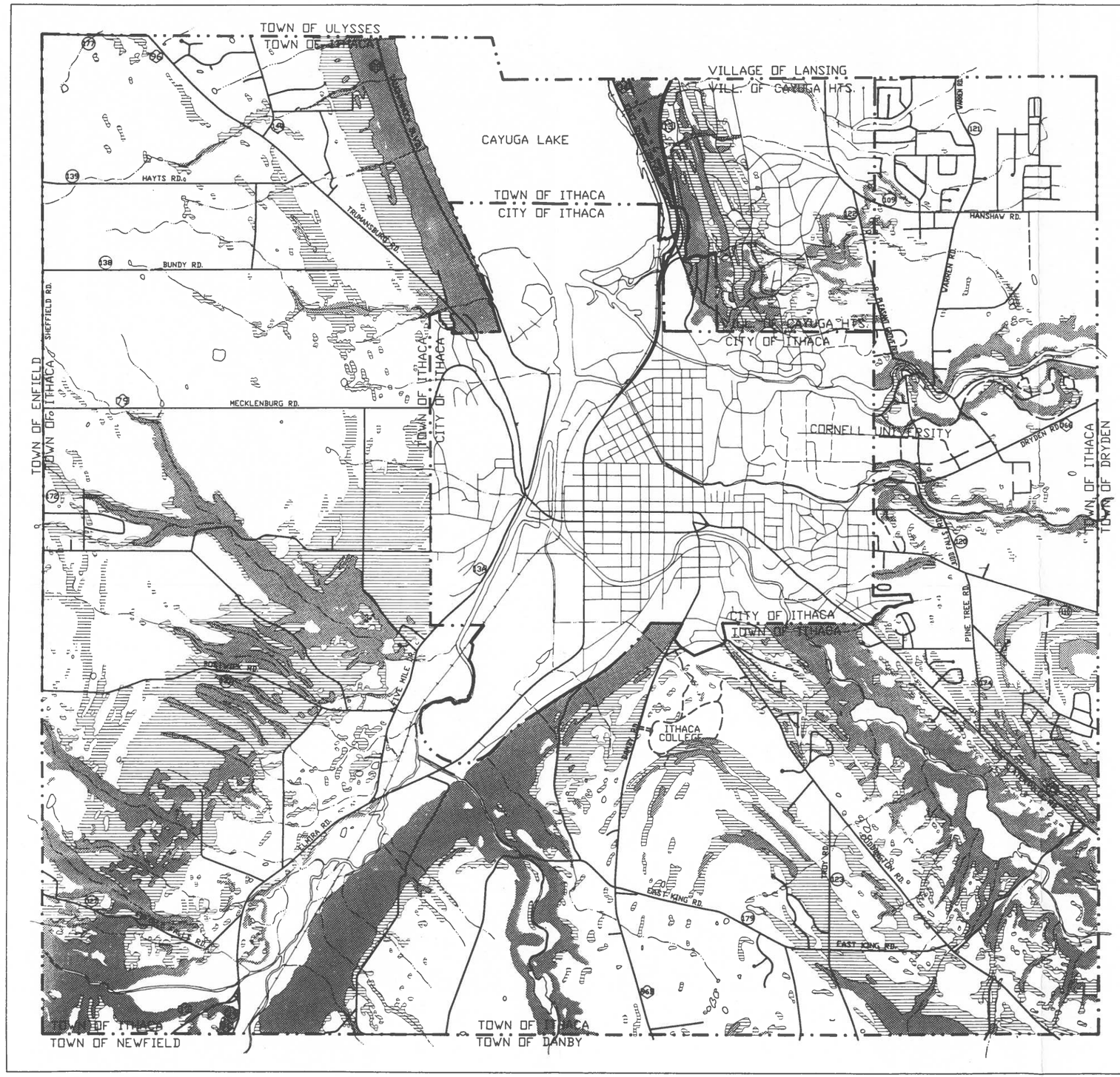
DATE: AUGUST 1992

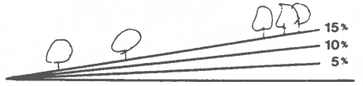
MAP NO. 2



SLOPE CLASSIFICATION

- 0 - 9 PERCENT
- 10 - 14 PERCENT
- 15 PERCENT OR GREATER

SLOPE PERCENTAGE DIAGRAM



NOTE:
Slope percentage is calculated by ratio of vertical rise to horizontal distance.

