

Resolution No. 2008 - 20

**TOWNSHIP OF WEST MILFORD
PLANNING BOARD**

**RESOLUTION ADOPTING AN ADDENDUM
TO THE OPEN SPACE GREENWAY AND
PRIORITIZATION PLAN AND THE
OPEN SPACE PLAN ELEMENT OF THE
TOWNSHIP OF WEST MILFORD MASTER PLAN**

**Decided on July 24, 2008
Memorialized August 28, 2008**

WHEREAS, pursuant to the MLUL, N.J.S.A. 40:55D-28, the Township of West Milford Planning Board (the "Board") held a public hearing on July 24, 2008, with notice thereof given in accordance with N.J.S.A. 40:55D-13, at which time there was an opportunity for public comment on the Addendum to the Open Space Greenway and Prioritization Plan and the Open Space Plan Element of the Township of West Milford Master Plan; and

WHEREAS, at the conclusion of the public hearing of July 24, 2008, the Board voted to adopt the Addendum to the Open Space Greenway and Prioritization Plan and the Open Space Plan as part of the Township of West Milford Master Plan.

NOW, THEREFORE, BE IT RESOLVED that the Planning Board of the Township of West Milford, County of Passaic, and State of New Jersey, does hereby adopt the Addendum to the Open Space Greenway and Prioritization Plan and the Open Space Plan as part of the Township of West Milford Master Plan, a copy of which is attached hereto.

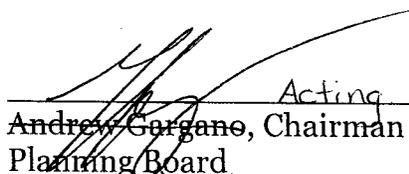
AND, BE IT FURTHER RESOLVED, that the Board's Secretary shall arrange for notice of the adoption of the foregoing amendments to the Master Plan in accordance with N.J.S.A. 40:55D-13 and shall send a copy of this Resolution and the Open Space Plan to the Township Clerk and the Passaic County Planning Board.

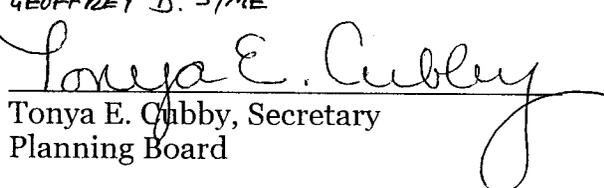
Eligible to Vote

Mayor Bettina Bieri
~~Steven Castronova~~
Richard McFadden
Douglas Ott
Chris Rosica
Clinton Smith
Geoffrey Syme
~~Councilman Philip Weisbecker~~
~~Chairman Andrew Gargano~~
Michael Siesta

For 7
Against 0
Abstain 0

The undersigned does hereby certify that the foregoing is a true copy of the action taken by the Planning Board at its meeting of July 24, 2008.



Acting
Andrew Gargano, Chairman
Planning Board
GEOFFREY D. SYME


Tonya E. Cobby, Secretary
Planning Board

**ADDENDUM
TO THE
WEST MILFORD OPEN SPACE PLAN (2003 REVISION)
AND
THE OPEN SPACE GREENWAY AND PRIORITIZATION PLAN**

The West Milford Environmental Commission has recommended to the West Milford Planning Board that Block 5708 Lot 1 (also known as West Milford Lake) be included in the Open Space Greenway and Prioritization Plan of the West Milford Open Space Plan.

The recommendation has been based on several current studies. From May 2006 to July 2006, a community visioning process was conducted focusing on the Union Valley Road/Marshall Hill Road Central Business District. "A Vision Plan for West Milford" was the final report produced from the process by A. Nelessen Associates, Inc., funded by a Smart Future Grant from the Office of Smart Growth. The report recognizes the potential the West Milford Lake area has as a public park that could "act as another destination in the Township Center, adding to the appeal of the area." The soon-to-be implemented streetscape improvements, funded by a federal Housing and Urban Development grant, have identified a project area bordered at one end by West Milford Lake, further emphasizing the area's potential significance. As part of a current New Jersey Department of Environmental Protection grant, a "Stormwater Implementation Plan" was created, which describes specific DEP-approved projects recommended to reduce pollution entering Greenwood Lake. West Milford Lake is identified as a High Priority Candidate that "could be converted into a regional pool / wetland BMP. ...[that] could have the capacity to remove a substantial portion of the TP load that eventually flows into Belcher Creek and, in turn, Greenwood Lake." Finally, the Environmental Commission has recently completed a study entitled "Green Infrastructure Study and Plan for West Milford Lake." The project, funded in part by an Association of New Jersey Environmental Commissions grant, provided an open public process to discuss possible scenarios for the future of West Milford Lake. Consensus among the public, the Environmental Commission, the Planning Board and the Township Council was reached and included the establishment of the property as a public park.

Addendum

Supplement to the Open Space Committee Draft Plan (2003 Revision)
and
The Environmental Commission Open Space Greenway and Prioritization Plan

Subsequent to the preparation of the above material the Governing Body has petitioned the State of New Jersey to purchase the property designated on the official Township Tax Map as Block 5301 Lot 20 and Block 5405 Lot 8, also known as Eagle Ridge.

Purchase of this property is the #1 priority of the Township Governing Body.

THE OPEN SPACE GREENWAY AND PRIORITIZATION PLAN

Report from the Environmental Commission Open Space Subcommittee

As requested by the Planning Board, the Environmental Commission has been asked to prioritize the acquisition of land as per the recommendations of the West Milford Open Space Plan (2003 Revision), (WMOSP), prepared by the Open Space Advisory Committee (OSAC). A subcommittee was formed comprised of Gillian Hempstead, Timothy Metcalf and Les Lynn.

In keeping with the general recommendation of the OSAC, to “preserve the rural atmosphere of West Milford,” this present document should serve as an addendum to the Plan mentioned above.

In reviewing the WMOSP, and given the task of prioritizing land acquisition, the sub-committee recognized two important concerns, connecting the Town’s open space parcels and providing recreational open space for the residents.

The sub-committee returned to a project that was undertaken by the Environmental Commission and Planning Department a number of years ago, creating a greenway around the Town’s immediate central commercial district and a greenway connecting the entire Town. We present the proposed greenways (see map) as the parcels that should be the Town’s chief land priorities in purchasing or in otherwise obtaining with the methods presented in the WMOSP. In this manner, a “large,” connected greenway, for wildlife and residential use is created and assures the preservation of the rural nature of the Township.

The second concern is that of increased recreational facilities for the residents of the Township. We propose that a large recreational complex be created on 80 acres of the former Jungle Habitat property. Although part of State Green Acres property, West Milford will have use of 80 acres as part of the Highlands Preservation legislation. Rather than diffuse facilities, small and scattered throughout the Township, a large central facility will be of greater value to the residents, and in preserving remaining open space. Although there are serious constraints with this property, if state and local officials cooperate for the greater good, a valuable recreational facility will be made available to the residents.

Additionally, if it is determined that more recreational facilities are required, secondary, small parcels, which have been previously identified, can be given greater scrutiny to their applicability as potential sites.

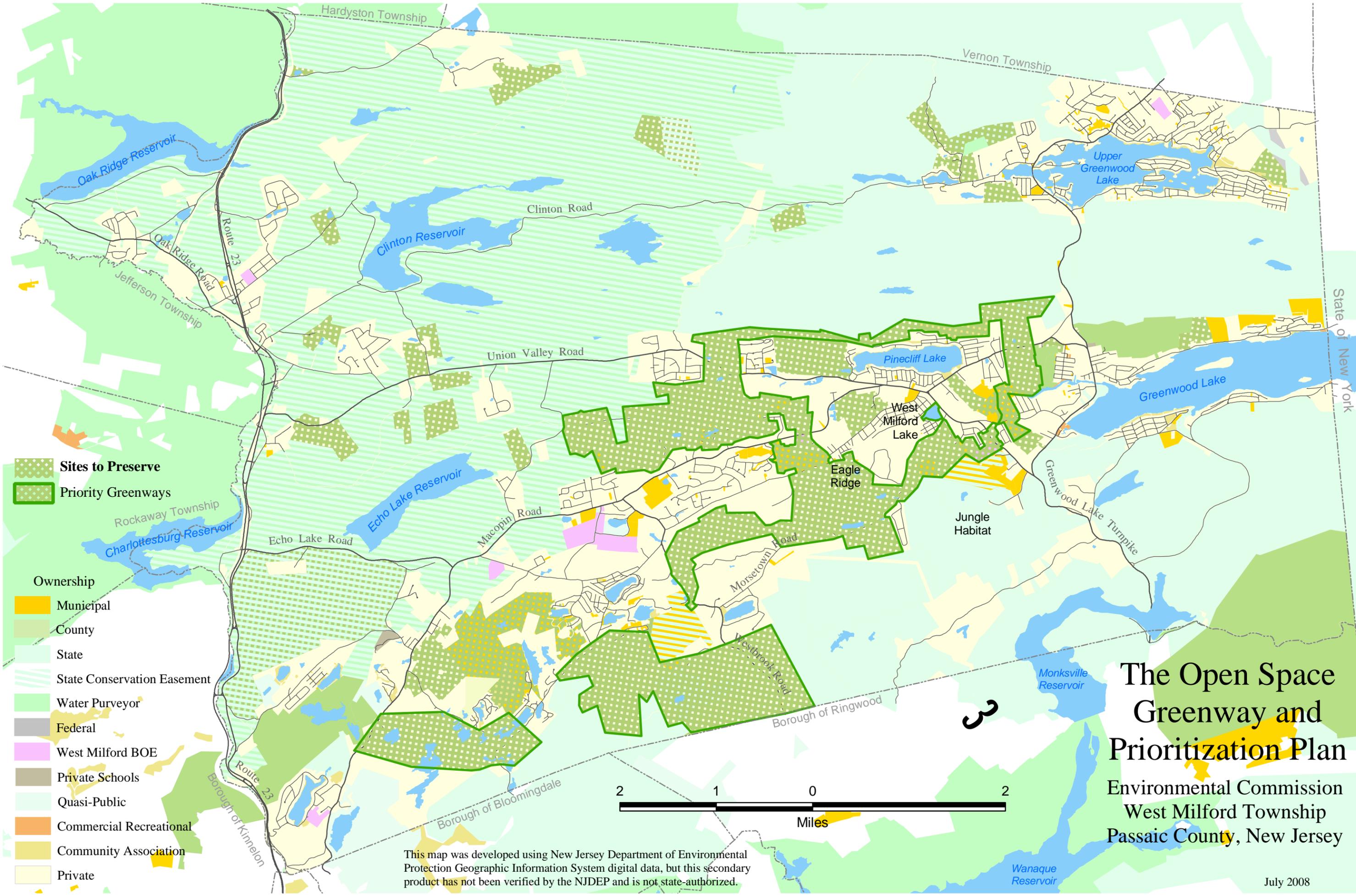
The sub-committee further recommends that funds available from the Open Space Tax be used to float a bond issue for the purchase of these parcels.

**West
Milford
Open Space
Plan
(2003 Revision)**

*"We shall be known by the tracks we leave behind."
—Chief Seattle*

*"...the character of the Township and the quality of life
has become synonymous with the integrity of these woodlands."
—West Milford Open Space Plan (1979)*

(revised 12/01-11/03)



 **Sites to Preserve**
 **Priority Greenways**

Ownership

-  Municipal
-  County
-  State
-  State Conservation Easement
-  Water Purveyor
-  Federal
-  West Milford BOE
-  Private Schools
-  Quasi-Public
-  Commercial Recreational
-  Community Association
-  Private

The Open Space Greenway and Prioritization Plan

Environmental Commission
 West Milford Township
 Passaic County, New Jersey



This map was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by the NJDEP and is not state-authorized.

July 2008

Acknowledgments and Credits:

A great many individuals assisted in the preparation of this document. Those individuals who participated in assembling this study fall into four categories:

1. West Milford Open Space Advisory Committee
2. Environmental Commission Members
3. Municipal Staff
4. Interested Citizens, Organizations and Agencies

A listing of the contributing individuals by category follows:

Open Space Advisory Committee

Kathleen M. Caren, <i>Chair</i>	Donald Weise, <i>Co-Chair</i>
Laura Andersen	Celeste Byrne
Bill Drew, <i>Planning Department Liaison</i>	Ada Erik
Maria Harkey and Robert Szuszkowski, <i>Township Council Liaisons</i>	Julia Held
Marilyn Litchenberg, <i>Recreation Committee</i>	Richard Meany and Dan Kochakji,
Renee Palermo, <i>Parks & Recreation Department Liaison</i>	<i>Environmental Commission Liaisons</i>
Lynda Smith	Ken Veroli
	Michael Yuhass

Municipal Staff

Bill Drew, Planning Director	Rob Sparkes, GIS Specialist
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The original edition of the Open Space Plan adopted in 1978, which is the basis of this 2003 edition was prepared with the assistance of many individuals and organizations. A list of contributors follows.

Original Plan Acknowledgments

Environmental Commission

Roger Daugherty	Richard Herbert
Valerie Frankoski	Richard Meany
Irving Fishman	Martha Tappan
Robert Hetherington	

Municipal Staff

Kenneth Nelson, former Planning Director	Stephen Gross, former Planning Intern
--	---------------------------------------

Interested Citizens, Organizations and Agencies

Gene Tappan	Karl Anderson
Richard Kane	Russell Spinks

	Newark Watershed Corporation	
Terrence Moore	Collin Minert	Thomas Koeppel

Department of Environmental Protection
Division of Fish and Game and Shell Fisheries
Division of Parks and Forests

Meetings and helpful discussions were held with the following groups:

Oak Ridge Homeowners Association	West Milford Businessmen's Association
West Milford Chamber of Commerce	

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EXECUTIVE SUMMARY

The Open Space Plan is divided into five sections:

- Introduction
- The West Milford Landscape
- Open Space System Components
- Preservation Strategy
- The Plan—Conclusions and Recommendations

INTRODUCTION

Until nearly 400 years ago, the North American continent had remained virtually unchanged for thousands of years. The newly arrived European immigrants had not yet been able to impose their “conquest of nature” philosophy on this unspoiled primeval land. When they were able to do so, the face of North America changed dramatically. Today, whether one travels across the nation, the state or our Township, we can marvel and yet be saddened by what Man has imposed on the landscape. Man has not yet learned to consistently join together the strengths of technology and the natural environment to produce a world in which we can take a great deal of pride.

West Milford has an interesting and complex history both in terms of its natural features and its people. It isn't the purpose of this document to explicitly describe the forces that have been responsible for creating the West Milford landscape as we know it today. If the reader is interested in learning more about this topic, the following references will clearly describe the natural history of the Township as well as the impact that Man has had on our local environment.

1. The Earth Shook and the Sky Was Red
2. Geology and Geography of New Jersey

3. Summary and Geology of Ground Water Resources of Passaic County, New Jersey
4. A Natural History of the Northern New Jersey Highlands
5. Images of America, West Milford, NJ

The reason for much of the environmental destruction throughout our country and the improper use of much of our land is directly attributable to poor planning or the complete lack of it. In recent years, our land use planning efforts have improved, but there is much work yet to be done.

This document, the West Milford Open Space Plan, is intended to be part of the Township Comprehensive Master Plan. In order for that to be accomplished, the Planning Board must adopt this Plan which will, as a result, outline the open space goals of the community. Furthermore, if the Open Space Plan is to be an effective tool, it must be reviewed and updated on a regular basis.

In order to justify the preservation of open space, the need to do so must be clearly proven and understood. In looking at the West Milford landscape, it is easy to recognize what we have here is valuable not only to the residents of the Township, but to our neighbors in the region and throughout the state as well.

West Milford is part of an area that has been labeled the Skylands Region, now commonly referred to as the Highlands.

In terms of our local open space and recreation needs, the first reaction may be that we already have enough open space. After all, nearly 40% of the Township is publicly owned (State, County, Federal, Municipal and Board of Education) and still another approximately 32% is owned by the City of Newark. However, this still leaves 16,400 acres of the Township in private hands of

which 54% is still undeveloped. Furthermore, in some instances, the local open space picture is equivalent to a phrase from Coleridge's *Ancient Mariner*: "Water, water everywhere, but not a drop to drink." Many residents of the Township, although surrounded by open space resources, do not have legal access to these areas or access is inconvenient. The Open Space Plan of the Township is intended to suggest how this problem may be resolved and how future growth can occur without adding to this problem.

In the end, West Milford, through its governing body, must decide how much it wants to invest in open space and recreation areas. Retaining our unique quality of life may lead us to the conclusion that the standards that are applied in West Milford should be higher than elsewhere.

THE WEST MILFORD LANDSCAPE

As noted in the section that describes the Plan Components as well as elsewhere throughout this document, the landscape of West Milford is diverse and interesting. With the approximately 81 square miles that comprise the Township, a wide variety of landscapes can be found. The Open Space Plan is one tool that will help the Township preserve much of the natural grandeur that we see.

The breathtaking views and vistas, the gorges carved by mountain streams, the varied and in some cases, unique flora and fauna are rarely seen by the majority of people who reside within the community or visit on occasion. These areas should not be lost simply because they have few constituents. They should be preserved and protected entirely or in part because of their intrinsic value. Hopefully, more individuals will begin to experience this other West Milford.

The key to the Plan is the notion that here in West Milford we have something unique.

The striking beauty of West Milford is not easily matched elsewhere in New Jersey and for that matter, there are relatively few areas in the country located within the metropolitan area that can boast such a scenic and environmentally diverse terrain.

The Open Space Plan of West Milford Township seeks a reasoned approach which attempts to balance competing forces. It looks to the land for its cues, attempting to preserve what must and should be protected for the public good and, at the same time, suggesting how new growth might be accommodated at the lowest possible cost in terms of environmental disruption.

The strength of the proposed open space system as it has been conceived involves the interaction of the components that comprise the system. The open spaces that will be preserved are to be interconnected to the greatest degree possible. Ideally, the connecting of these areas will allow a certain fluidity or flow to exist throughout the entire system. As a result, the areas that are preserved will be a great deal more enjoyable and valuable than if they simply became isolated pockets of open space.

OPEN SPACE SYSTEM COMPONENTS

The proposed open space system is intended to consist of eight components. The components are summarized as follows:

EXISTING PROTECTED OPEN SPACE

The first step in preparing an open space plan is to determine the extent of existing open space and recreational facilities.

Most of the Open Space Plan maps differentiate between the types of existing protected open space areas. However, in compiling the inventory of existing facilities, nine separate categories were established, as follows:

1. State
2. County
3. Municipal
4. Board of Education
5. Private Schools
6. Quasi-Public
7. Commercial Recreation
8. Community Associations
9. Community Recreation

STEEP SLOPES

As noted in the Introduction, portions of West Milford terrain can be classified as extremely rugged and mountainous. It has been estimated that approximately 31% of the Township contains slopes in excess of 15%. The current slope ordinance is 35%.

Developing on rugged terrain causes many problems not only for the developer, but for the environment as well. If improperly controlled, hillside development can result in the loss of soil stability and increased erosion. As vegetation is removed from a hillside, the soil is deprived of the stabilizing function of roots as well as the moderating effects of wind and water erosion by leaves and branches. Erosion thus increases, and downstream water quality is reduced by siltation. Disturbance of hillsides can also increase the amount of runoff.

Aesthetic impacts associated with hillside disruption are very visible but less easily quantified. While erosion and runoff can be measured, the impact on property values, community identity, and the general welfare are more difficult to assess.

The Open Space Plan has used a cutoff point for slopes of 20% or greater. It is recognized, however, that some slopes between 10 and 20% may be extremely frag-

ile and should be preserved. Therefore, when any development proposal contains slopes in excess of 10%, the sensitivity of the slopes should be evaluated to determine if they should remain undeveloped.

ROCK OUTCROPPINGS

Rock outcroppings and in many instances, their accompanying steep slopes, become an important factor when considering the preservation of open space.

Economic reasons usually dictate that these areas are the last to be considered for development, but eventually, as the cost of land increases, even these "unbuildable" areas succumb to development pressures. Because most of these areas are wooded and scattered throughout the Township, they can be used as natural barriers in and around developing areas and for some forms of recreational activity.

VEGETATION AND WILDLIFE

Due to its location within the Northern Highlands of New Jersey, West Milford enjoys a great richness of plant and animal life within its boundaries. The rugged hills and ridges, today clothed in forests, were created by the Wisconsin glacier thousands of years ago. The many lakes and wetlands of the area represent remnants of the basins gouged out by the glacier. This diverse landscape provides a variety of living environments (or habitats) that support many different plant and animal associations—some unique to the area and the region.

The benefits derived from maintaining areas of natural vegetation, in our case, primarily forests, but also including abundant wetland areas, can be clarified by listing the vital services they perform:

1. Forests and wetlands provide a varied and rich environment for many different plants and animals

2. Forests protect and conserve water and soil resources
3. Forests provide visual buffers
4. Lastly, forests moderate wind and local temperatures, and are able to absorb some air pollutants.

For all these reasons, it was decided to include vegetation and wildlife as a primary factor in constructing this Open Space Plan.

Information contained in the Passaic County Soil Survey was initially used to map areas with soils highly suitable for wildlife habitats, supporting both woodland and wetland species.

In addition to productive soils, several other areas were determined to have desirable open space characteristics because of their unique vegetation or because they were identified as important wildlife habitat. These areas are listed as follows:

1. Hemlock forests (although blighted)
2. The Evergreen Plantations of the Pequannock Watershed
3. Uttertown Bog (located between Stephens and Clinton Roads)
4. The Cedar Pond area
5. Buffer areas along stream corridors, lakes and ponds
6. Cactus Rock
7. The Reflection Lakes property on the southeast side of Union Valley Road

SCENIC AND UNIQUE FEATURES

Scenic and unique features are difficult to identify via an objective analysis. It is inevitable that subjective factors enter into the selection process. The public was asked to participate in the selection process of the scenic areas that would be included in the

Open Space Plan, in order to reduce the amount of subjectivity to a minimum. As a result of this public input, as well as the many debates among the preparers of this document, a number of scenic sites have been chosen for inclusion at this time:

- A. The Wallisch Estate on Lincoln Avenue
- B. The Warwick Turnpike corridor from White Road to Pioneer Corners
- C. Apple Acres on Union Valley Road
- D. Brown's Point at the southern end of Greenwood Lake
- E. Reflection Lakes, on the south side of Union Valley Road
- F. Dockerty Hollow Road
- G. New York Rock
- H. Cactus Rock
- I. The Charlottesburg Reservoir
- J. The Pequannock River Valley from the Oak Ridge Reservoir to Route 23
- K. West Brook Road in the vicinity of Snake Den Road

HISTORIC SITES

There has been a growing awareness in the last thirty years or so that our past is worthy of preservation. It seems only logical that our historic areas should be part of the proposed open space system. The historic landmarks located in West Milford can be divided into two groups: First on the list are those sites that have been recognized as State or Federal Historic Landmarks; the sites so honored include:

- Clinton Furnace
- Long Pond Iron Works, 1764

The remaining historic sites have not yet been designated as landmarks by either the Federal or State governments:

- Idylease
- Morse-Carpignano House
- Charlottesburg Iron Works, 1764

Middle Forge, 1764
 Echo Lake Baptist Church
 Oak Ridge Presbyterian Church, 1818
 St. Joseph's Church
 Brown's Hotel Band Stand, 1880
 Charlottesburg Hotel, 1850
 Mill at Stanford
 West Milford Presbyterian Church
 Old Country Store, 1766
 Smith Mills, 1764
 Vreeland Store, 1872
 Wanaque Valley Inn, circa 1770
 Bigalow House (Intake Hotel), 1820
 Carey House, circa 1874
 Cooley House, 1754
 Eckerson House, circa 1800
 Long House, 1766
 Mickens House, circa 1800
 Ward House, 1842
 Scholfield House, circa 1795
 Terhune House, 1832
 Tichenor House, 1754
 Tichenor House, 1820
 Vreeland-Freeland Homestead, 1753

TRAILS

One of the goals of the Open Space Plan is to develop a framework for an interconnected system of open space and recreational areas. The connections in some cases will simply be in the form of natural linkages such as streams, wetlands and forested areas. In other instances, however, definite physical connections capable of being traversed on foot, on horseback or by some type of non- motorized vehicle will be more desirable.

Since the writing and publication of the original Open Space Plan, the NY/NJ Trail Conference and others have cleared and marked approximately 100 miles of trails throughout the township.

SURFACE WATER

Over 40 natural and man-made lakes, 6 reservoirs, many ponds, and nearly 100 miles of rivers and streams combine to form a dramatic contrast to the rugged, forested hills of West Milford. These surface water features have figured prominently in the Township's past and present, and will undoubtedly continue to do so in the future. Greenwood Lake, which feeds into the Wanaque Reservoir, is split between New York and New Jersey.

Most of the factors considered in developing the Open Space Plan are directed toward protecting the quality and quantity of West Milford's surface water. Chronic complaints by residents about weed and algae proliferation, as well as pressure to undertake dredging operations in certain waters demonstrates a clear recognition of the effects of past negligence.

PRESERVATION STRATEGY

Before any discussion can begin regarding the future use of our land, an individual should have a basic understanding of the property rights concept that has been established in this country. Very briefly, individual property rights in this country are still very strong. Although government controls do impose certain limitations, confiscation of land must be accompanied by reasonable compensation. Ironically enough, people seem to have a very clear idea of how strongly the law protects their own property. It's the owner of the undeveloped acreage down the road whose rights are weaker and in some cases, negligible. Of course, the law must be equitable if it is to be respected, so consistency relative to property rights is very important.

Therefore, in shaping an open space preservation program, the question of property

rights and specific preservation techniques becomes very important.

PURCHASE IN FEE SIMPLE

Direct purchase of all the rights to a piece of property is called purchase in fee simple. Holding fee simple title assures full, permanent use of the parcel desired and is usually reserved for active recreation sites such as Bubbling Springs or sites needed for municipal structures.

Unfortunately, purchase in fee simple is also the most expensive way of preserving open space. Aside from initial capital costs, maintenance and insurance costs as well as the loss of tax revenues must be considered. Still, for some parcels, no other strategy will be satisfactory.

EASEMENTS

Between outright purchase and land use controls, there are middle ways to protect open space. We do not need to buy land to save it. Through an easement, limited rights to a property can be secured by purchase or donation.

There are two classifications for easements. Positive easements acquire the right to do something on the land. For example, hiking or bicycle trails require purchase of a right-of-way; fishing rights allow use and access to the stream banks.

Some easements do not require access to the land. Instead, they buy away an owner's right to destroy the open space value of his property.

Scenic easements, which restrict uses that would reduce aesthetic value of the land, fall into this category.

To be an effective and useful tool, easements must be tailored carefully to nature's patterns and man-made realities like highways and the pressures for development.

Easements must be explicit and clear about what rights are being purchased or donated, as they are legally binding and stay with the title to the land.

Cost will vary considerably between easements. In general, each is a separate and specific case.

LAND USE CONTROLS

It is evident, given the amount of funds available for open space preservation, that another approach is needed beyond the purchase of the fee simple title or the acquisition of easements.

There are a variety of governmental regulations, usually grouped under the label of land use controls, which can guarantee the preservation of open space at little or no cost to the municipality.

In evaluating the reliability of land use controls that may apply to a particular piece of land, a variety of factors must be considered. First, the natural characteristics of the site must be known and documented. Next, the development pressures affecting the site must be evaluated. Finally, the ownership pattern should be investigated to determine if controls can realistically be applied. It should also be remembered in dealing with land use controls as a mechanism for preservation, that some development will almost certainly accompany whatever preservation is accomplished. That fact is, of course, rooted in our basic concept of property rights as previously described, which guarantees an individual the reasonable use of his or her land.

THE PLAN—CONCLUSIONS AND RECOMMENDATIONS

As noted earlier, this is a second cut at developing a framework within which the open space preservation efforts of the Township can be organized. The Open Space Plan is not a detailed, precise document that is cast in stone. It is intended to set the direction and tone for protection of natural features within the Township. In a community as large as West Milford, it was felt that it should be best to learn to walk before any attempt was made to run. The Plan, as a result, is purposely vague in certain respects, but in the coming years, it should be easy to adjust the focus when and where needed.

In summary, the Open Space Plan is a strategy to preserve the rural atmosphere of West Milford. The Plan should be viewed as a system composed of many intricate elements. These components have been shaped in such a way that they will be more valuable as a system than they would be individually.

Many planning efforts, although having a great deal of merit, fail to be implemented as intended. One reason behind such failures is often lack of commitment on the part of those who would be most directly affected. It is apparent that community involvement and support is essential if the West Milford Open Space Plan is to become something more than a dust collector sitting on a shelf.

INTRODUCTION

HISTORICAL PERSPECTIVE—GENERAL

Until nearly 400 years ago, the North American continent had remained virtually unchanged for thousands of years. The native population, the American Indians, knew how the human species should interact with nature and for the most part, the Algonquins, Iroquois, Lenni Lenape and other tribes lived in harmony with nature. The newly arrived European immigrants had not yet been able to impose their “conquest of nature” philosophy on this unspoiled primeval land. When they were able to do so, the face of North America changed dramatically. Today, whether one travels across the nation, the state or even our Township, we can marvel and yet be saddened by what Man has imposed on the landscape. We can and should marvel at what we see because it is the evidence of Man's genius and his ability to create. At the same time, however, we should be saddened because in spite of his intelligence, Man often is responsible for monumental blunders. Man has not yet learned to consistently join together the strengths of technology and the natural environment to produce a world in which we can take a great deal of pride.

Why haven't we been capable of producing something better? There are no easy answers to this question and to attempt one within the scope of this document would only generate a simplistic, meaningless response. Suffice it to say that a variety of pressures including among them many legal, economic and social factors have been and continue to be the primary causes of the destruction of the natural environment that we see around us. What can we expect in the future? Will we continue to erode our natural surroundings or will we find a better way? The answer to that question appears

hopeful. At least we are aware of what has happened, and it appears we may be committed to avoiding past mistakes, even if it has an effect on our lifestyles.

For a number of years now, the federal, state and local levels of government have been shaping increasingly more sophisticated laws and guidelines that are intended to control the use of our land. The private sector has been doing its part in attempting to make this corrective surgery a success. The jury is still out, but it appears that gradually, as the years pass, we will begin to see some dramatic changes in our environmental that will benefit everyone. The West Milford Open Space Plan will hopefully pay a part in shaping some of those changes.

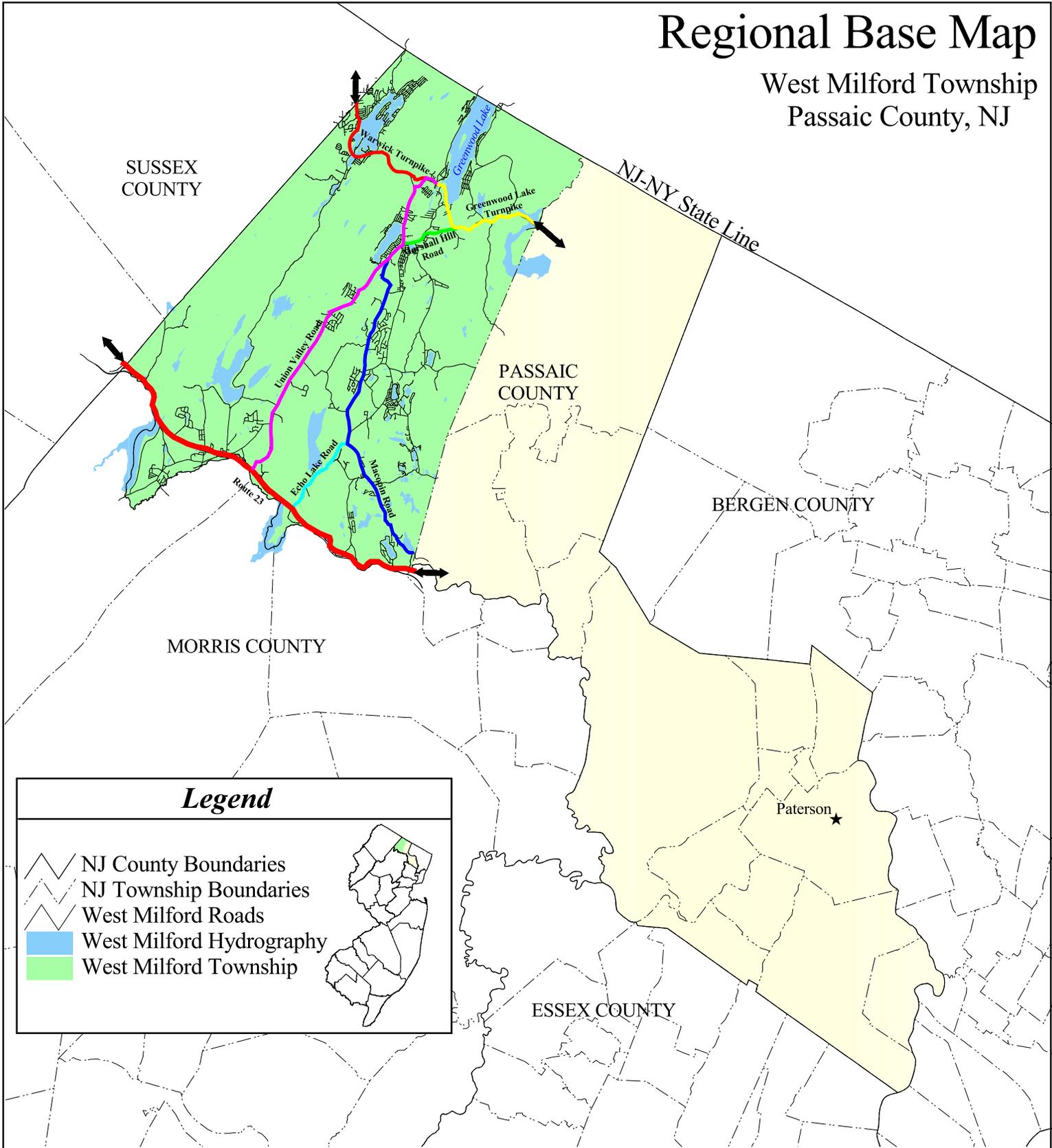
HISTORICAL PERSPECTIVE

West Milford has an interesting and complex history both in terms of its natural features and its people. Located in the northwestern portion of Passaic County (see first map), West Milford is a community of approximately 81 square miles, making it the largest municipality in Northern New Jersey. Although the activities of Man have certainly left a sizeable imprint on the Township, many natural forces such as glacial activity have left even greater marks. The rugged, mountainous terrain familiar to us all, is a direct result of the natural forces that have been shaping the West Milford environment for thousands of years and even today, natural forces are continuing this process, although in most cases, the change is virtually imperceptible.

It is not the purpose of this document to explicitly describe the forces that have been responsible for creating the West Milford landscape as we know it today. If the reader is interested in learning more about this topic, the following references will clearly describe the natural history of the Township

Regional Base Map

West Milford Township
Passaic County, NJ



Legend

- NJ County Boundaries
- NJ Township Boundaries
- West Milford Roads
- West Milford Hydrography
- West Milford Township

This document was prepared with the aid of a grant from the New Jersey Department of Environmental Protection, Office of Environmental Services.

This map was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by the NJDEP and is not state-authorized.



Scale



Planning Department
June 1997

as well as the impact that Man has had on our local environment.

1. The Earth Shook and the Sky Was Red
2. Geology and Geography of New Jersey
3. Summary and Geology of Ground Water Resources of Passaic County, New Jersey
4. A Natural History of the Northern New Jersey Highlands
5. Images of America, West Milford, NJ

PURPOSE AND SCOPE OF THE PROJECT

The reason for much of the environmental destruction throughout our country and the improper use of much of our land is directly attributable to poor planning or the parochial ratable chase, particularly in the State of New Jersey. In recent years, our land use planning efforts have improved, but there is much work yet to be done.

West Milford is currently involved in a comprehensive Master Plan program. That program was begun in 2000 after having conducted two reexamine reports concerning the 1987 Master Plan. The Master Plan should serve as a growth management blueprint for the present and future of the Township. This plan should consist of goals that can be attainable within a reasonable period of time. The State Municipal Land Use Law stipulates that such plans should be reexamined at least every six years.

There has been much attention in recent years to the northwest section of New Jersey, known as the Highlands Region. There have been several studies conducted by the United States Department of Agriculture concerning the regional and national significance of this area. There have also been several citizen organizations formed for the

purposes of participating in the planning process for the Highlands Region.

Also of equal importance is the State Master Plan efforts. Over the past ten years the State has prepared and the State Planning Commission has adopted two State Master Plans to provide guidance to local jurisdictions in the future management of land within the State. The New Jersey Highlands has been designed as an area of "Special Resource Value." This designation will play significantly in the preparation of the West Milford Township Master Plan.