SOURCE:
Draft 1992 Town of Ithaca Comprehensive Plan,
U.S. Geological Survey Topographic Map, 1974.

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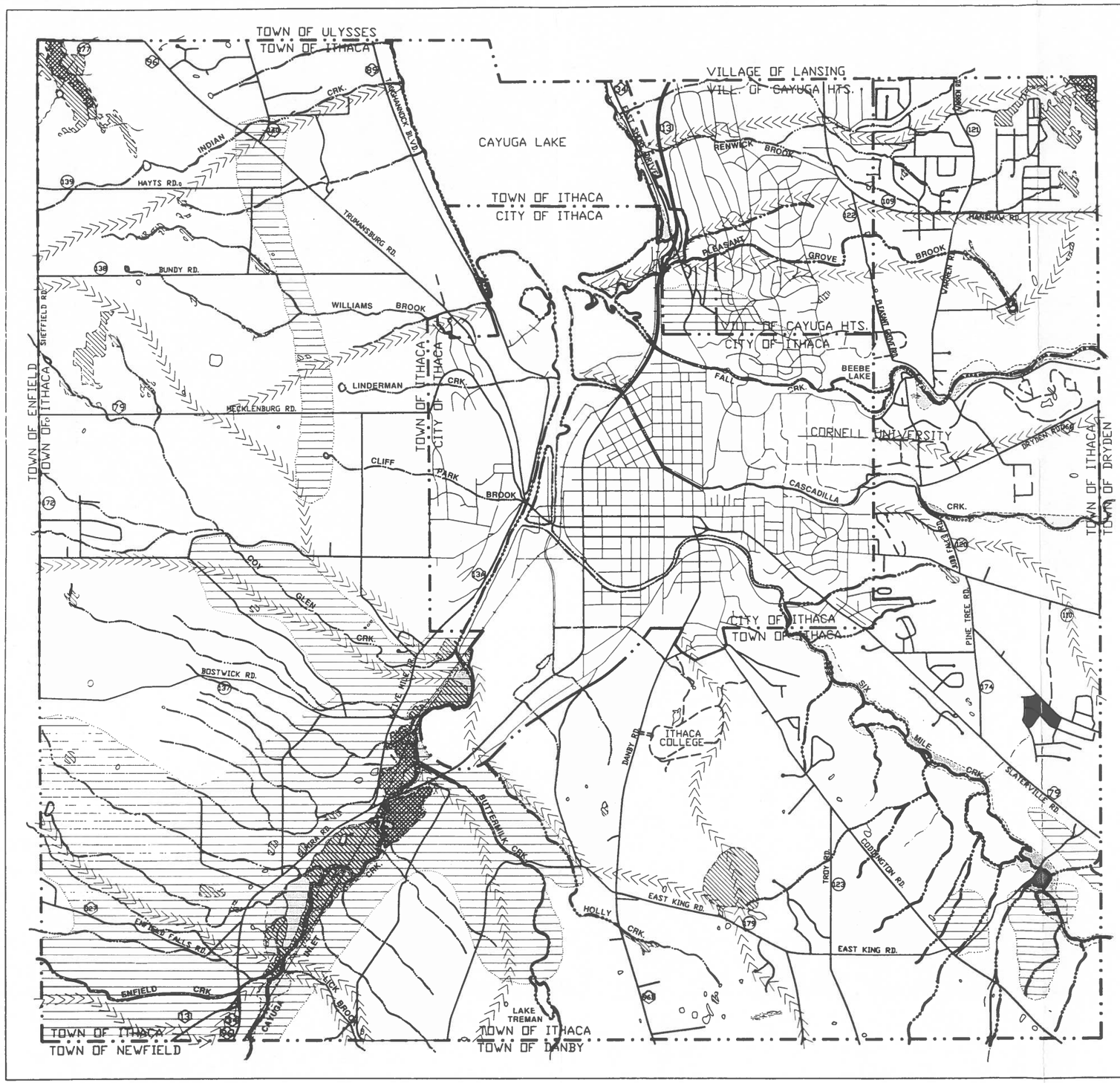
0 1000 2000 3000 4000