The basis for the contents of the West Milford Master Plan can be found in the New Jersey Municipal Land Use Law. The section of that law that deals with Master Plans indicates that municipalities should be as thorough and comprehensive in their planning efforts as possible. Specifically, the law states:

- a. The Planning Board may prepare and, after public hearing, adopt or amend a master plan, or component parts thereof, to guide the use of lands within the municipality in a manner which protects public health and safety and promotes the general welfare.
- b. The master plan shall generally comprise a report or statement and land use and development proposals, with maps, diagrams and text, presenting, at least the following elements (1) and (2) and, where appropriate, the following elements (3) through (13):

(1) A statement of objectives, principles, assumptions, policies and standards upon which the constituent proposals for the physical, economic and social development of the municipality are based;

(2) A land use plan element (a) taking into account and stating its relationship to the statement provided for in subsection (1) hereof, and other master plan elements provided for in paragraphs (3) through (13) hereof and natural conditions, including but not necessarily limited to, topography, soil conditions, water supply, drainage, flood plan areas, marshes, and woodland; (b) showing the existing and proposed location (extent and intensity of development of land to be used in the future for varying types of residential, commercial, industrial, agricultural, recreational, educational and other public and private purposes or combination of purposes; and stating the relationship thereof to the existing and any proposed zone plan and any proposed zone plan and zoning ordinance; and (c) showing the existing and proposed location of any airports and the boundaries of any airport safety zones delineated pursuant to the Air Safety and Zoning act of 1983, "P.L. 1983, c.260(C.6:1-80 et seq.); and (d) including a statement of the standards of population density and development intensity recommended for the municipality;

(3) A housing plan element pursuant to section 10 of P.L. 1985, c.222 (C.52:27D- 310) [See *Addendum*], including, but not limited to, residential standards and proposals for the construction and improvement of housing;

(4) A circulation plan element showing the location and types of facilities for all modes of transportation required for the efficient movement of people and goods into, about, and

through the municipality, taking into account the functional highway classification system of the federal Highway Administration and the types, locations, conditions and availability of existing and proposed transportation facilities, including air, water, road and rail;

(5) A utility service plan element analyzing the need for and showing the future general location of water supply and distribution facilities, drainage and flood control facilities, sewerage and waste treatment, solid waste disposal and provision for other related utilities, and including any storm water management plan required pursuant to the provisions of P.L. 1981, c.32(C.40:55D-93 et seq.);

(6) A community facilities plan element showing the existing and proposed location and type of educational or cultural facilities, historic sites, libraries, hospitals, firehouses, police stations and other related facilities, including their relation to the surrounding areas;

(7) A recreation plan element showing a comprehensive system of areas and public sites for recreation;

(8) A conservation plan element providing for the preservation, conservation, and utilization of natural resources, including, to the extent appropriate, energy, open space, water supply, forests, soil, marshes, wetlands, harbors, rivers and other waters, fisheries, endangered or threatened species wildlife and other resources, and which systematically analyzes the impact of each other component and element of the master

plan on the present and future preservation, conservation and utilization of those resources;

(9) An economic plan element considering all aspects of economic development and sustained economic vitality, including (a) a comparison of the types of employment expected to be provided by the economic development to the promoted with the characteristics of the labor pool resident in the municipality and nearby areas and (b) an analysis of the stability and diversity of the economic development to be promoted;

(10) A historic preservation plan element: (a) indicating the location and significance of historic sites and historic districts; (b) identifying the standards used to assess worthiness for historic site or district identification; and (c) analyzing the impact of each component and element of the master plan on the preservation of historic sites and districts;

(11) Appendices or separate reports containing the technical foundation for the master plan and its constituent elements;

(12) A recycling plan element which incorporates the State Recycling Plan goals, including provisions for the collection, disposition and recycling of recyclable materials designated in the municipal recycling ordinance, and for the collection, disposition and recycling of recyclable materials within any development proposal for the construction of 50 or more units of single-family residential housing or 25 or more units of multi-family residential housing and any commercial

or industrial development proposal for the utilization of 1,000 square feet or more of land; and

(13) A farmland preservation plan element, which shall include: an inventory of farm properties and a map illustrating significant areas of agricultural land; a statement showing that municipal ordinances support and promote agriculture as a business; and a plan for preserving as much farmland as possible in the short term by leveraging monies made available by P.L. 1999, c.152 (C.13:8C-1 et al.) through a variety of mechanisms including, but not limited to, utilizing option agreements, installment purchases, and encouraging donations of permanent development easements.

- c. The master plan and its plan elements may be divided into subplans and subplan elements projected according to periods of time or staging sequences.
- d. The master plan shall include a specific policy statement indicating the relationship of the proposed development of the municipality as developed in the master plan to (1) the master plans of contiguous municipalities, (2) the master plan of the county in which the municipality is located, (3) the State Development and Redevelopment Plan adopted pursuant to the "State Planning Act," P.L. 1985, c.398 (C.52:18A-196 et al.), and (4) the district solid waste management plan required pursuant to the provisions of the "Solid Waste Management Act," P.L. 1970, c.39(C.13:1E-1 et seq.) of the county in which the municipality is located.

Planning is performed at its best when it is viewed as a continuing process rather than an inconvenience that we must engage in

periodically. It is clear that the Planning Board has conducted itself in this manner in that over the course of the past ten years a Historic Preservation Plan, a Recreation Plan and a Recycling Plan Element have been prepared. In addition, the Planning Board has worked with Passaic County to formulate an Agriculture Development Board so that the Township may participate in the State Farmland Preservation Program for the purpose of identifying and preserving farmland assessed properties within the Township.

This document, the West Milford Open Space Plan, is intended to be a part of the Township comprehensive Master Plan. The original Open Space Plan was incorporated into the 1987 Township Master Plan, which is the current document having been reexamined in 1993 by the Planning Board in accordance with the provisions of the MLUL. In order for this updated open space plan to become part of the Master Plan, the Planning Board must adopt this plan, which will assist in identifying the open space goals of the community. Furthermore, if the Open Space Plan is to be an effective tool it must be reviewed and updated on a regular basis in conjunction with the Master Plan review process.

Just as the land use, traffic and community facilities elements of the Master Plan must be viewed as an integral unit, the Open Space Plan element must also be considered in combination with the other elements of the Master Plan. The open space plan element cannot ignore growth inducing factors such as sewer lines or arterial and collector roads, just as it cannot ignore some of the severe physical limitations we find within our Township such as excessive slopes and rock outcroppings. In order to be a realistic document the Open Space Plan must weigh conflicting priorities and attempt to devise a system of open spaces that will both com-

plement existing development and help to shape new growth. The Plan should seek to protect areas that are environmentally sensitive as well as those sites that are important from either a recreational or aesthetic perspective. Linkages of open space are critical to the creation of a comprehensive open space network.

The original Open Space Plan highlighted the fact that West Milford has the advantage of being a relatively undeveloped community for the purposes of formulating an Open Space Plan. This statement is still true. While development has occurred over the past twenty years there are other developments that have received approvals but have not been developed for one reason or another and their natural condition still exists. These approvals have expired and therefore the protections associated with their approvals have also expired. Therefore, there is still an opportunity for the Township within the limits of its resources and its community "will" to select for preservation and conservation the best and most suitable portions of the Township. This effort has been assisted significantly by the State in their continuing purchase of lands for open space purposes. Hopefully the open space planning efforts now under way in West Milford will result not only in a realistic plan, but those efforts will also produce an interconnected system of open spaces that will include those areas too sensitive to be developed, as well as land that is important to the recreational and aesthetic needs of the community. This plan can greatly assist in formulating the blueprint for growth management in the Township.

With the advent of the Geographic Information System technology (GIS) new sources of data have become available from which to base an open space plan. The West Milford Township Planning Department and

Environmental Commission have worked to create a GIS to serve West Milford Township to manage its myriad environmental features and sensitivities. The GIS data will assist greatly in the preparation of this plan. It enables the use of NJDEP digital data to be applied locally and will provide a basis from which future open space decisions can be made. If this plan is devised properly and implemented within a reasonable period of time not only will the human residents of the Township and the region benefit, but also so will the other living things that inhabit our woodlands and wetlands, fields and streams. This document is intended to lay the foundation for an effective and continuing open space preservation program. This is an effort that began with the original Open Space Plan in 1978 and will hopefully be supplemented as time passes. As the original plan stated, the success of this plan will be measured by the appearance of West Milford Township landscape twenty-five years from now.

There is a keen interest in preserving open space within the Township that is evidenced by the adoption of an open space tax in 2000 and the creation of the Open Space Committee. This coincides with State initiatives to provide funding for open space purchase and the County's recent adoption of an open space tax. West Milford is in a position to participate in these programs, which dramatically defray the cost of acquisition for the Township.

EXISTING AND FUTURE NEEDS

In order to justify the preservation of open space, the need to do so must be clearly proven and understood. As stated in the opening paragraphs of this document, the landscape of the North American continent has been changed in appearance over the years by the direct and indirect impact of

Man's activities. Not all of that change has been negative but much of it has indeed been unthinking and destructive. It has often been said that if we reach the point where our last virgin forest is raped or our last wild rivers is tamed, something inside of us will also have been irretrievably lost. Humans needs nature! Some men need less than others to comfort and renew themselves, but to some degree we are all dependent on what the natural environment offers. But while there can be disagreement about the value of the atmosphere that the natural environment provides, there can be no disagreement about the value of the natural functions attributable to such components as wetlands, steep slopes and other sensitive areas. Unfortunately, only when it is lost do we begin to appreciate what we once had.

Since the time of this statement in the 1978 Open Space Plan much has been done both locally, regionally and nationally to address the issues identified in the above paragraph. The State of New Jersey has taken over responsibility for protection and management of our wetlands. Also, by the preparation of the Natural Heritage Priority Sites Plan and the Landscape Project, the State of New Jersey has provided mapping of threatened and endangered species, both flora and fauna.

Locally, the Planning Department's GIS capabilities enable the Township to overlay this data for the purposes of identifying these critical areas within the Township boundaries. In looking at the West Milford landscape it is easy to recognize that what we have here is valuable not only to the residents of the Township, but to our neighbors in the region and throughout the State as well. This statement has been supported through the federal Highlands Regional Studies and the State Master Plan by recog-

nizing the Highlands as an area of Natural Resource significance. However, locally the Township's residents recognize that this fact is evident simply by looking at how unique the West Milford area is in comparison with the physiology of the rest of the State and by taking note of the fact that the State of New Jersey and the County of Passaic have purchased over 16,000 (includes Camp Hope & Sand Cap) acres within West Milford for open space purposes. The 1978 Open Space Plan recognized the beginnings of regional efforts concerning the northwest section of New Jersey. It states that at one time in the late 1960s an effort was made, but never completed, to allow the State to more actively participate in shaping the future growth of this region through the creation of the Skyland Regional Conservation and Economic Development Council. Clearly these efforts have progressed since that time with the State Master Plan recognition of the significance of this region and the federal government studies.

The Highlands Study, completed in 1992, includes a map entitled Important Areas the source USDA Forest Service, 1991. That map identifies Sterling Forest, Wanaque Watershed, Wyanokie Highlands, and the Pequannock Watershed, which are important areas within and adjacent to West Milford Township. This report put forth significant recommendations in terms of land use management techniques to address these sensitive areas. It should be noted that the Highlands Regional Study has been updated by the USDA. There are two other critical information resources that have been developed by NJDEP relating to natural features and sensitive areas. These are the Natural Heritage Priority Sites prepared by the Bureau of Natural Lands Management and the Landscape Project prepared by Endangered and Non-game Species Program, Division of Fish and Wildlife, NJDEP. These two

studies draw upon each other in terms of and identify forests, wetlands and grasslands (Landscape Project) and critically important natural areas to preserve New Jersey's biological diversity (Natural Heritage Priority Sites).

The State Development and Redevelopment Guide Plan, which is the State Master Plan, first adopted in 1992 and readopted in 2001, has identified the Highlands Region as a Special Resource Area. This is defined as follows: "recognize an area or region with unique characteristics or resources of state-wide importance and establish a receptive environment for regional planning efforts. The Highlands Region has been recognized as the first special resource area in New Jersey." This plan also places West Milford entirely within Planning Area 5 (PA5) which is the classification of the State Master Plan for the environmentally sensitive areas of the state.

What have we learned since 1992 (the date of the last USDA Forest Service NY-NJ Highlands Study)?

- 20 municipalities have grown more than 20% between 1990 and 2000.
- 5200 acres per year of developed land was added between 1995 and 2000.
- 3400 acres per year of forestland was lost between 1995 and 2000.
- 1600 acres per year of farmland was lost between 1995 and 2000.

The Highlands not only contain some of the most environmentally sensitive land, habitat for more than 240 species of animals, and a tremendous water resource area. It also serves as a recreational getaway for 14 million people annually, double the amount that visit Yellowstone and Yosemite National Parks combined. Over 160 historical and cultural sites have been documented as well.

Clearly over the past twenty years there has been significant emphasis placed on the unique significance of the Highlands region. West Milford is located completely within the Highlands and also contains some of the most significant resources identified in the Highlands. These studies area a significant resource to provide support for local recommendations with regard to land preservation through open space initiatives.

In terms of our open space and recreation needs, the first reaction might be that we already have enough open space. After all, nearly 40% of the Township is publicly owned (State, County, Federal, Municipal and Board of Education) and still another approximately 32% is owned by the City of Newark. However, this still leaves roughly 16,400 acres of the Township in private hands of which 54% is still undeveloped. Furthermore, in some instances, the local open space picture is equivalent to a phrase from Coleridge's *Ancient Mariner*: "Water, water everywhere, but not a drop to drink." Many residents of the Township, although surrounded by open space resources, do not have legal access to these areas or access is inconvenient. The Open Space Plan of the Township is intended to suggest how this problem may be resolved and how future growth can occur without adding to this problem. The 1978 plan identified easements as an effective method of protecting open space. The State has since utilized the purchase of easements on Newark Watershed Conservation and Development Corporation lands, thereby preserving over 8,900 acres in permanent open space.

West Milford has a year-round population of 26,410 residents (according to 2000 census). The 1978 Open Space Plan identified a population of 22,000 for the Township.

In the end, West Milford, through its governing body in conjunction with the public,

must decide how much it wants to invest in open space and recreation areas.

THE WEST MILFORD LANDSCAPE

A VIEW FROM THE ROAD

As noted in the section that describes the Plan Components as well as elsewhere throughout this document, the landscape of West Milford is diverse and interesting. Within the 81 square miles that comprise the Township, a wide variety of landscapes can be found. Beginning at the southern end of West Milford, the landscape is generally level with a few steep slopes primarily along the Route 23 corridor. This portion of the Township is dominated by water, specifically the Pequannock River, Oak Ridge Reservoir and Charlottesburg Reservoir. Much of the area is also heavily wooded and some of the views and vistas are among the best in the Township. As one moves north away from Route 23 and begins to travel through the Newark Watershed lands, a great sense of remoteness engulfs the traveller. Whether one is travelling along Echo Lake Road, Macopin Road, Union Valley Road or several of the lesser arteries that head north, the overpowering isolation generated by the untouched Watershed property leaves an impact. The remoteness that one senses is not expected especially after having travelled through the urban and suburbanized congestion in Passaic, Morris, Essex, Bergen, and Hudson counties. The solitude of this trip north through the Newark acreage is broken from time to time by isolated residential development. As one draws nearer to the commercial center of the Township, the intensity of development increases and the landscape begins to change noticeably. The ruggedness of West Milford becomes very evident along Union Valley Road. Bearfort and Kanouse Mountains parallel this roadway and it is obvious that one is travel-

ling through a valley. The trip along Echo Lake Road and Macopin Road leaves a somewhat different impression. Macopin Road for the most part is located on a ridge. Except for a few brief instances, the trip along this route is uneventful in terms of being impacted by the diverse terrain of the surrounding area. However, as Macopin Road drops suddenly to meet Union Valley Road, one can appreciate, especially during the winter months when the foliage is absent, the dramatic changes in elevation that occur throughout the Township.

At the point where Macopin and Union Valley meet, the traveller again finds himself within a valley environment. Continuing the journey north, the residential growth that has taken place in the last 60 years is quite visible. Greenwood Lake suddenly appears at the edge of the roadway and gradually the magnitude of this natural feature begins to overwhelm the observer. The majestic hillsides lining either side of the lake emphasize the linear character of this body of water. Heading west away from Greenwood Lake up Warwick Turnpike, the traveller again encounters a dramatic change in elevation. Ascending from 700 feet above sea level to an elevation of 1100 feet within the short space of one mile, another large body of water, Upper Greenwood Lake, comes into focus. The Upper Greenwood Lake area rests on a large plateau. The terrain is relatively level and residential development is interspersed throughout the landscape in a random fashion.

Turning again to the east and proceeding down Warwick Turnpike, there are a number of directions in which to proceed and a variety of experiences to encounter. If one leaves the arterial and collector road system and drives into one of the numerous lake communities, again water will most likely be the dominant feature. Road conditions may

also change dramatically and in some cases "civilization" may seem quite distant. The West Milford of 1978 (when this document was originally written), and even into the 21st century (at the time of its revision), can seem almost "wild" to the newcomer if one leaves the beaten path. However, with a population of approximately 26,410, West Milford is only "wild" by New Jersey's standards; most of West Milford has already been tamed. This is much more obvious to those individuals whose West Milford roots are measured by generations instead of years. They have seen the growth of recent years intrude upon the predominantly rural atmosphere of yesterday. Keeping in mind how West Milford has changed and grown tamer, it is imperative that we begin to channel new growth more effectively in the years ahead so that we can avoid the dramatic physical changes that the Township has experienced in the past. The Open Space Plan is one tool that will help the Township preserve much of the natural grandeur that we see.

The "view from the road" which has been described in the preceding paragraphs is the West Milford that most visitors and residents know. However, there is another West Milford that the Open Space Plan encompasses and that West Milford is the one which is seen primarily by a handful of individuals. Specifically, the "backwoods" areas, the wetlands, the intermittent streams, the small ponds, and the magnificent rock outcroppings are usually seen by hunters, hikers, and naturalists to name a few. The breathtaking views and vistas, the gorges carved by mountain streams, the varied and in some cases, unique flora and fauna are rarely seen by the majority of people who reside within the community or visit on occasion. These areas should not be lost simply because they have few constituents. They should be preserved and protected

entirely or in part because of their intrinsic value. Hopefully, more individuals will begin to experience this other West Milford.

OPEN SPACE VALUES

The key to the Plan is the notion that here in West Milford we have something unique. The striking beauty of West Milford is not easily matched elsewhere in New Jersey and for that matter, there are relatively few areas in the country located within a metropolitan region that can boast such a scenic and environmentally diverse terrain. The Plan addresses the unique natural character of West Milford and offers a way to ensure that the uniqueness of our community will not be lost.

Placing a value on open space is a very difficult task. Certainly, the protection of the natural features of West Milford is a goal that many share, but it is difficult to reach agreement on how much should be protected. While some individuals place a high value on the preservation of every last undeveloped acre in the Township, others abide by a more reasoned perspective that seeks to preserve some areas and conserve others.

The Open Space Plan of West Milford Township seeks a reasoned approach that attempts to balance competing forces. It looks to the land for its cues, attempting to preserve what must and should be protected for the public good and, at the same time, suggesting how new growth might be accommodated at the lowest possible cost in terms of environmental disruption.

The primary value then of the proposed West Milford Open Space System is to provide a means of retaining many of the qualities that have attracted people here in the first place. This is not to say that the implementation of the Open Space Plan will freeze the West Milford landscape in such a way as to prohibit change. Rather, the imple-

mentation of the Plan will ensure that many of the natural features of the Township will remain untouched. Where new growth does occur and some of the natural features of the community must change, it will be done without drastically altering the unique natural character of the Township.

Beyond this primary value of a town-wide perspective, there are a number of secondary values that focus on specific locales. For example, one system value to consider involves buffering an existing residential area from a less aesthetic land use activity or connecting that same residential area with an active open space/recreational facility. In both cases, the property values in that residential area will be greatly enhanced. Another secondary value involves protecting sensitive natural features such as aquifer recharge areas and floodplains. Although the protection of these areas for their open space value is important, other values resulting from such protective efforts that are even more important (the protection of subsurface water supplies, surface water quality, etc.) should not be forgotten.

Finally, as the system becomes a reality, there is every reason to expect that the recreation activity within the Township will increase. Today, many individuals do not take advantage of the open space resources within the Township either because it is inconvenient or they are unaware of what is available to them. As the open space system is implemented and publicized, recreational activity should increase in various parts of the Township. Thanks to the Recreation Development Committee, this is happening.

INTERACTION OF SYSTEM COMPONENTS

The components of the Township Open Space Plan will be identified and described in the next section (Open Space System Components). The methodology used to

select these components is outlined in Appendix A. Other criteria may be added in the future which may modify portions of the Plan. For example, the accurate delineation of flood prone areas were to be factored in during 1978 and it is also hoped that at some point, more definitive data will become available regarding wildlife and vegetation within the Township. Nonetheless, it is felt that the information available has afforded us the opportunity to construct the framework for a credible town-wide Open Space Plan. There will, of course, be changes as new information becomes available or values change, but it is not anticipated that these changes will be so drastic as to substantially alter the Plan as it has been conceived in 1978. One thing that has changed is the formation of FEMA (Federal Emergency Management Agency), whom municipalities deal with in the event of a disaster or emergency situation.

The strength of the proposed open space system as it has been conceived involves the interaction of the components that comprise the system. The open spaces that will be preserved are to interconnected to the greatest degree possible. Ideally, the connecting of these areas will allow a certain fluidity or flow to exist throughout the entire system. As a result, the areas that are preserved will be a great deal more enjoyable and valuable than if they simply became isolated pockets of open space. The flow of people and wildlife throughout this system will enable the protected open space to be used to its fullest potential. The experiences that will be available, whether they be passive or active, will be greatly multiplied because the users of the system will encounter a diversified landscape. This diversity ranges from the rugged terrain of West Milford typified by steep slopes and rock outcroppings to some relatively placid

features such as wetland areas and water bodies.

As it is perceived now, the great bulk of the open space system will consist of four primary factors or components (steep slopes, rock outcroppings, valuable vegetation, and wildlife habitat areas and protected open space).

These components will be tied together where possible by secondary components (historic sites, active recreation areas, scenic sites, and trails). In some cases, the secondary components will act as focal points and in other instances, they will act as physical connectors. Through the imaginative use and interplay of the primary and secondary components, the West Milford open space system will be able to offer a variety of experiences within a relatively small area.

OPEN SPACE SYSTEM COMPONENTS

EXISTING PROTECTED OPEN SPACE

The first step in preparing the Open Space Plan was to determine the extent of existing open space and recreational areas within the Township. An inventory was undertaken to identify those areas within the Township that could be considered "protected open space." The term "protected open space" is used rather loosely because some of the areas included in the inventory are privately owned and are not "protected" by any legal agreements. However, those privately owned facilities have been used for open space and recreational purposes, and there is every reason to believe that the majority of those areas will continue to serve such a purpose.

Most of the Open Space Plan maps differentiate between the types of existing protected open space areas. However, in compiling the inventory of existing facilities, ten separate categories were established, as follows:

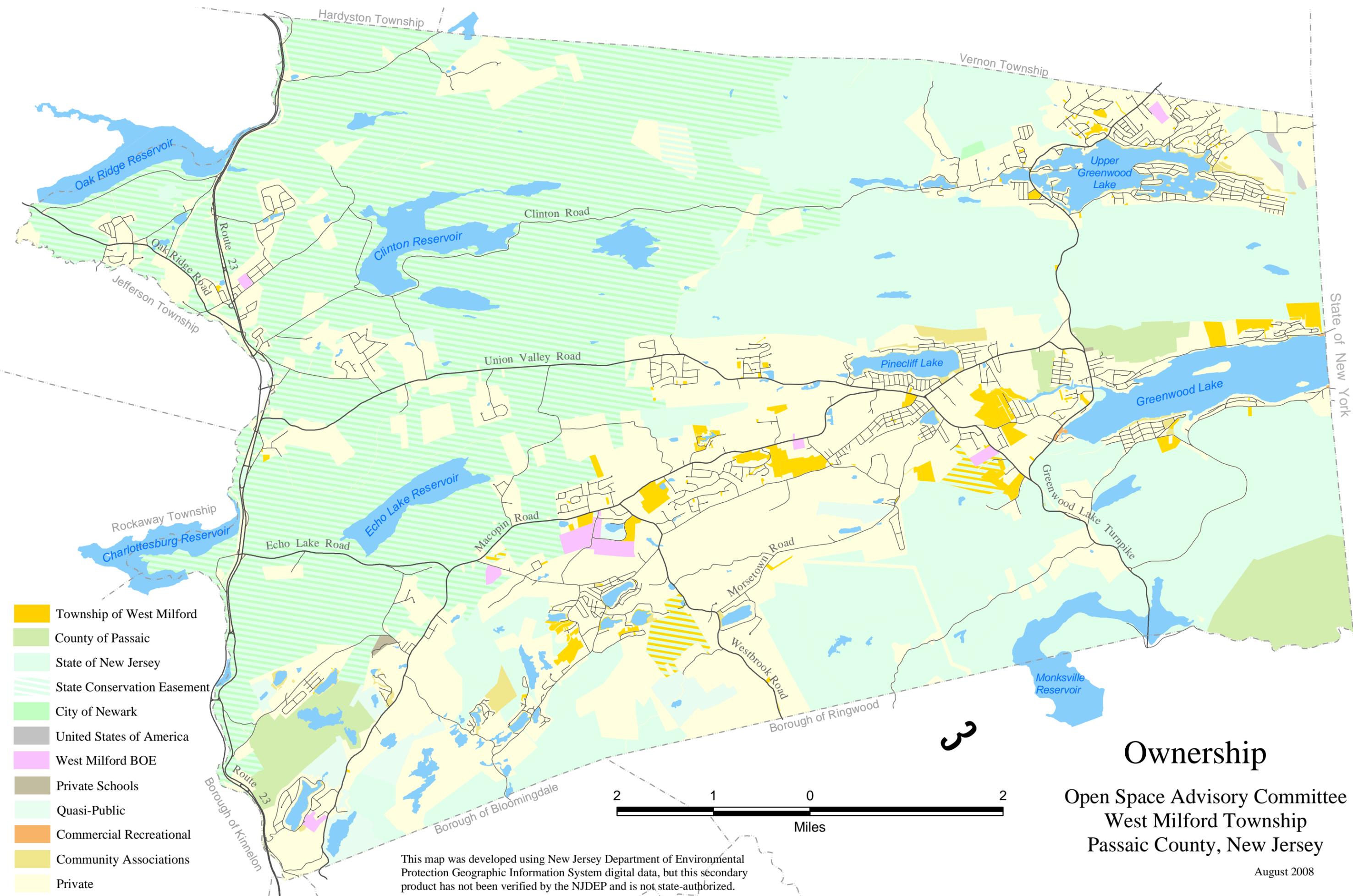
1. Federal
2. State
3. County
4. Newark Watershed
5. Municipal
6. Board of Education
7. Private Schools
8. Quasi-Public
9. Commercial Recreational
10. Community Associations

As previously mentioned, the State of New Jersey owns a considerable amount of acreage in West Milford (see Ownership Map). This acreage is divided among three designated areas: Norvin Green State Forest, Wawayanda State Park, and Abram Hewitt State Forest. Wawayanda and Abram Hewitt are located in the northern portion of West Milford, and Norvin Green can be found in the southeasterly part of the Township. There is some debate regarding the exact number of State property in West Milford, but a reasonable figure that can be used is 14,442 acres. The State has never had the available funds needed to install the improvements required to maximize the recreational potential of this land. As a result, the State acreage is protected legally and is assured as an aesthetic resource for future generations, but its utilization is far less than it might be.

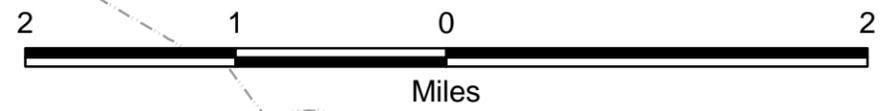
Much of the same can be said about the County owned property, which comprises approximately 1563 acres. The County owned acreage consists of the San Cap (Tranquility Ridge) and Camp Hope site located in the northern part of the Township near Greenwood Lake and the Butler Reservoir site, located in the southeasterly corner of West Milford near Route 23. Both of these

sites are underutilized although it is expected the County will install a limited number of improvements at some future date in order to make those sites more accessible and usable.

The municipal government of West Milford owns a considerable amount of acreage within the township (1,339 acres and 877 acres of roads); however, only four sites were included in the inventory at this time: The Municipal Building Complex, Bubbling Springs, Mt. Laurel Park, and Farrell Field, the former township landfill. The Township purchased Bubbling Springs in 1974, and it is open to West Milford residents on a membership basis. It contains swimming facilities, playground equipment, ballfields, and a variety of support facilities, such as the concession stand. The total site consists of 44 acres. The Municipal Building complex consists of the Town Hall, Library, West Milford First Aid Building, and the Veteran's Park, as well as parking facilities to service these facilities. The total site is eight acres. It is expected to include several ballfields and various support facilities. The Township owned acreage not included in the existing protected open space category consists primarily of many small parcels of land that the Township has acquired through tax foreclosures. Most of these parcels are unbuildable and may ultimately be included in the Open Space Plan; however, it will be necessary to investigate each parcel in detail before the future use of each can be decided. There are also several large parcels that are owned by the Township that may ultimately become part of the Open Space Plan. However, these parcels may be more suitable for other uses; therefore, they must be investigated further before they can be considered as protected open space. (According to Passaic County Open Space Committee, West Milford has open space deficit of *municipi-*



- Township of West Milford
- County of Passaic
- State of New Jersey
- State Conservation Easement
- City of Newark
- United States of America
- West Milford BOE
- Private Schools
- Quasi-Public
- Commercial Recreational
- Community Associations
- Private



Ownership

Open Space Advisory Committee
 West Milford Township
 Passaic County, New Jersey

August 2008

This map was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by the NJDEP and is not state-authorized.

partly-owned land in the neighborhood of 800 acres.)

The Board of Education property within West Milford consists exclusively of existing school sites. The Board does not own any undeveloped acreage. There are eight public schools in West Milford and each site accommodates various outdoor recreational facilities in addition to the main building. The eight school sites total approximately 167 acres (not including the Board of Education-owned Hillcrest Community Center), and include 10 baseball fields, little league/softball fields, five tennis courts, 10 basketball courts, and one football field. The conditions of the existing facilities ranges from good to extremely poor. Some action will be taken in 1978-79 to rehabilitate a number of the recreational facilities that are located on Board of Education property.

The next category, private schools, consists of only two facilities: There are two parochial schools located at opposite ends of the community—one near Greenwood Lake, the other near Route 23. Each of these facilities were considered from the same viewpoint as the Board of Education properties; however, it was felt it would be best to place them in their own separate category.

Quasi-Public Facilities were considered to be open space and recreational sites that were not usually open to the general public, but instead service a limited membership. In some cases, there may be a very fine line between a facility in the Quasi-Public category, and one in the Commercial Recreation category. However, based on a knowledge of how the Quasi-Public facilities are operated, it was felt that there should be an attempt to distinguish between such a facility and a profit-oriented commercial recreation venture. The Quasi-Public facilities that were identified are listed as follows (and consist of 275 acres):

Camp Hope (County)
Camp Vacamas
Camp Ocawasin
Camp Willow Lake (Montclair
YMCA Camp, Germantown Road)
American Gymnophysical Society
Camp Wyanocki
Paterson CYO (Nosenzo Pond)
Meadowbrook Rifle Range
Camp Meyer

Commercial Recreation facilities in West Milford generally consist of campgrounds, picnic grounds, and marinas. These facilities are open to the general public on a fee basis and are profit oriented. The former Jungle Habitat site, now State owned, consists of nearly 800 acres. The Commercial Recreation facilities identified here are listed as follows and consist of nearly 200 acres:

Hilltop Pony Rides*
Fairytale Forest*
Green Valley Park*
PAL (township)
Forest Hill Park*
Westbrook Park (township)
Otten's Rifle Range*
A-L Rifle Range*
Sign of the Turtle Campground*
Old Homestead Marina and
Campground*
Moosehead Marina
South Shore Marina
Greenwood Lake Boat Basin
Bussie's Landing*
Harbour Light Marina
Happy Landing Marina
Nairobi Marina
Fahloh's Rifle Range*

*represent now-defunct facilities

Community Associations within West Milford serve some of the open space and recreational needs of many residents who live

in identifiable communities throughout the Township. Most of these associations provide water oriented recreational activities; however, to some extent, outdoor and indoor activities are available as well as tennis, basketball, etc. The Community Associations that were identified are listed as follows. No acreage figures are provided because they are not readily available.

- Awosting
- Big Rock Cove
- Storms Island
- Upper Greenwood Lake
- Pinecliff Lake
- Gordon Lakes
- Forest Hill Park
- Greenbrook
- West Milford Lakes
- Lindy's Lake
- Mount Glen Lake
- Mountain Springs Lake
- High Crest Lake
- Farm Crest
- Shady Lake
- Lakeside
- Mount Laurel
- Wonder Lake
- Lake Lookover
- Greenwood Lake
- Pincrest Lake
- Postbrook
- Kitchell Lake

STEEP SLOPES

As noted in the Introduction, portions of the West Milford terrain can be classified as extremely rugged and mountainous. It has been estimated that approximately one-third (31%) of the Township contains slopes in excess of 15%. In fact, many areas have slopes that approach 35 to 40% or more (see Topography and Slope maps). Most of the steep hillsides in West Milford are still unde-

veloped. Generally, the development that has taken place in the Township has occurred on relatively flat land. (The current slope ordinance is 35%.) There are of course some exceptions to this rule, but it is only logical that this development pattern should have occurred because ease of construction is often foremost in a developer's mind.

Developing on rugged terrain causes many problems not only for the developer, but for the environment as well. Unfortunately, as development pressures increase and the cost of the land rises, the economic and construction problems which confront the developer can be more easily resolved. We need only look at many areas within Passaic, Bergen, and Hudson Counties to see where hillsides have been disfigured because of enticing favorable economic conditions. The construction and economic problems faced by the developer were resolved in these cases, but the resulting environmental impact was ignored and in many instances, we are still paying for it. Most recently, if we look at the how the hill-top development of Sparta was affected by Tropical Storm Floyd, we see exactly what can happen to those living below the development.

Hillsides need not be totally preserved but where hillside development is to occur, one must be mindful of certain considerations and limitations. First, it should be clearly understood that hillsides are geological features on the landscape, whose slopes and soils are in balance with vegetation, underlying geology and the amount of precipitation which falls on the surface. Maintaining this equilibrium reduces the danger to public health and safety posed by unstable hillsides. If improperly controlled, hillside development can result in the loss of soil stability and increased erosion. As vegetation is removed from a hillside, the soil is



Hardyston Township

Vernon Township

Oak Ridge Reservoir

Clinton Reservoir

Upper Greenwood Lake

Jefferson Township

Union Valley Road

Pinecliff Lake

Greenwood Lake

Charlottesburg Reservoir

Echo Lake Road

Echo Lake Reservoir

Macopin Road

Morsetown Road

Greenwood Lake Pumpke

Borough of Kinnelon

Borough of Bloomingdale

Westbrook Road

Borough of Ringwood

Monkville Reservoir

2 1 0 2
Miles



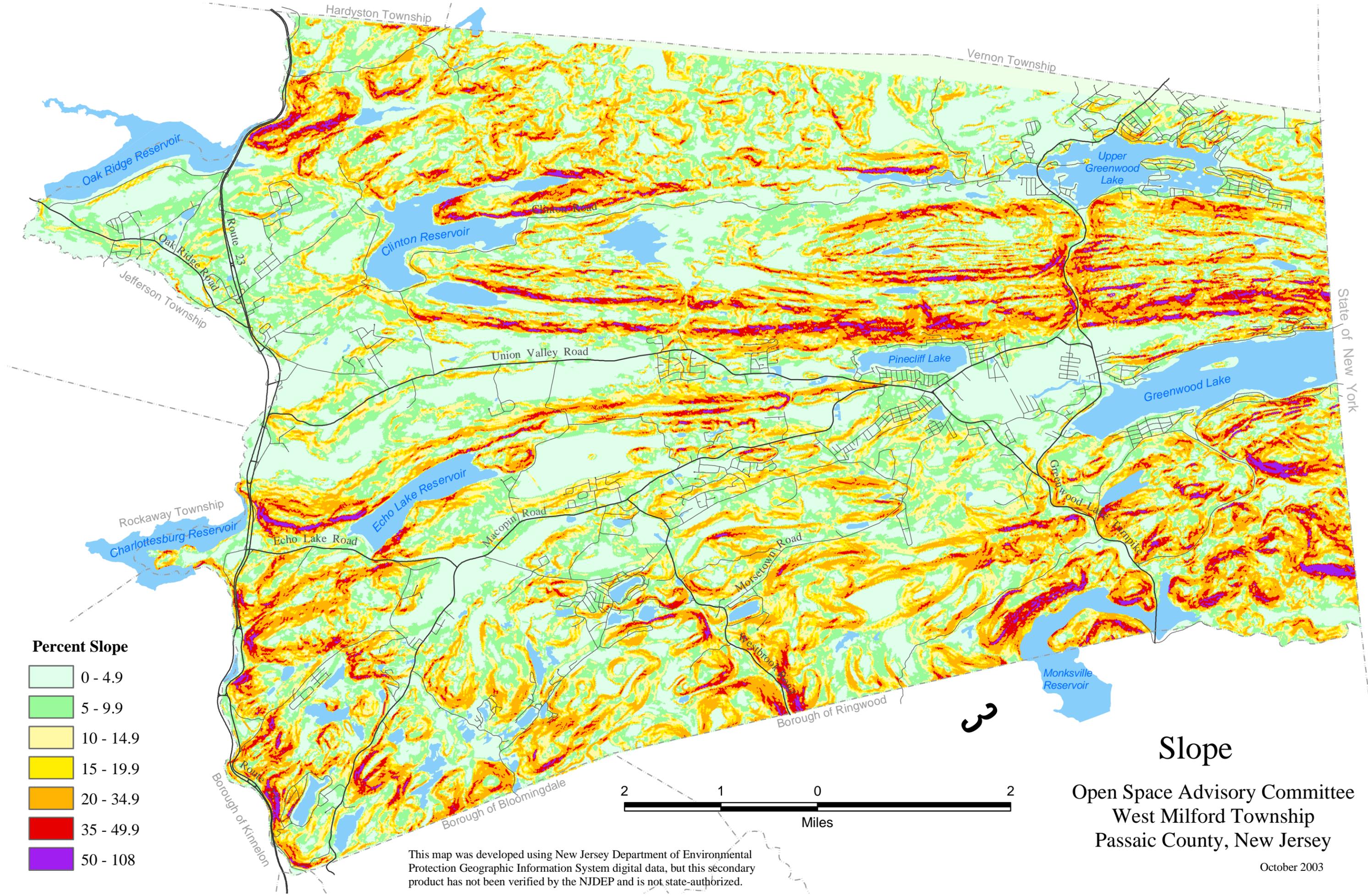
Topography

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West Milford Township
Passaic County, New Jersey

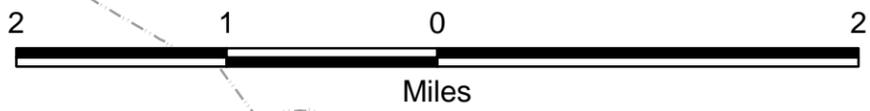
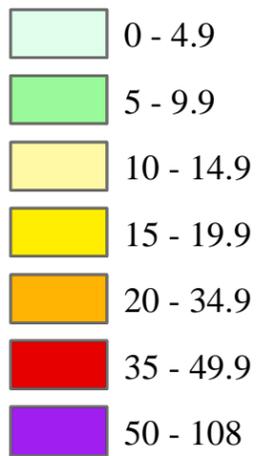
October 2003

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Wanaque Reservoir



Percent Slope



Slope

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deprived of the stabilizing function of roots as well as the moderating effects on wind and water erosion by leaves and branches. Erosion thus increases and downstream water quality is reduced by siltation. Disturbance of hillsides can also increase the amount of runoff. When the natural drainage pattern is altered and runoff increases, two results can be expected. First, the greater the amount of runoff from a site, the greater the opportunity for downstream flooding. Secondly, there can be a negative effect on groundwater recharge as a result of reduced percolation. Obviously, neither result is desirable.