N

DATE: AUGUST 1992

MAP NO. 3



WATER RESOURCES

- 100-YEAR FLOOD PLAIN
- REGULATED STREAM OR LAKE (N.Y.S.D.E.C.)
- CLASSIFIED STREAM OR LAKE (N.Y.S.D.E.C.)
- WETLAND
- DESIGNATED WETLAND (N.Y.S.D.E.C.)
- MAJOR DRAINAGE DIVIDE
- AQUIFER
- APPROXIMATE WETLAND LOCATION

NOTES:

1. Consult with the appropriate agencies for information on flood plains, wetlands, and aquifers in adjacent municipalities.

2. Flood plains and wetlands shown are derived from map and aerial photo interpretation and/or field survey. Exact locations and boundaries are subject to further confirmation.

3. Aquifer information come from Tompkins Co. Environmental Image Studies.

SOURCE:
Draft 1992 Town of Ithaca Comprehensive Plan,
U.S. Federal Insurance Admin.,
N.Y.S. Dept. of Environmental Conservation, C.L.E.A.R.S. Aerial photographic interpretation, 1986,
Tompkins Co. Planning Dept.,
Town of Ithaca Planning Dept.

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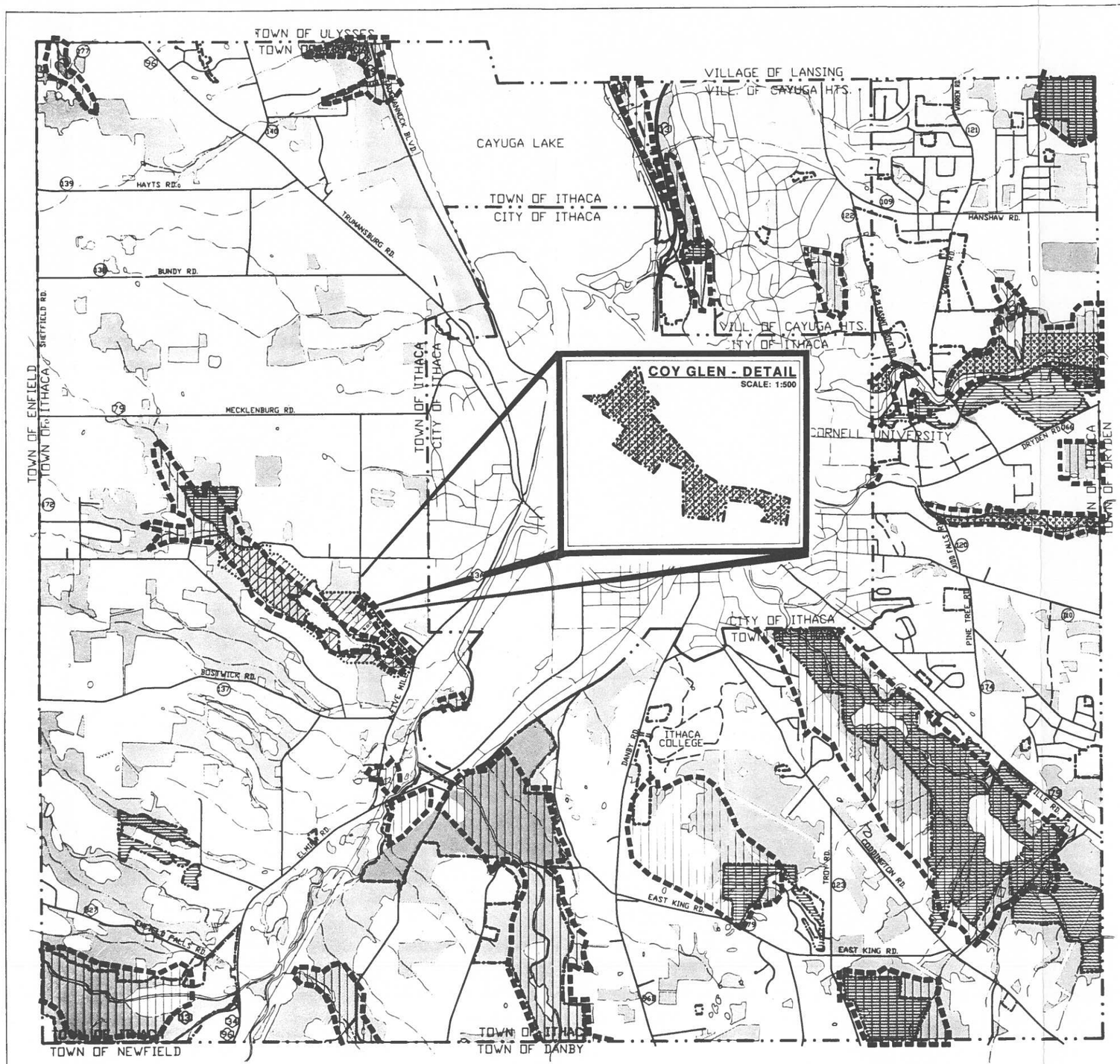
MAP NO. 4