Aesthetic impacts associated with hillside disruption are very visible but less easily quantified. While erosion and runoff can be measured, the impact on property values, community identity, and the general welfare are more difficult to access. Certainly, the view of an undeveloped hillside is an attraction that is considered important to the residents who value that resource. But, compared with the health, safety, and welfare concerns raised by erosion and flooding problems, the protection of hillsides based solely on aesthetic grounds is more tenuous. The protection of hillsides in West Milford must be keyed to the aforementioned environmental impacts if a hillside protection program is to be equitable and defensible.

The Open Space Plan has used a cutoff point for slopes of 20% or greater. Slopes which are less than 20% are generally not included as part of the proposed open space system unless they are restricted because of their rock outcroppings or vegetation/wildlife characteristics. It is recognized, however, that some slopes between 10 and 20% may be extremely fragile and should be preserved. Therefore, when any development proposal contains slopes in

excess of 10%, the sensitivity of the slopes should be evaluated to determine if they should remain undeveloped. Likewise, on certain slopes which exceed 20%, it may be possible to accommodate some types of development.

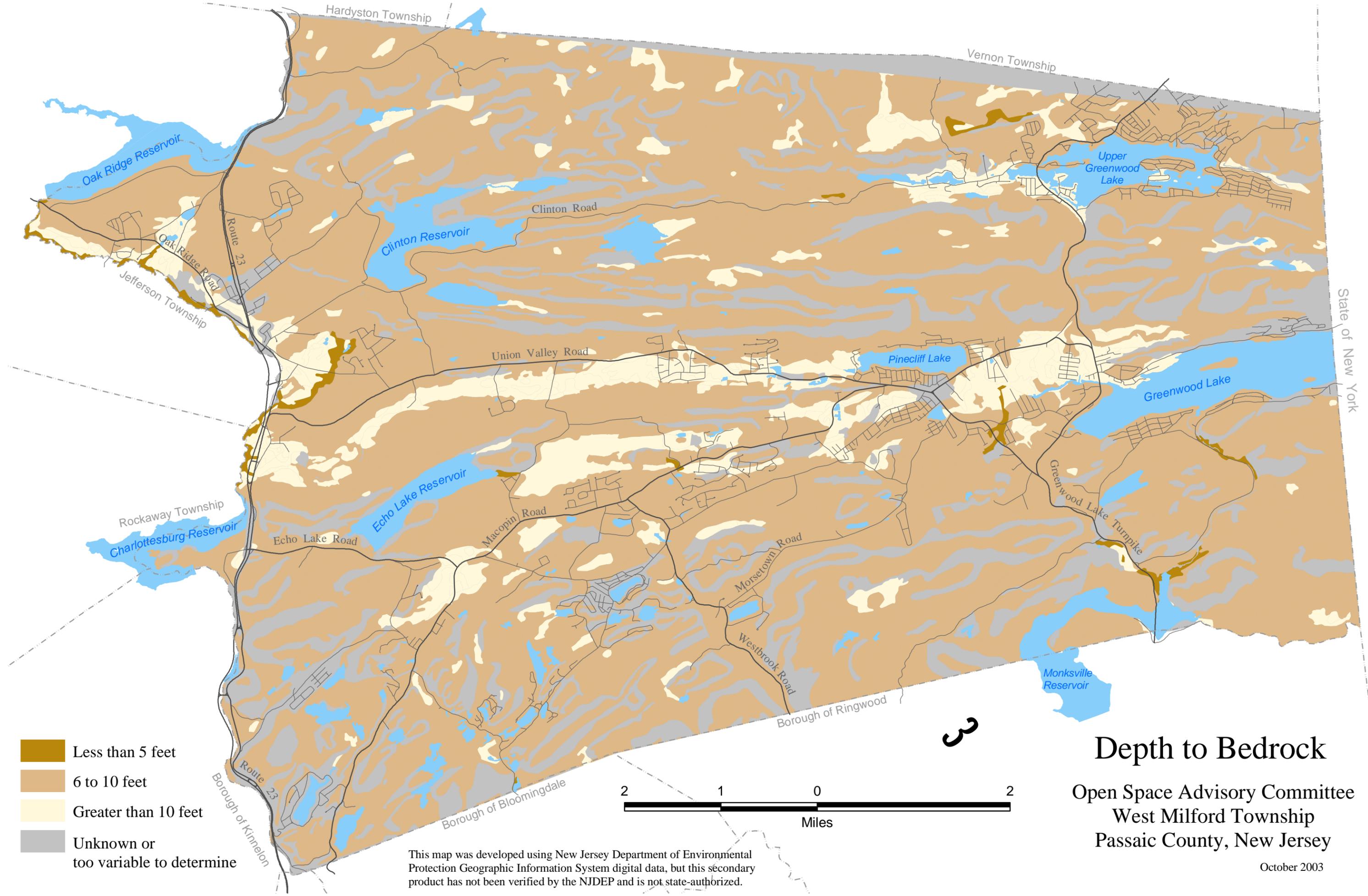
ROCK OUTCROPPINGS

Rock outcroppings and in many instances their accompanying steep slopes become an important factor when considering the preservation of open space.

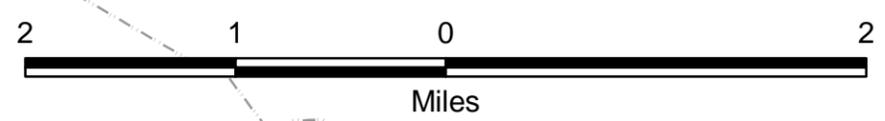
Economic reasons usually dictate that these areas are the last to be considered for development but eventually, as the cost of land increases, even these "unbuildable" areas succumb to development pressures. Because most of these areas are wooded and scattered throughout the Township, they can be used as natural barriers in and around developing areas, and for some forms of recreational activity. They are also capable of supporting wildlife and some may have scenic qualities as well.

Slight outcrops or rock near surface level do appear in some areas that are essentially flat or that have slight slopes. These areas may in some instances be used for active recreational purposes such as picnic areas, playgrounds, or ballfields.

The use of the Passaic County Soil Survey together with some limited field observations resulted in the preparation of the Depth to Bedrock map, which was included in the Township Natural Resources Inventory. The Depth to Bedrock map was used to determine where rock was either very close to the surface or where actual outcroppings can be expected. Rather than use the Depth to Bedrock map in its entirety, only two categories were used—0 to 2 feet and 6 to 10 feet; 20% Average Bedrock Outcrop (see Depth to Bedrock Map).



- Less than 5 feet
- 6 to 10 feet
- Greater than 10 feet
- Unknown or too variable to determine



Depth to Bedrock

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Therefore, the rock outcropping input is fairly conservative. It is conceivable that additional areas would be added if more field observation were conducted or other categories of the Depth to Bedrock map

were utilized. The following table identifies and describes the soil types where rock is either close to the surface or actual outcroppings occur. Slope ranges associated with these soils are also provided.

Table 1: Soils with Rock Outcrops

Rockaway (RrD)	A few outcrops. Extremely stoney soil with high boulder content. 15-25% slopes.
Rockaway (RsC)	Rock outcrop complex. Granite gneiss rock; out crops occur over 15-30% of mapped area.
Holyoke Complex Rock Outcrops (RwE)	Basalt Bedrock, outcrops occur over 30-50% of mapped area. 15-35% slopes.
Rockaway Complex Rock Outcrops (RxE)	Granite outcrops occur over 30-50% of mapped area. 15-35% slopes.
Swartswood Complex (RyE)	Conglomerate and Snadstone outcrops occur over 25-50% of mapped area. 15-45% slopes.
Swartswood Complex (SrC)	Hard conglomerate or sandstone outcrops occur over 15-30% of mapped area. 3-15% slopes.
Holyoke (HrC)	Hard basalt bedrock at depths of less than 1-1.5 feet. Outcrops occur over 30-50 of mapped area. 3-15% slopes.

Source: Soil Survey of Passaic County, New Jersey; U.S. Department of Agriculture; Soil Conservation Service—October 1975.

VEGETATION AND WILDLIFE

Due to its location within the Northern Highlands of New Jersey, West Milford enjoys a great richness of plant and animal life within its boundaries. The rugged hills and ridges, today clothed in forests, were created by the Wisconsin glacier thousands of years ago. The many lakes and wetlands of the area represent remnants of the basins gouged out by the glacier. This diverse landscape provides a variety of living environments (habitats) that support many different plant and animal associations—some unique to the area and the region.

While forested areas are abundant in the Township, none of these areas can be con-

sidered virgin forest. Action of even the earliest residents caused destruction to the natural vegetation. The impacts of long forgotten people and events still remain on our woodlands.

The Lenni Lenape Indians burned the land regularly to clear areas for settlement and agriculture, to drive game being hunted and to keep the forest open to travel. The iron industry of the colonial and revolutionary periods depended on the forests for charcoal production and led to extensive clear-cutting of the trees. The substitution of coal for charcoal, the decline of the iron industry, and the abandonment of marginal farmland in the late 1800s has given local vegetation a

chance to return to more primeval conditions.

Today, most of West Milford is heavily forested, contributing significantly to its scenic and recreational appeal, as well as providing habitat for abundant wildlife and protection of surface water supplies. In the minds of residents, the character of the Township and the quality of life has become synonymous with the integrity of these woodlands. Unfortunately, while steep slopes and rock outcroppings seriously complicate development efforts, by comparison, the clearing of a forested area can be easily accomplished. Even though forests are considered to be renewable resources, the re-establishment of a mature forest may require more than a century and much longer for the return of associated plants and wildlife. Beyond this, the vital processes performed by woodlands for the welfare of the local community as well as the region are often overlooked and little understood, contributing further to their random demise. Forests have intrinsic value and through their natural functions, this value increases without the need for dollar cost or human intervention.

The benefits derived from maintaining areas of natural vegetation, in our case primarily forests, but also including abundant wetland areas, can be clarified by listing the vital services they perform:

1. **Forests and wetlands provide a varied and rich environment for many different plants and animals.** In any particular place the trees and other plants determine the types of plant-eating animals that will be present and these in turn largely govern the predators that will be able to exist. Different layers of the forest provide the necessary breeding, feeding, and shelter areas for wildlife. Areas near

water are especially critical. Wetland areas are the principle habitat for many forms of plants and animals, including migratory waterfowl, fish, small mammals, and a variety of aquatic plants. Piece-meal encroachment of these areas can lead to a drastic decline in wildlife populations both there and in adjacent forested areas.

Because the Highlands are one of the few remaining "wild" areas, their value as a refuge and museum for wildlife is well documented. This natural diversity is an important resource for wildlife conservation as well as a factor in the health and stability of natural areas. In addition, it increases the desirability and usefulness of these areas for recreation, hunting and fishing.

2. **Forests protect and conserve water and soil resources.** Under natural conditions, erosion is not a problem because the soil is stabilized and enriched by accumulating organic debris. Runoff is slowed and absorbed by the sponge-like forest floor, which further acts as a filter to percolating water. In a similar manner, wetlands slow down and absorb huge quantities of storm water, thus trapping silt and nutrients which are recycled by the microscopic life of these natural filtering systems. The end effect is to moderate against flooding and siltation of waterways.

3. **Forests provide visual buffers**, and in the case of West Milford, define the rural character of the township. Secondly, forests absorb noise and often enhance property values.
4. **Lastly, forests moderate wind and local temperatures** and are able to absorb some air pollutants.

For all of these reasons, it was decided to include vegetation and wildlife as a primary factor in constructing the Open Space Plan.

Justifying the protection of a diminishing resource is not easy when compared to the need to protect a more limited feature. In order to justify the protection of prime vegetation and wildlife areas, a systematic study was made to determine the location of such areas. Because forested areas on steep slopes and shallow soils would be included in the Plan through the mapping of steep slopes and rock outcroppings, attention was concentrated on areas that would insure highly productive vegetation and wildlife habitat. The productivity of a plant community is directly dependent on its ability to produce key food supplies. The kinds and numbers of wildlife living in an area depend on the amount and distribution of these supplies, water, the availability of appropriate shelter and adjacent land use characteristics. These in turn are related to kinds of soils. Productive soils yield productive vegetation, which provides excellent habitat for wildlife.

Information contained in the Passaic County Soil Survey was initially used to map areas with soils highly suitable for wildlife habitats supporting both woodland and wetland species. Satisfactory habitat is assured barring destructive human interference. Because of the scattered and limited nature of these areas, soils with secondary suitability were also mapped. These included areas of habitat that would support

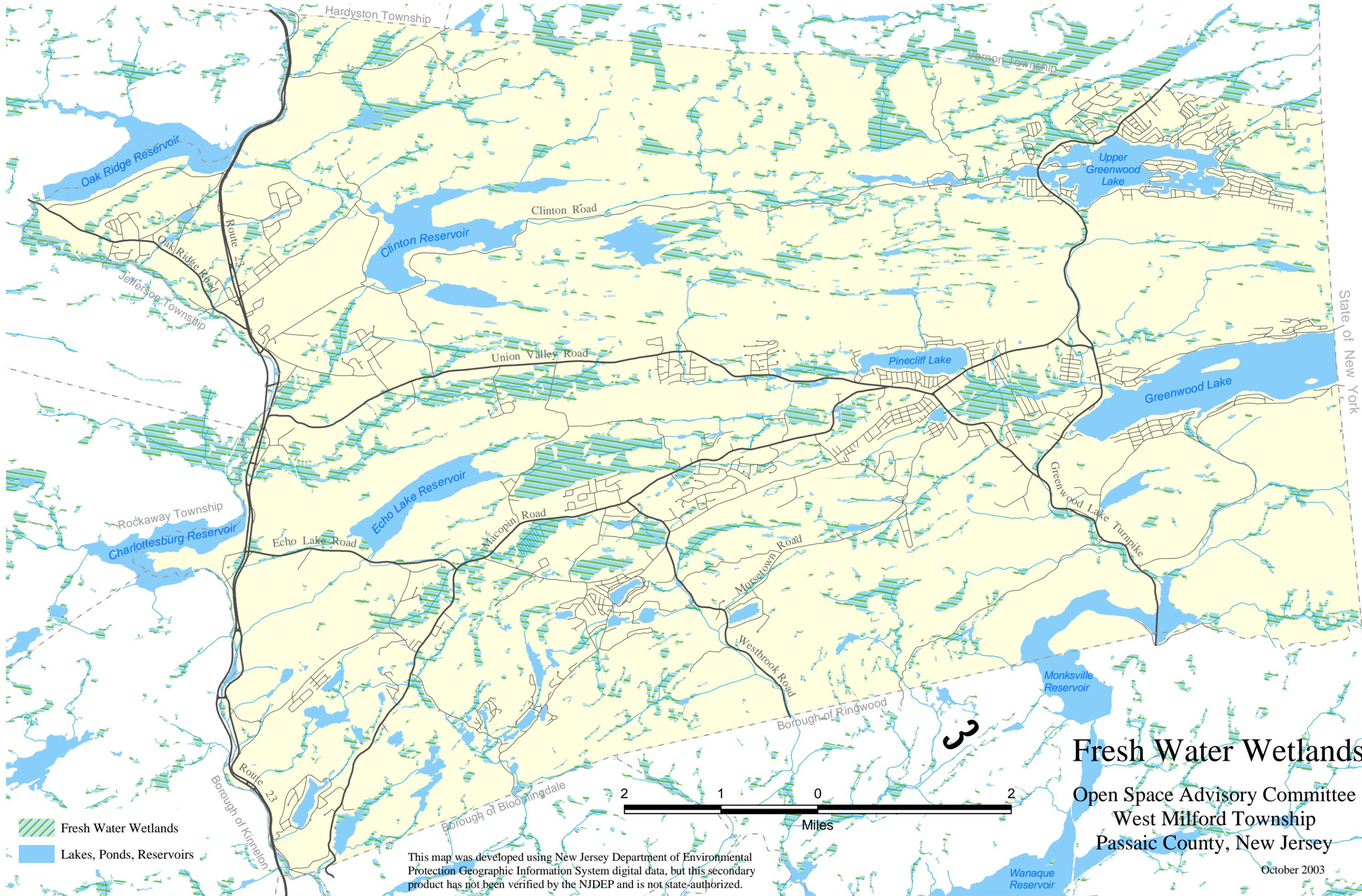
woodland, openland, and wetland species. The combination of primary and secondary habitat areas supplied the desired pattern of areas well suited for wildlife habitat. Separately, wetland areas were mapped using the wetlands map from the Natural Resource Inventory (see Freshwater Wetlands map). Soils classified as very poorly drained from October to June were used because water is virtually on the surface in these areas during that period of the year. These areas coincided with wetland habitats chosen for productivity, so wetland features were absorbed into the vegetation and wildlife factor mapping.

Detailed data supplied in *The Pequannock Watershed Conservation and Development Plan* was used to add information on specific vegetation areas, especially the evergreen plantations and the area surrounding Uttertown Bog and Cedar Pond. In addition, limited field observations and conversations with local residents were factored in where appropriate.

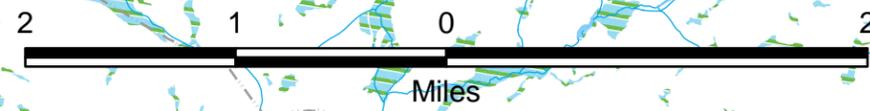
Specific mapping of vegetation and the evaluation of current wildlife populations and mobility were determined to be beyond the scope of this study. However, as a general guide, Appendix B contains a listing of the flora and fauna that can be found throughout West Milford.

In addition to productive soils, several other areas were determined to have desirable open space characteristics because of their unique vegetation or because they were identified as important wildlife habitat, listed as follows:

1. **Hemlock forests** are located on cooler, moist sites, especially in ravines or on the steep lower, north-facing slopes leading down to ravines or valleys. They represent a more northern forest community, a remnant of our



-  Fresh Water Wetlands
-  Lakes, Ponds, Reservoirs



Fresh Water Wetlands

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immediate post-glacial history. In addition to their scenic splendor, they provide vital winter habitat for a large variety of wildlife. Excellent examples exist along Clinton Brook and Clinton Road, around Cedar Pond, parallel to the Warwick Turnpike, along the east shore of Echo Lake, and in the gorge behind Reflection Lakes.

2. **The Evergreen Plantations** of the Pequannock Watershed were planted in the 1930s by the Civilian Conservation Corps as part of the Watershed's conservation program, and offer excellent birding year round. The Plantations include large plantings of Norway Spruce, white pine, red pine, Scotch pine, imported larch, and others. The white pine and spruce have adapted well to the area. The spruces provide a cool, moist shade and dense branching not found in native forests. The extensive data compiled by the Urner Ornithological Club on breeding birds of the Pequannock Watershed indicates these plantings have supplied habitat for several birds new to the state and others known to be marginal or very rare in the region. If present management and protection practices in the watershed continue, this rich habitat may well attract additional species and may even invite the range extension of new species to compliment its already interesting population. Noteworthy areas for birdwatchers include areas along La Rue Road, Reservoir Road, as well as the intersection of Macopin and Echo Lake Roads near Echo Lake.
3. **Uttertown Bog** located within the Newark Watershed north of Cedar Pond provides a unique variety of plants peculiar to the bog habitat. In addition, it supports many species of animals including the endangered Bog Turtle and provides an important wintering yard for white-tail deer. Because of its sensitive ecology, the Watershed Corporation has identified it as a conservation site.
4. **The Cedar Pond area** is surrounded by extensive hemlock stands which provide important wildlife habitat and is adjacent to Uttertown Bog. Its relation to these unique natural areas has led to its designation as a conservation area by the Watershed Corporation.
5. **Buffer areas along stream corridors, lakes and ponds** are desirable to protect water quality as well as protect wildlife access and preserve floodplain function.
6. **Cactus Rock** on the east side of Union Valley Road near Van Orden Road contains main prickly pear which are uncommon in this area and add variety to our predominant forest cover.
7. **The Reflection Lakes** property on the southeast side of Union Valley Road provides an excellent microcosm of the great diversity of habitats to be found in the Township. The lake and wetlands are used by migratory waterfowl. Within a relatively compact area exists open water, wetlands, field, old field, and upland oak habitats along with an impressive gorge of hemlock and rhododendron. The value of this area for development as a teaching and nature center is under discussion.

The relatively thinly settled nature of West Milford in combination with its abundant natural diversity gives us an enviable opportunity to select areas for both preservation and conservation. The values of vegetation and wildlife must be remembered by all land use decisions that are made. By committing highly valued areas to open space planning, we will encourage responsible stewardship of the land and insure a quality environment for those who come after us.

THE LANDSCAPE PROJECT

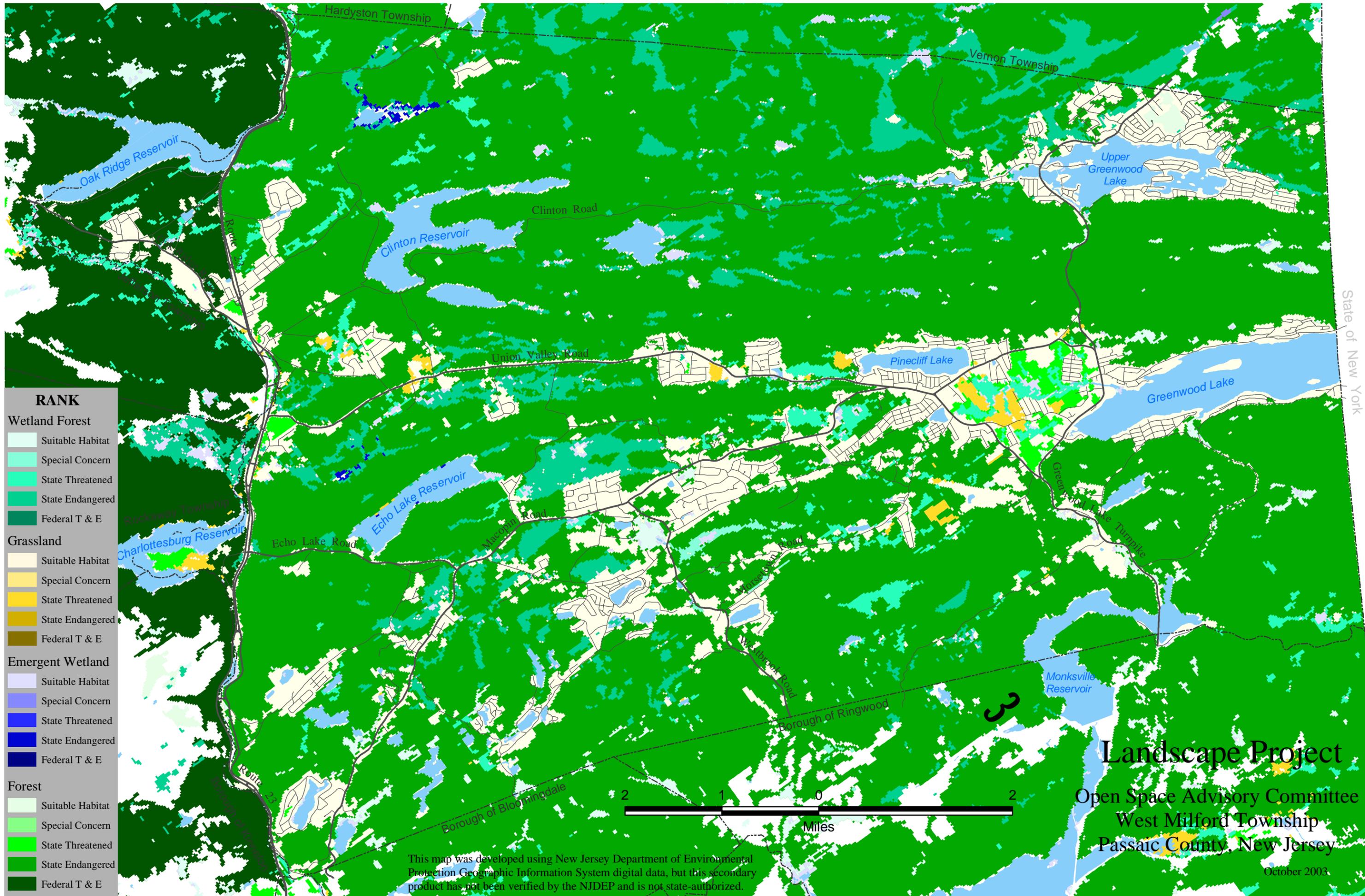
The N.J. Division of Fish and Wildlife's Endangered and Nongame Species Program (ENSP) began the Landscape Project in 1994. It is an on-going, pro-active, ecosystem-level way to the long-term protection of rare, threatened, and endangered species and the habitats that are crucial to their survival in New Jersey. The goal of the Landscape Project is to protect the State's biological diversity by maintaining and enhancing rare wildlife populations within healthy, functioning ecosystems (see Landscape Project Map). Throughout its varying elevations (300 to 1500 feet above sea level), West Milford is home to a wide variety of plant and wildlife species. For example, the Uttertown Bog contains species from the furthest reaches north to furthest south.

SCENIC AND UNIQUE FEATURES

Scenic and unique features are difficult to identify via an objective analysis. It is inevitable that subjective factors enter into the selection process. The public was asked to participate in the selection of the scenic areas that would be included in the Open Space Plan in order to reduce the amount of subjectivity to a minimum. As a result of this public input, as well as the many debates among the preparers of this document, a number of scenic sites have been chosen for inclusion at this time. Future residents of

the Township may wish to include additional sites, but at this point in West Milford's history it was decided to list a relatively small number of areas which seemed to have the greatest support. Some of these areas are small specific sites while others are scenic routes along major roadways. Many are privately owned and some of these have been for sale. Not all areas have important ecological qualities, but all are familiar views and vistas of the West Milford landscape and many residents would like them to remain intact. **The 'for sale' signs are proof that little time remains to save them from irrevocable destruction.** The scenic and unique features that have been cataloged are listed as follows:

- A. **The Wallisch Estate** on Lincoln Avenue was the popular choice. A home and several accessory buildings on the property are what remains of a small farming operation. The surrounding area is primarily residential. Although this property is not unique because of its natural features, it is a familiar scenic site of green in the north central portion of the Township.
- B. The **Warwick Turnpike corridor** from White Road to Pioneer Corners was mentioned as being unique for its beauty. The dense rhododendron and mountain laurel forest makes a beautiful setting as it descends from the cliffs of Bearfort Mountain down to Green Brook. Although Abraham Hewitt State Forest and the Newark Watershed areas border it, some of the area is still private property and residents are also fearful that if any road improvements occur here, much of the beauty will be destroyed if it is not carefully protected.

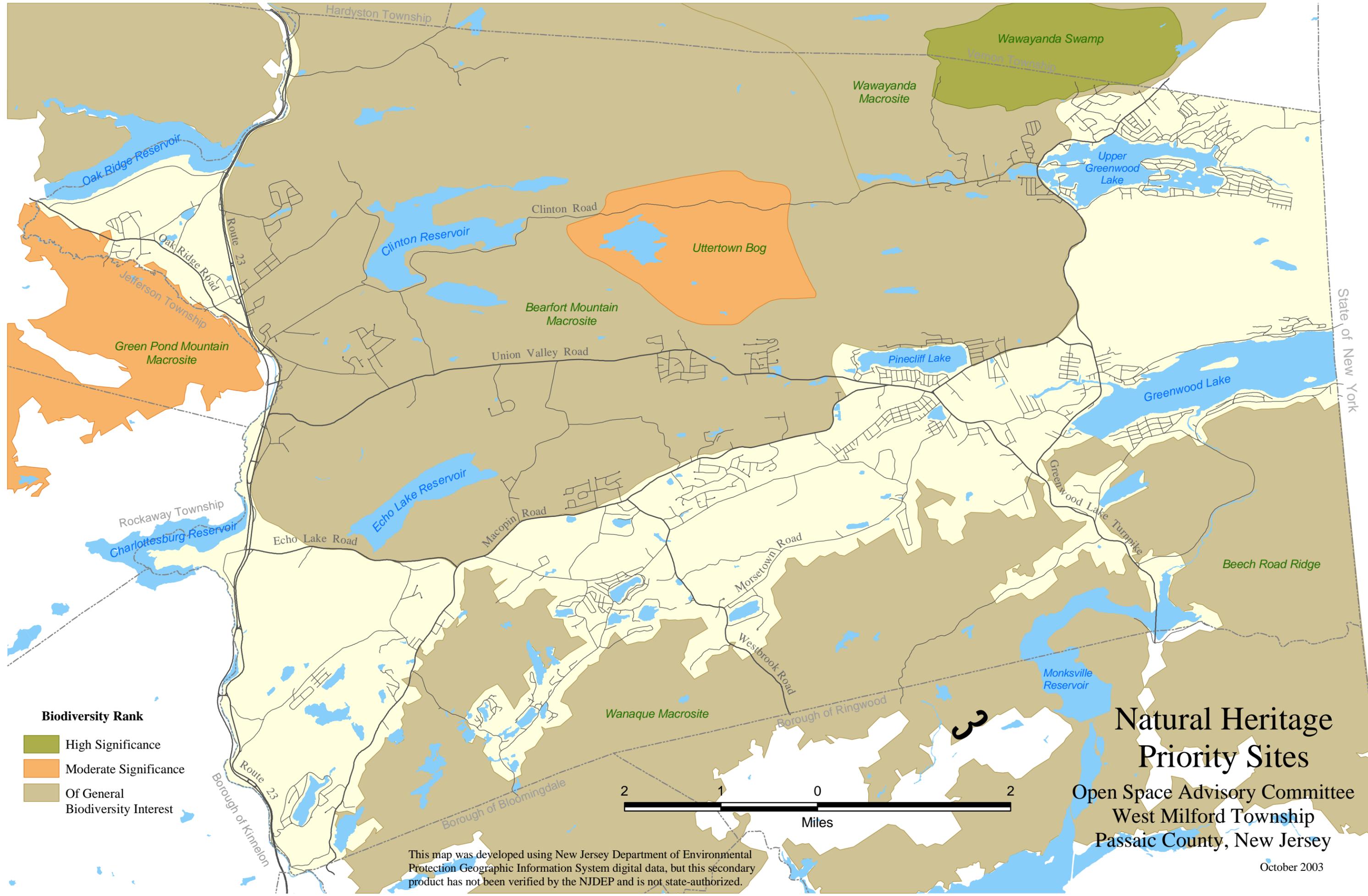


RANK	
Wetland Forest	
	Suitable Habitat
	Special Concern
	State Threatened
	State Endangered
	Federal T & E
Grassland	
	Suitable Habitat
	Special Concern
	State Threatened
	State Endangered
	Federal T & E
Emergent Wetland	
	Suitable Habitat
	Special Concern
	State Threatened
	State Endangered
	Federal T & E
Forest	
	Suitable Habitat
	Special Concern
	State Threatened
	State Endangered
	Federal T & E

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 Passaic County, New Jersey

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- Biodiversity Rank**
- High Significance
 - Moderate Significance
 - Of General Biodiversity Interest

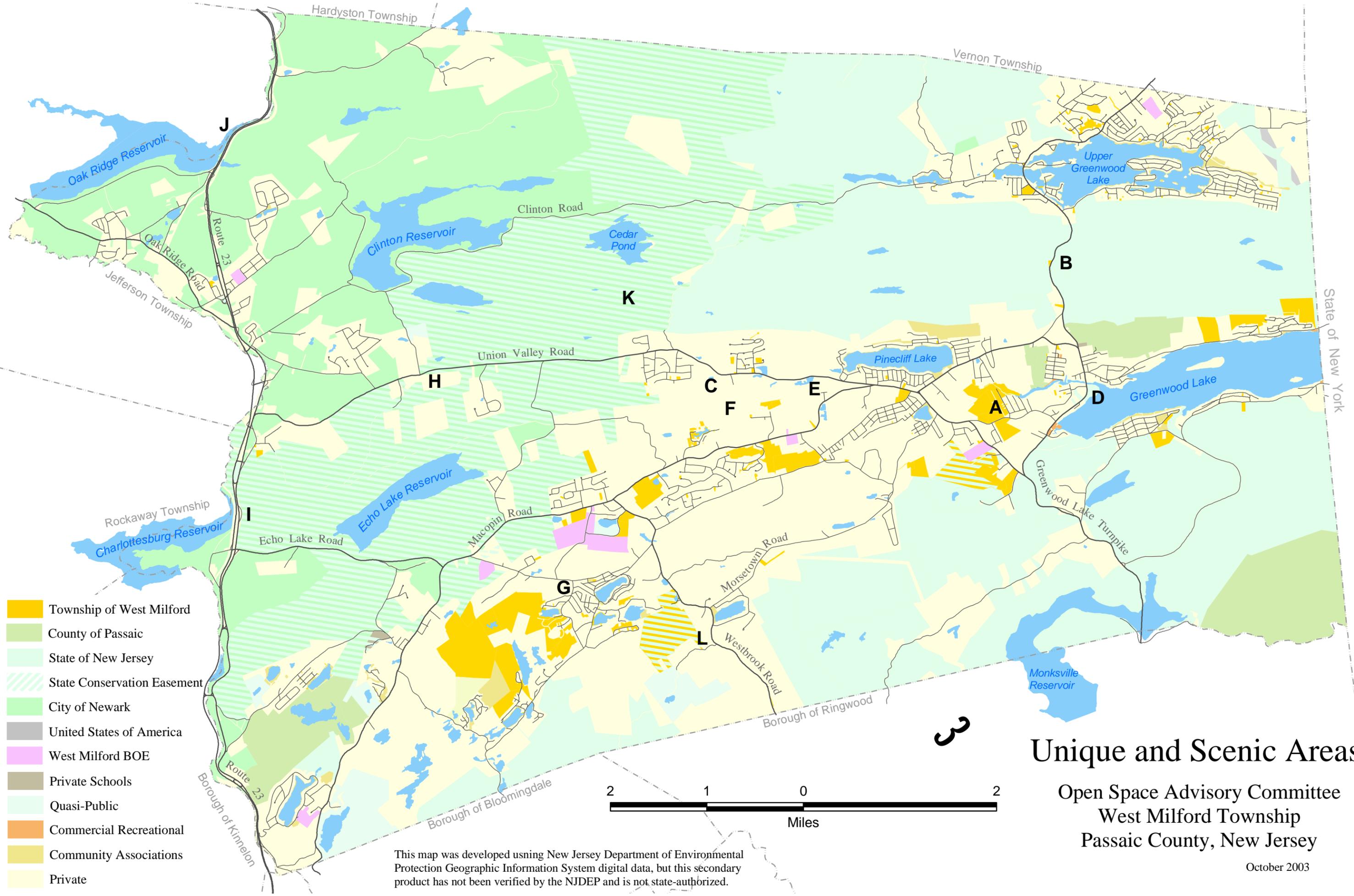


**Natural Heritage
Priority Sites**
Open Space Advisory Committee
West Milford Township
Passaic County, New Jersey

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- C. **Apple Acres** on Union Valley Road contains approximately 60 acres of apple orchards, adjacent to Crescent Park. The site is no longer a “working” orchard, however, it gives the appearance of being one since the trees appear to be in good health although a bit overgrown. The property is one of the easily recognized landmarks with the Township, as well as being a picturesque setting. Many people have expressed concern that this property will soon become another residential development and the scenic qualities of the orchard will be lost.
- D. **Brown’s Point** at the southern end of Greenwood Lake was mentioned as a location that has a commanding view of the Lake. There are certainly other areas on either side of Greenwood Lake that offer scenic views and vistas, however, this location appears to be the best known and is probably the most accessible.
- E. **Reflection Lake**, on the south side of Union Valley Road, north of Crescent Park, was a scenic location prior to its partial filling. Hidden in the back of the same property that contains Reflection Lake is a gorge cut by a stream. This area is thick with rhododendron and hemlock. There is a lookout point at the uppermost part of the property that gives a commanding view toward Bearfort Mountain. There are wetlands that are used by migratory waterfowl. It has been pointed out and confirmed by a professional naturalist that this area has the possibilities of being developed as a nature center, especially beneficial to school children.
- F. **Dockerty Hollow Road** extends from Union Valley Road to Macopin Road. The road, especially from the Union Valley side, is used by many hikers and horseback riders. It was pointed out that many of the trees have already been identified and labeled by the boy scouts in this area.
- G. **New York Rock**, located at the corner of Maple and Schofield Roads, is a rock outcropping at 1200 foot elevation, which has a commanding view of the New York skyline at various times throughout the year.
- H. **Cactus Rock**, on Union Valley Road near Van Orden Road, is an area that contains many prickly pear, which although not rare, are certainly uncommon this far north.
- I. The **Charlottesville Reservoir** is a scenic vista that should be included as well. The specific site is the rest area turnoff on Route 23 just past Echo Lake Road, which currently accommodates the Bicentennial Monument. The view south toward the reservoir is an impressive one, in recent years cited by *New Jersey Monthly* magazine’s “10 Best Scenic Views” in New Jersey.
- J. The **Pequannock River Valley** from the Oak Ridge Reservoir to Route 23, another scenic vista.
- K. **Bearfort Fire Tower**, located within the Newark Watershed property, has an unsurpassed view of the surrounding region, with visible rock outcropping to the north in Wawayonda State Park.
- L. Finally, **West Brook Road, in the vicinity of Snake Den Road**, has a hiking trail which leads to Black Rock. The trail is short, family length and from the rock there is an interesting view of the Kitchell Lake area.