LAND RESOURCES

- MATURE FOREST*
- DESIGNATED OPEN SPACE RESERVATION
- TOMPKINS CO. UNIQUE NATURAL AREA
- TOWN OF ITHACA CRITICAL ENVIRONMENTAL AREA
- RECREATIONAL LAND
- CORNELL NATURAL AREA
- OLD GROWTH FOREST

NOTES:

* "Areas where trees 30 feet or greater in height predominate, based on CLEARS Land Use/Land Cover inventory of 1986 updated with spot checks in 1988."

Some Tompkins Co. Unique Natural Areas extend into adjacent municipalities. For further information, refer to "Unique Natural Areas of Tompkins County, 1990 Inventory" by Tompkins Co. Environmental Management Council

SOURCE:
Draft 1992 Town of Ithaca Comprehensive Plan,
Tompkins County Environmental Management Council,
C.L.E.A.R.S. Aerial photographic interpretation, 1986, Town of Ithaca Planning Dept.

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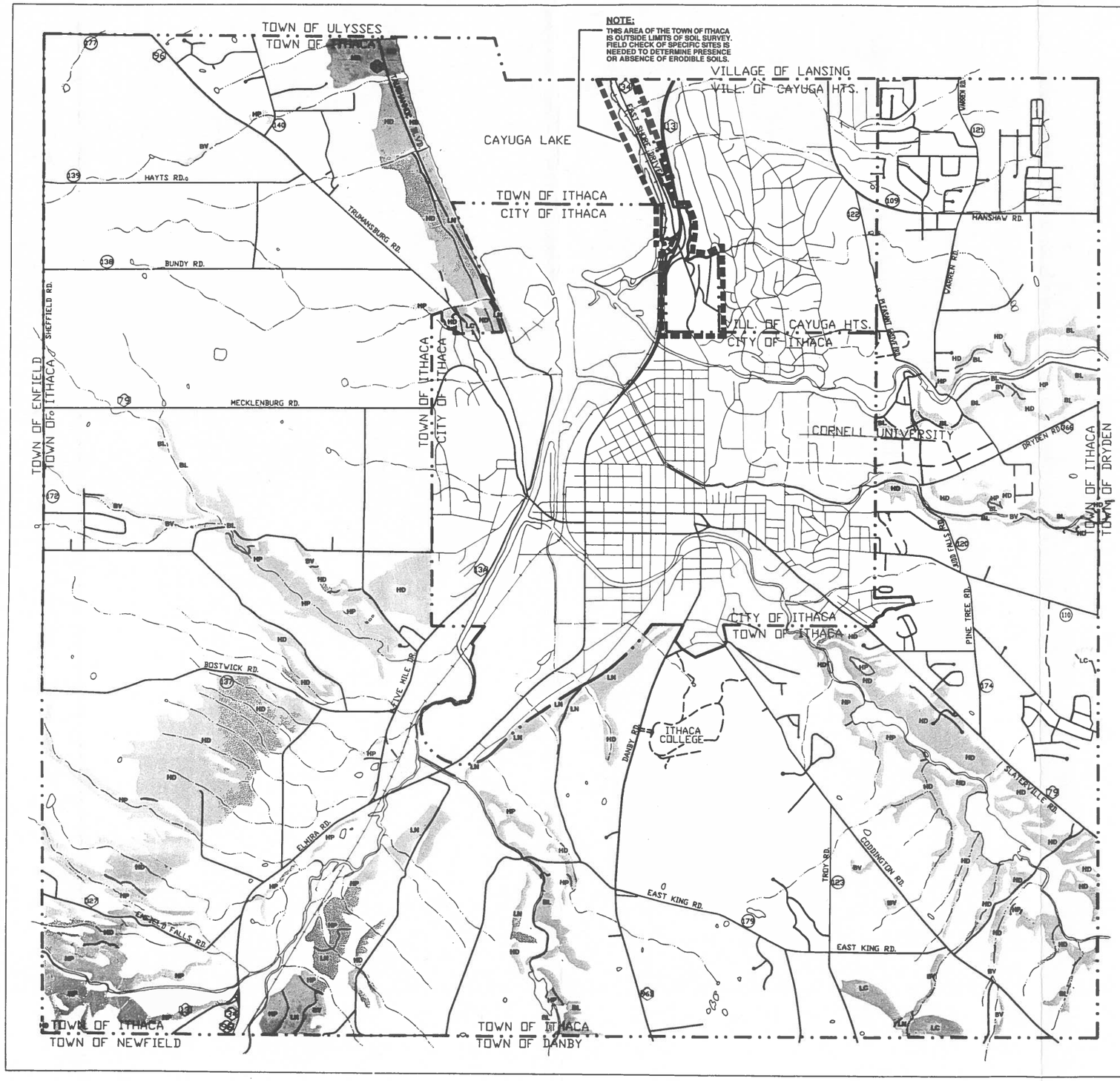
MAP NO: 5



ERODIBLE SOILS

HIGHLY ERODIBLE SOIL TYPES

- BV: BATH & VALOIS, 25-35% (BOE)
- BL: BATH, VALOIS & LANSING, 35-60% (BTF)
- HP: HOWARD & PALMYRA, 25-35% (HPE)
  HOWARD & PALMYRA, 35-60% (HPF)
- HD: HUDSON SILTY CLAY LOAM, 12-20% (HSD3)
  HUDSON & DUNKIRK, 20-45% (HZE)
- LC: LORDSTOWN CHANNERY SILT LOAM, 25-35% (LNE)
- LN: LORDSTOWN, 35-70% (LOF)

SOURCE:
Compiled from 1:12,000 enlargements of USDA-SCS Soil Survey Tompkins County, New York, Series 1961, No. 25, published maps, 1:20,000, issued July, 1965.