- Township of West Milford
- County of Passaic
- State of New Jersey
- State Conservation Easement
- City of Newark
- United States of America
- West Milford BOE
- Private Schools
- Quasi-Public
- Commercial Recreational
- Community Associations
- Private

Unique and Scenic Areas

Open Space Advisory Committee
 West Milford Township
 Passaic County, New Jersey

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HISTORIC SITES

There has been a growing awareness the last thirty years or so that our past is worthy of preservation. People are interested in their roots and are no longer ignorant of our historic heritage. New Jersey in general and West Milford in particular has a rich history and it seems only logical that our historic areas should be part of the open space system. They can serve as focal points within the system offering at the same time a sense of history and a measure of beauty.

The historic landmarks located in West Milford can be divided into two groups: First on the list are those sites that have been recognized as State or Federal Historic Landmarks. The sites so honored include:

- Clinton Furnace (2)
- Long Pond Ironworks, 1764 (3)

The remaining historic sites have not yet been designated as landmarks by either the Federal or State governments. Nevertheless, these sites have a great deal of history behind them, and efforts should be made to protect them. Among the sites in this category are:

- Idylease
- Charlottesville Iron Works, 1764 (1)
- Middle Forge, 1764 (4)
- Echo Lake Baptist Church (5)
- Oak Ridge Presbyterian Church, 1818 (6)
- St. Joseph's Church (7)
- West Milford Presbyterian Church (8)
- Brown's Hotel Band Stand, 1880 (9)
- Charlottesville Hotel, 1850 (10)
- Cross's Castle, 1890 (11)
- Moe's Tavern, circa 1870 (12)
- Old Country Store, 1766 (13)
- Smith Mills, 1764 (14)
- Vreeland Store, 1872 (15)
- Wanaque Valley Inn, circa 1770 (16)
- Bigalow House (Intake Hotel), 1820 (17)

- Carey House, circa 1874 (18)
- Cooley House, 1754 (19)
- Eckerson House, circa 1815 (20)
- Long House, 1766 (21)
- Mickens House, circa 1800 (22)
- Miller House, 1804 (23)
- Ward House, 1842 (24)
- Schofield House, circa 1795 (25)
- Terhune House, 1832 (26)
- Techenor House, 1754 (27)
- Gregory House, 1820 (28)
- Vreeland-Freeland Homestead, 1753 (29)

The historic sites list was included in the Natural Resources Inventory and was developed for the Environmental Commission by the North Jersey Highlands Historical Society.

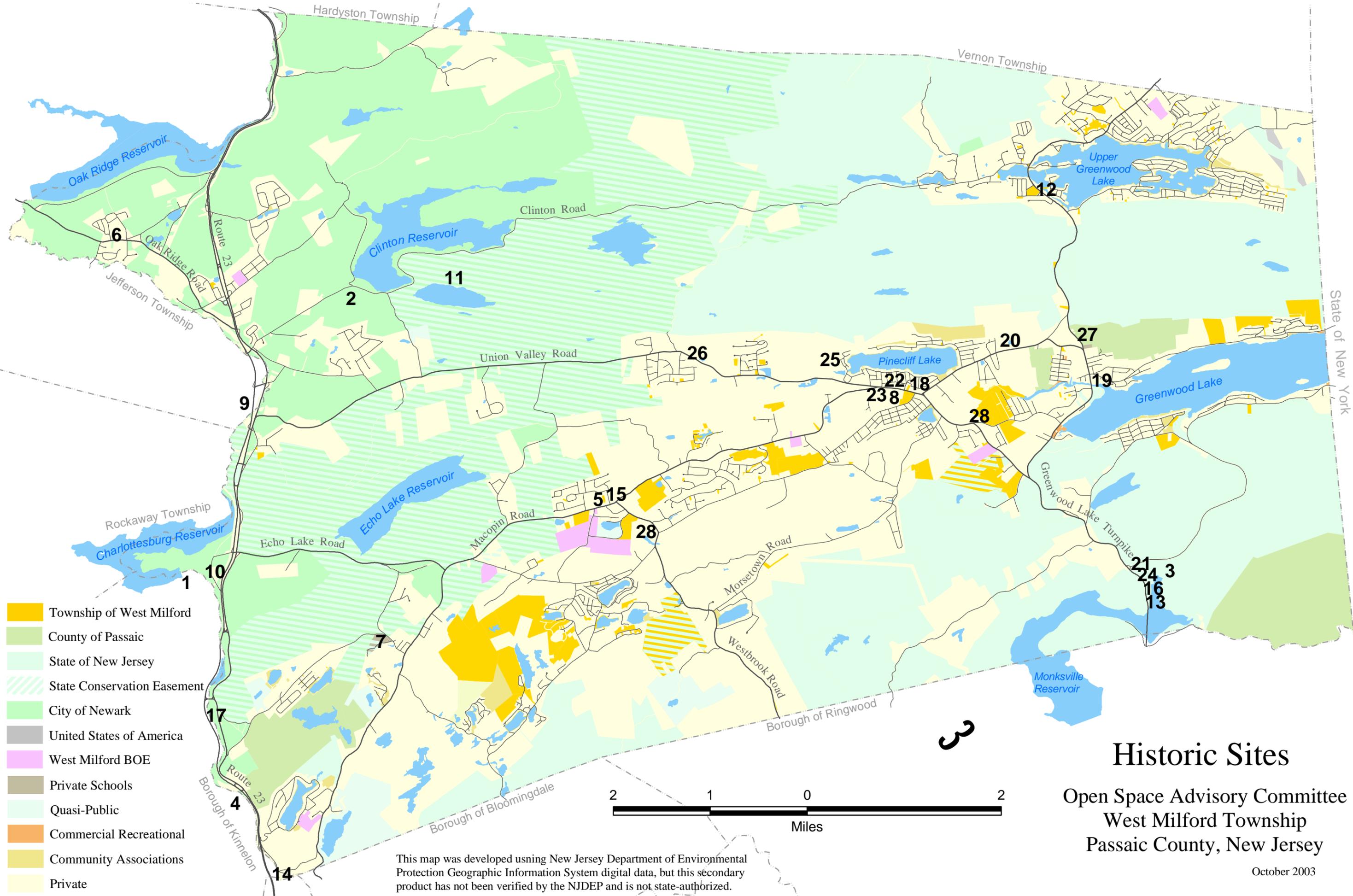
As a final note, it must be mentioned that several of the sites that have been designated, no longer contain the historic structures that are listed. Nevertheless, the sites themselves are still historically significant and perhaps someday appropriate markers or replicas will be constructed to commemorate the history that was made at these locations.

NOTE: The numbers that appear next to each site are keyed to the Historic Sites map at the end of this document. Another map, the West Milford Designated Historic Sites, has its own numbering legend, also at the end of this document.

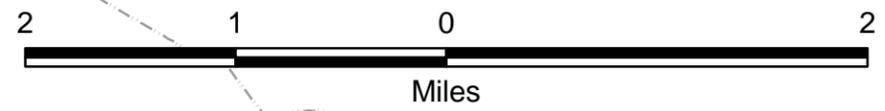
TRAILS

One of the goals of the Open Space Plan is to develop a framework for an interconnected system of open space and recreational areas. The connections in some cases will simply be in the form of natural linkages such as streams, wetlands, and forested areas (see Trails map).

In other instances, however, definite physical connections capable of being traversed on foot, on horseback or by bicycle



- Township of West Milford
- County of Passaic
- State of New Jersey
- State Conservation Easement
- City of Newark
- United States of America
- West Milford BOE
- Private Schools
- Quasi-Public
- Commercial Recreational
- Community Associations
- Private

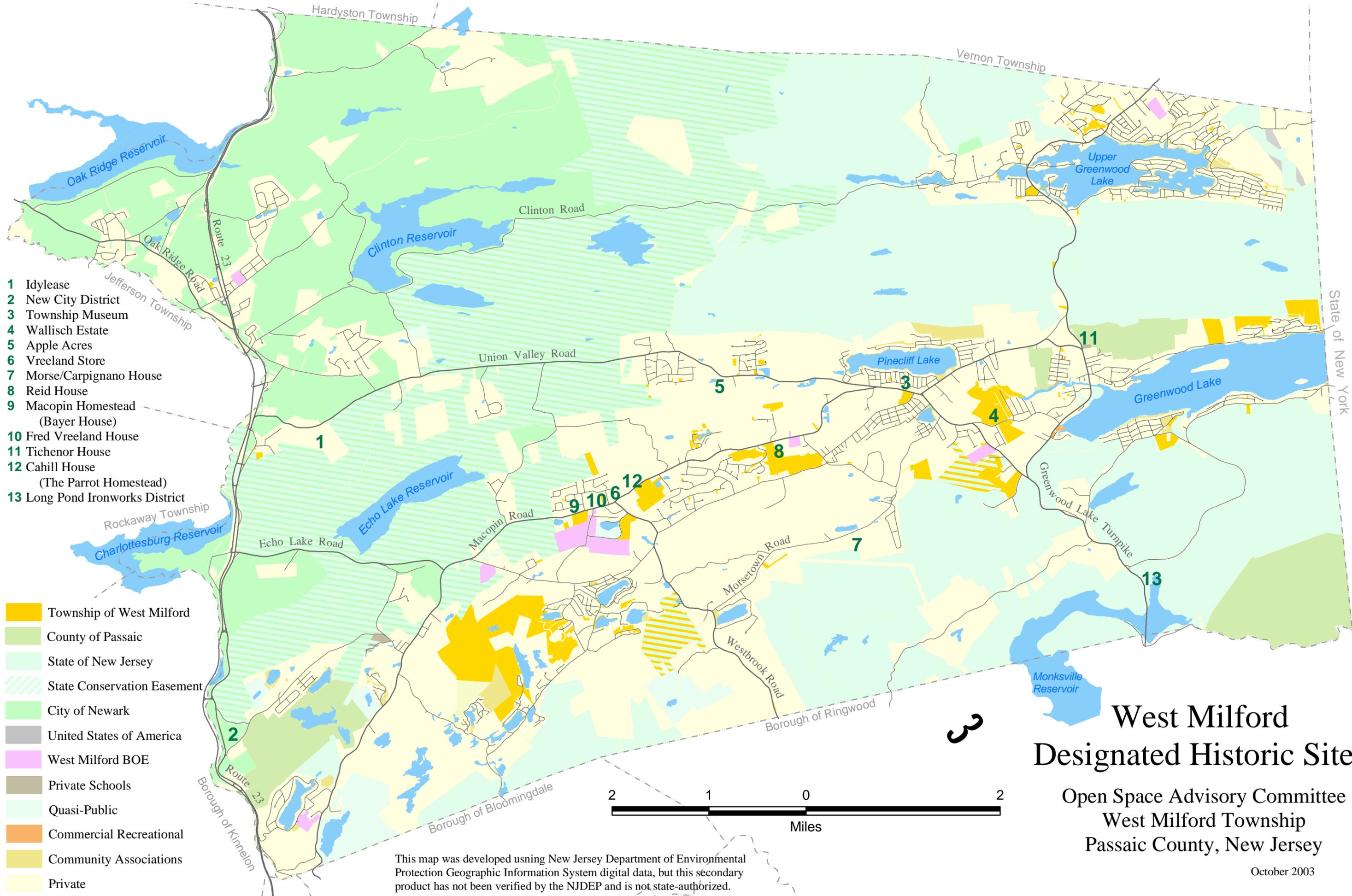


Historic Sites

Open Space Advisory Committee
West Milford Township
Passaic County, New Jersey

October 2003

This map was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by the NJDEP and is not state-authorized.



- 1 Idylease
- 2 New City District
- 3 Township Museum
- 4 Wallisch Estate
- 5 Apple Acres
- 6 Vreeland Store
- 7 Morse/Carpignano House
- 8 Reid House
- 9 Macopin Homestead
(Bayer House)
- 10 Fred Vreeland House
- 11 Tichenor House
- 12 Cahill House
(The Parrot Homestead)
- 13 Long Pond Ironworks District

- Township of West Milford
- County of Passaic
- State of New Jersey
- State Conservation Easement
- City of Newark
- United States of America
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- Private Schools
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- Community Associations
- Private

West Milford Designated Historic Sites

Open Space Advisory Committee
West Milford Township
Passaic County, New Jersey

October 2003

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will be more desirable. These connectors or trails already exist in many areas throughout the Township. Some of the trails are old logging roads and as such were previously used for purposes other than hiking or horseback riding. Other trails, such as the Appalachian Trail, which traverse the northern portion of the Township have always existed primarily for recreational purposes.

Finally, it acknowledged that if the trail network as shown in the plan is to be a viable one, the Township will ultimately be obligated to investigate and resolve any legal impediments which might preclude the use of these trails by the general public.

Appalachian Trail

A rugged, beautiful stretch of the internationally famous, 2,167-mile-long Appalachian Trail, which runs from Georgia to Maine, passes through the township of West Milford. The trail enters the northwestern corner of West Milford near Long House Road and runs through Abraham Hewitt State Forest before following Bearfort Mountain into Orange County New York, high above Greenwood Lake.

Rocky outcrops, upland creeks, and swamps, characterize the popular West Milford section and scenic views from glacier carved ridges. A variety of family-friendly, Appalachian Trail loop hikes to Surprise Lake and secluded West Pond can be made using West Milford's Jeremy Glick, State Line, Ernest Walter, and Bearfort Ridge trails.

Jeremy Glick Trail

The Jeremy Glick Trail, formerly known as the Quail Trail, is an easily accessed, two and one-half mile historic walking trail located entirely within West Milford's Abraham Hewitt State Forest. Beginning adjacent to Warwick Turnpike near a native trout production stream and ending at Surprise Lake

on Bearfort Mountain, it is a stretch that West Milford's own Jeremy Glick knew very well.

On September 11, 2001, Jeremy Glick became a national hero when he was among the passengers aboard United Airlines Flight 93 who stormed the cockpit in an attempt to wrest the plane from terrorists who had pointed it toward Washington, D.C. The jetliner crashed in a field in rural Pennsylvania, killing all aboard.

According to his wife Lyzbeth, the Quail Trail, with its view of the World Trade Center, was one of his favorite trails. In 2002, the Quail Trail was renamed the Jeremy Glick Trail, in honor of his heroism.

The Hasenclever Trail

The New York-New Jersey Trail Conference, with the assistance of the Friends of Long Pond Ironworks and Ringwood State Park, is currently establishing the Hasenclever Iron Trail. For over 200 years, the trail, approximately 3.5 miles in length, has connected Ringwood Manor (the historic Ironmaster's home) with Long Pond Ironworks (the manufacturing center).

The late Martin Deeks was instrumental in the re-discovery and development of this trail that connects the municipalities of Ringwood and West Milford. Due to his participation, the Trail Conference is considering establishing a series of trails spanning the border of New York and New Jersey, dedicated to interpreting and directing travelers to many of the local historic iron sites.

Highlands Trail

The Highlands National Millennium Legacy Trail, or simply Highlands Trail, is a nationally recognized, bi-state foot trail, built to highlight the natural beauty of the New Jersey and New York Highlands region, and draw the public's attention to this endangered resource.

Now mostly completed, the trail will extend over 150 miles from Storm King Mountain on the Hudson River in New York south to Phillipsburg, New Jersey, on the Delaware River. The route will connect major scenic attractions in both states. Ultimately, a network of trails including alternate routes and multi-use paths is envisioned.

The trail, which begins along the Delaware River near Phillipsburg, NJ, enters West Milford's southwestern corner near Route 23. It traverses approximately 25 miles some of the wildest, most scenic, environmentally sensitive and historic highlights within the township, including:

Dunker Pond, Clinton Reservoir, Bearfort Mountain and Fire Tower, Echo Lake, Norvin Green State Forest, Horse Pond Mountain, Monksville Reservoir, Long Pond Ironworks and the New Jersey portion of Sterling Forest and the Newark-Pequannock Watershed.

The Highlands Trail exits West Milford and New Jersey at Big Beech Mountain in Sterling Forest, continuing its journey to Storm King Mountain along the Hudson River, at its northern terminus.

Proposed Bikeway

The first leg of the proposed bikeway will connect the center of town (at the municipal building) to the PAL building and eventually to West Milford High School, with numerous points of interest. The second leg will connect other areas of the township. The purpose is to provide a safe, recreational multi-use pathway for the citizens of and visitors to West Milford (see Proposed Bikeway map).

SURFACE WATER

Over 40 natural and man-made lakes, five reservoirs, many ponds, and nearly 100 miles of rivers and streams combine to form

a dramatic contrast to the rugged, forested hills of West Milford. These surface water features have figured prominently in the Township's past and present, and will undoubtedly continue to do so in the future. Greenwood Lake, which feeds into the Wanaque Reservoir, is split between New York and New Jersey, and for decades has drawn thousands of visitors annually.

It was the lakes, rivers and streams that lured Native Americans, trappers and eventually settlers to this area. The past has seen a procession of iron furnaces, forges, sawmills, and gristmills drawn to these waterways for power. With the completion of rail lines in the late 1800s, hotels and boarding houses sprung up around the lakes, marking the beginning of the resort era. At the turn of the last century, the City of Newark purchases 35,000 acres of the Pequannock Watershed, including 16,000 acres in West Milford, and the Township became important as a source of potable water for Newark's growing population. Initially, two reservoirs, Clinton and Oak Ridge, were added to the surface water inventory of the Township with Charlottesville added in 1961.

Summer communities developed around many of the existing natural lakes and several new lakes that were created including Pinecliff and Upper Greenwood, two of our large water bodies. Today, most the homes surrounding these lakes have been converted to year-round dwellings, but the focus on water-based recreation continues in these communities.

For the remaining surface waters, the dominant use is potable water supply. Other important issues include recreation and maintenance, migration and propagation of wetland species. Clinton Brook and Kanouse Brook on Newark owned property have a naturally regenerating trout production, uncommon in New Jersey. In addition,

certain feeder streams on the Pequannock Watershed property have been set aside by the State, because of their pristine character, to remain as an example of the natural aquatic environmental and its associated plant and animal life.

Most of the factors considered in developing the Open Space Plan are directed toward protecting the quality and quantity of West Milford's surface water. While stewardship of land and water on portions of the Pequannock Watershed owned by Newark has for the most part been good, careless land use and short-sighted planning on private lands have led to the increased siltation and over-fertilization in watersheds of the Pequannock, Wanaque and Wallkill Rivers. Chronic complaints by residents about weed and algae proliferation as well as pressure to undertake dredging operations in certain waters, demonstrates a clear recognition of the effects of past negligence. Unfortunately, the causes, including overdevelopment of shorelines, removal of natural shore vegetation, waterproofing of soil surfaces, installation of now malfunctioning septic systems and malfunctioning sewage treatment plants have yet to be addressed.