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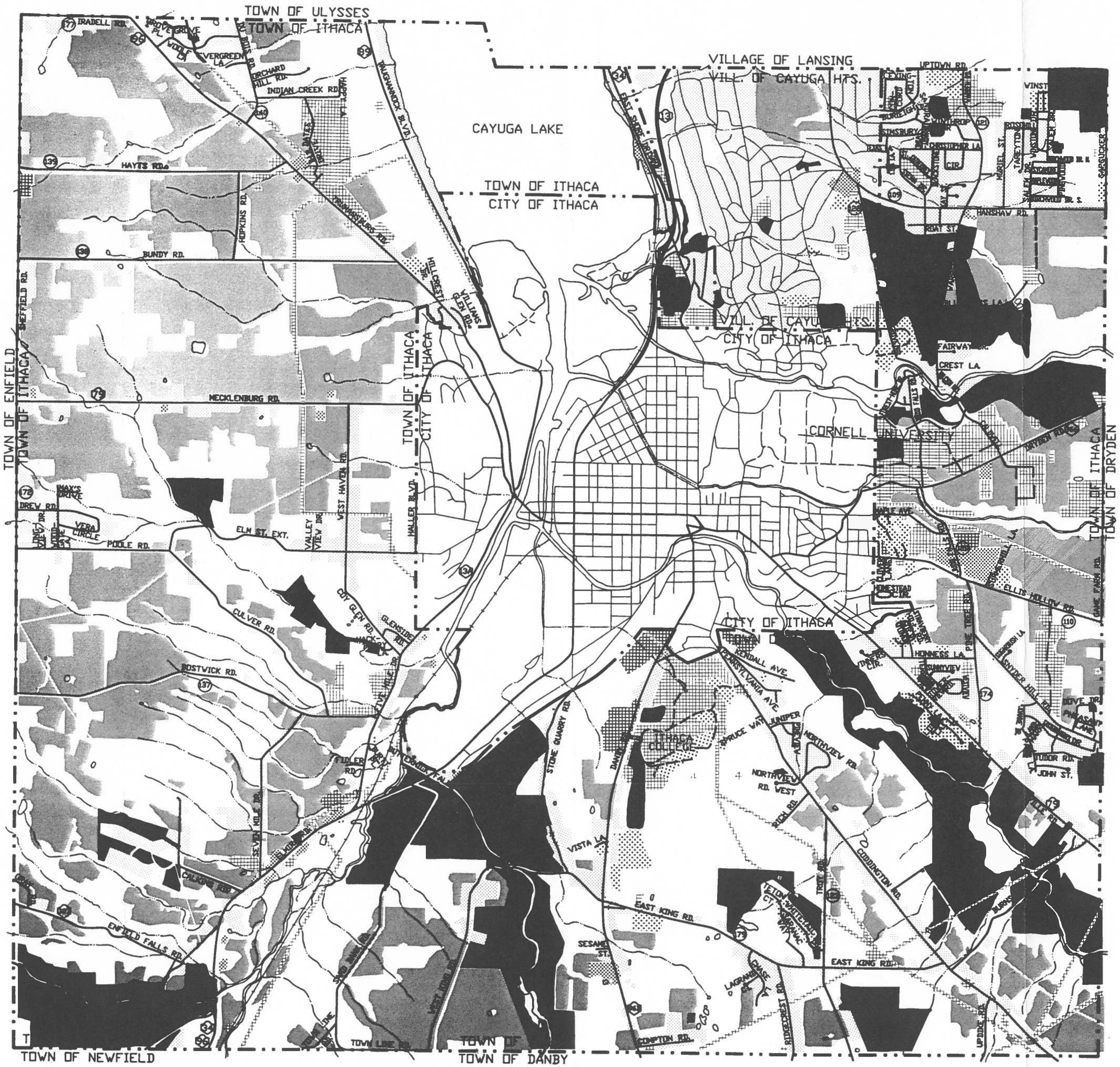
MAP NO. 6



LAND USE 1990

- RESIDENTIAL, 1-2 UNITS PER DWELLING
- RESIDENTIAL, 3 + UNITS PER DWELLING
- MHP MOBILE HOME PARK
- COMMERCIAL
- INDUSTRIAL
- INSTITUTIONAL, INCLUDING UTILITIES
- PUBLIC & PRIVATE PARKS & OPEN SPACE RESERVATIONS
- AGRICULTURAL LAND
- UNDEVELOPED LAND

SOURCE:
Draft 1992 Town of Ithaca Comprehensive Plan,
U.S. Federal Insurance Admin.,
N.Y.S. Dept. of Environmental Conservation, C.L.E.A.R.S. Aerial photographic interpretation, 1986,
Tompkins Co. Planning Dept.,
Town of Ithaca Planning Dept.

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TOWN OF ITHACA NEW YORK

Scale in Feet: 0 1000 2000 3000 4000

N

DATE:

MAP NO. 7