For the purpose of the Open Space Plan, all lakes, ponds and streams were taken from the Natural Resources Inventory topographic survey map. (For the new maps all lakes, ponds and streams were taken from the NJDEP GIS website.) Several additions and changes were made based on field observation and personal knowledge. In addition, buffer areas were established around surface waters where possible (see Freshwater Wetlands map).

A great deal of thought has been given to include aquifer recharge areas as one of the components of the open space system. Some initial mapping has already been done which identifies those areas where there is

good reason to believe that significant aquifer recharge areas exist. However, it is felt that at the time of the original preparation of this plan, and again in 2003, that the aquifer recharge information is not precise enough to justify including that information in this Plan. However, groundwater recharge data, which has to do with soils, is available and a map showing this is included in this plan. Also, the township has contracted for a hydrology study, and upon completion, the Open Space Plan will be amended to include aquifer recharge areas as a major component of the Plan, if the study indeed yields this information.

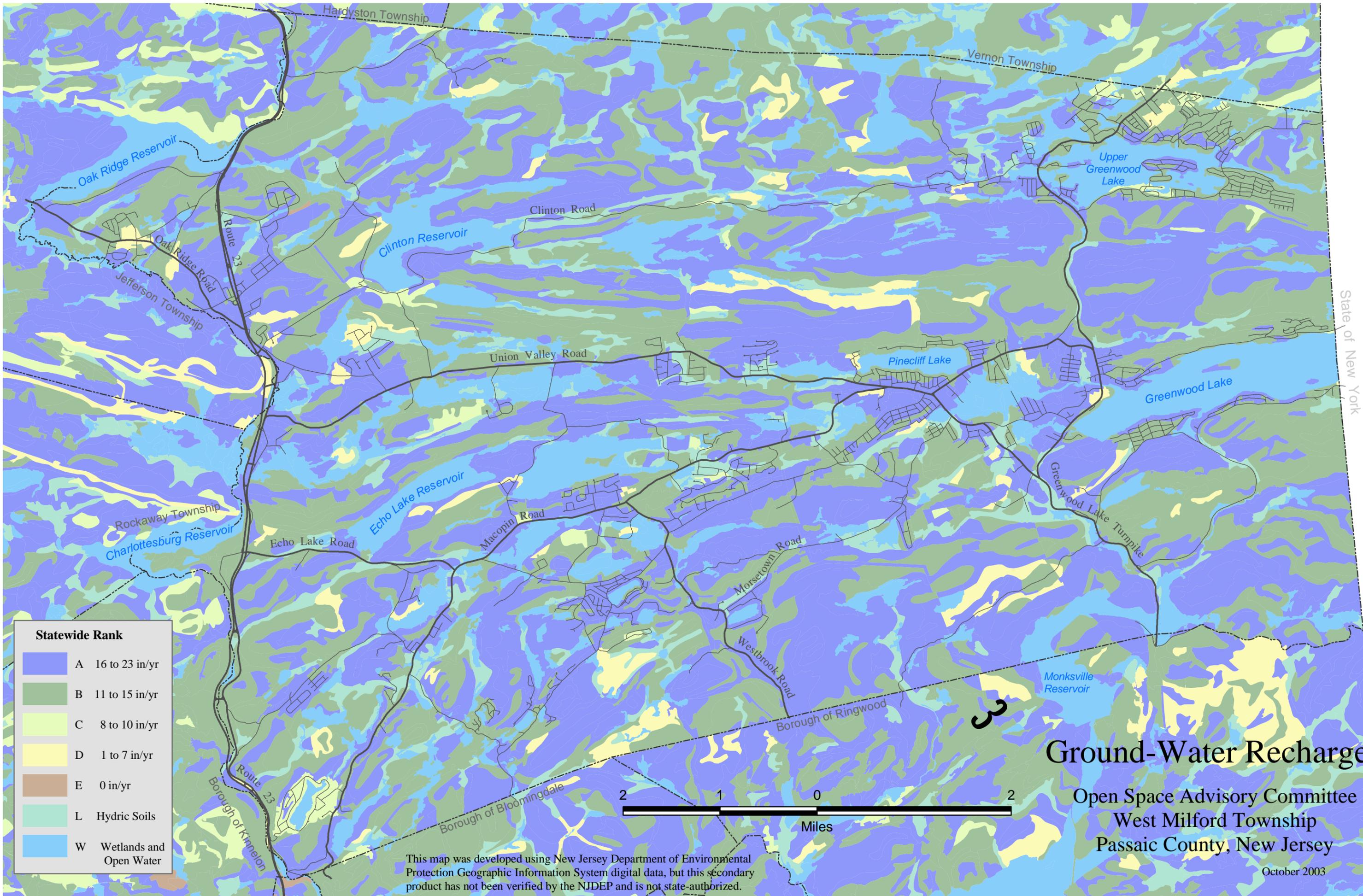
In addition, during the time this plan was being revised, there had been a drought warning issued for parts of New York and most of New Jersey.

PRESERVATION STRATEGY

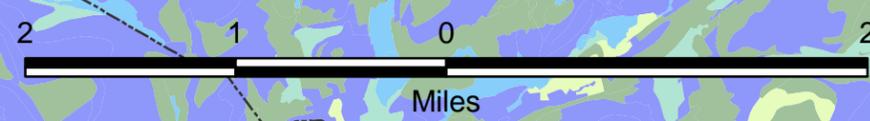
LEGAL OVERVIEW

The use of land is a topic that has become increasingly more important in recent years. Perhaps it is a growing awareness that land is a finite resource or that we have abused our land rather than used it wisely. This growing awareness is probably caused by increasing amounts of free time available to the public and their ability to thus focus on concerns not directly related to their immediate needs for food, shelter and clothing.

Before any discussion can begin regarding the future use of our land, an individual should have a basic understanding of the property rights concept that has been established in this country. Ironically enough, people seem to have a very clear idea of how strongly the law protects their own property. Of course, the law must be equitable if it is to be respected, so consistency relative to property right is very important.



Statewide Rank	
A	16 to 23 in/yr
B	11 to 15 in/yr
C	8 to 10 in/yr
D	1 to 7 in/yr
E	0 in/yr
L	Hydic Soils
W	Wetlands and Open Water



Ground-Water Recharge

Open Space Advisory Committee
 West Milford Township
 Passaic County, New Jersey

October 2003

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Historically, the right to use your land in this country was greatly influenced by the general lack of strong property rights in Europe. This fact, coupled with the harsh conditions of the North American continent in colonial times, which demanded a strong commitment and much sacrifice by early settlers, resulted in a concept of strong individual property rights in this country. Gradually, however, government began to modify this concept through court decisions and legislation that recognized that often one man's right to use his land interfered with the rights of others and the general welfare. Today, we have a point where federal, state or local government is an active partner in determining how land can be used. Nevertheless, we still hold dear the concept that a man's home is his castle, and we cannot impose unreasonable controls on the use of the land. There is a fine line between necessary and reasonable controls and the "taking" or confiscation of property. Therefore, in shaping an open space preservation program, the question of property rights and specific preservation techniques becomes very important. A municipality in the State of New Jersey cannot zone property for open space purposes nor can property be acquired for such purpose without just compensation. An individual must be given the opportunity to put his property to some use that will allow some financial return. This does not mean every individual has the right to build a factory, shopping center or apartment building on his land, but it does mean that, within the limits imposed by health and welfare considerations, the right to use one's property is guaranteed by law.

There are some land use controls that can be imposed by government which severely restrict the use of the land. These controls must be used with great care and are often subject to challenge. In the next section the various preservation techniques that may be

used in West Milford are presented. Some of the techniques involve specific land use controls. Be mindful of the fact, however, that these controls cannot be used indiscriminately and are not applicable on a Township wide basis.

PRESERVATION TECHNIQUES

Purchase in Fee Simple

Direct purchase of all the rights to a piece of property is called purchase in fee simple. While sales are usually made in accordance with the fair market value, sometimes bargain sales can be negotiated at far less because tax benefits are based on fair market value regardless of the purchase price. Other variations include purchase-lease-back, where land is purchased and then leased back to the original owner, often useful in farming districts, but adaptable to other holdings, and purchase-resale, where an excess portion of the property is resold to defray the original cost. Innovative variations of this preservation strategy are constantly evolving. The Township can also acquire fee simple title through tax default.

Holding fee simple title assures full, permanent use of the parcel desired and is usually reserved for active recreation sites, such as Bubbling Springs or sites needed for municipal structures. Immediate future use is generally a necessary justification for outright purchase.

Unfortunately, purchase in fee simple is also the most expensive way of preserving open space. Aside from the initial capital costs, maintenance and insurance costs as well as the loss of tax revenue must be considered. Still, for some parcels, no other strategy will be as satisfactory and costs may be defrayed through assistance from the New Jersey Green Acres Program, by making use of federal funds specifically slated

for open space preservation, administered through the Departments of Interior and Housing and Urban Development. In November of 2000, West Milford voters approved an Open Space Initiative, resulting in approximately \$140,000 annually from this fund, and this is yet another source of revenue. Furthermore, revenue sharing funds that municipalities receive from the federal government can also be used for open space preservation purposes at the discretion of the community.

Easements

Between outright purchase and land use controls, there are middle ways to protect open space. We do not need to buy the land to save it. Through an easement, limited rights to a piece of property can be secured by purchase or donation.

In reality, when an individual purchases land, he or she buys a bundle of rights (e.g., the right to build on the land or to farm it). However, he or she does not have all the rights to the land—one cannot dam a stream on the property and flood the neighbors' land. In New Jersey, one does not even own the right to underground water. It belongs to the State who allows a well to be drilled. Furthermore, any rights one does own are subject to the eminent domain of the State.

To achieve a particular purpose, one or a few of an owner's rights can be obtained in the form of an easement. Easements can be for a specified period of time (a short-term easement), but in actual practice, they are usually secured in perpetuity. Easements generally eliminate the maintenance costs incurred through outright purchase. In addition, they keep the land on the tax rolls while providing certain tax benefits to the land owner.

If an easement is donated rather than sold, its value can be used as a charitable

deduction for income tax purposes. If sold, the value can be given capital gains treatment rather than being taxed as income. (This is doubtful in the case of a short-term easement, however.) Easements can also protect or lower property assessments and in this way, lower taxes.

Conservation easements acquire the right to do something on the land, e.g., hiking or bicycle trails require purchase of a right-of-way, while fishing rights allow use and access to the stream banks. Utility companies purchase the right to lay transmission lines. Mineral rights, timber rights and grazing rights can be purchased. Easements for sewer lines and drainage purposes are often required by a town when subdividing property. Recreational easements allow specific recreational activities, e.g., a ballfield. These are all conservation easements.

Not all easements require access to the land. Instead, they buy away an owner's right to destroy the open space value of his property. Scenic easements which restrict uses that would reduce the aesthetic value of the land fall into this category. Such restricted uses might include billboards, excavation or tree clearing. Protection of wetlands, water supply or wildlife habitats are also these types of easements.

To be an effective and useful tool, easements must be tailored carefully to nature's patterns and man-made realities like highways and the pressures for development. Scenic easements along a roadway should follow the contour of the view. Very high cost land, usually under considerable development pressure, is not a useful target for an easement.

Landowners may get more out of easements than they give up. By not developing especially scenic areas, they may enhance the value of the remaining portion. Easements may afford flank protection by secur-

ing the intentions of adjacent landowners. This too increases the marketability of the land. In general, the greater the dollar advantages to an easement, the more realistic it becomes as a tool to protect open space.

Easements must be explicit and clear about what rights are being purchased or donated as they are legally binding and stay with the title to the land. The courts do not look favorably on flexible documents. A "reverter" clause is usually included that returns the rights to the owner if the purpose of the easement is abandoned.

The cost of an easement covers a vast range. There is no rule of thumb. Under most favorable circumstances, easements are donated (sold for \$1.00). Where development pressures are great, the cost may approach fee simple. Costs depend on time and place. To determine actual cost, the land is appraised with and without the restrictions of the easement. The difference in these two values represents the cost of the easement. Cost will vary considerably between TDRs, which require no public access, and conservation easements. In general, each is a separate and specific case.

Conservation Easements

The purpose of a conservation easement is to protect a property's natural resources and/or open space from being destroyed, and also sets limitations on use of the land. It "runs with the land" and is permanent (all future landowners must comply with the terms of the easement). Easements are granted or sold to an interested, qualified public or private organization, which will then become responsible for long-term enforcement of the easement.

Easements may devalue the market value of the land, but the appraised value can be deducted as a charitable donation for federal and state income tax purposes.

A conservation easement provides a wonderful opportunity to regulate the future use of the land, as well as federal and state tax incentives. As each property is unique, so are the terms of conservation easements; they should be carefully designed and drafted. Discussions with legal and financial advisors as well as the conservation group that will monitor and enforce the easement are important factors in crafting the easement.

Deed Restrictions

Restrictions that inhibit the future use of a property can be inserted into a deed at any time. Deed restrictions are different from conservation easements in that there usually isn't a third party involved, who would normally monitor and enforce the terms of the easement. Deed restrictions can be done when land is being transferred to another landowner or to a landholding agency.

Enforcement is a critical factor. Sometimes, there are limitations on who can enforce the restrictions and for how long. If someone conveys property to you, they could place restrictions in the deed, but if these restrictions are not monitored on the property, they may not be enforceable. In the case of donations or bargain sales, deed restrictions may curtail any tax advantages these transactions have, and as with conservation easements, should always be discussed with financial and legal advisors.

Deed restrictions almost always diminish the fair market value of the property, especially if they significantly limit development potential. Restrictions may also lower the price if the property is sold, or reduce the gift value if the property is donated to a conservation agency.

It is important to understand that the IRS does not allow one to claim loss in value as a

charitable deduction resulting from deed restrictions that are voluntarily imposed.

Conditional Transfers and Reverter Clauses

Conditional transfers add strength to a deed restriction. If at any time the restrictions are violated, title to the property reverts automatically to the original landowner (and his heirs) or may even be donated to a conservation agency. This all depends on who could optimally protect the land by enforcing the restrictions. The penalties in the case of such violations are much more severe than those for a simple deed restriction; an owner can actually lose the title to his or her land. The diminished value to land from conditional transfers may allow a landowner to deduct it as a charitable contribution if fee-simple rights are donated to a certified conservation group or other organization; reverter benefits would then go to another qualified group. Either of these two options which benefit a landowner (or his family) may diminish the value of the gift.

LAND USE CONTROLS

It is evident, given the amount of funds available for open space preservation, that another approach is needed beyond the purchase of the fee simple title or the acquisition of easements. There are a variety of governmental regulations, usually grouped under the label land use controls, which can guarantee the preservation of open space at little or no cost to the municipality. These controls are incorporated within the "police powers" of a community. They are enacted to ensure that the impact of new development will be consistent with the goal of protecting the health and welfare of the municipality.

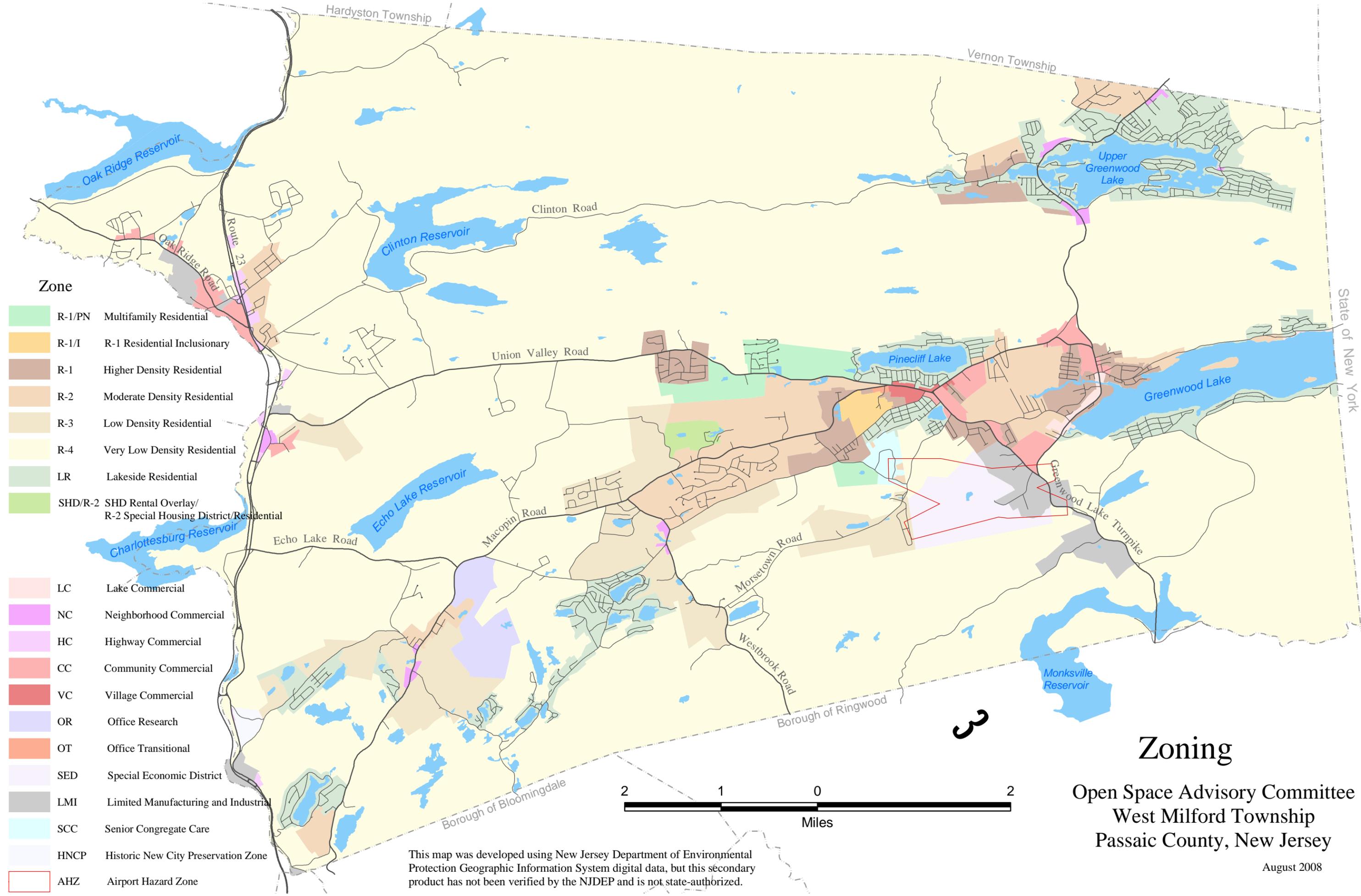
In the realm of land use controls, there are a number of techniques available, so of which are more proven than others. In eval-

uating the reliability of the land use controls that may apply to a particular piece of land, a variety of factors must be considered. First, the natural characteristics of the site must be known and documented. Secondly, the development pressures affecting the site must be evaluated. Finally, the ownership pattern should be investigated to determine if the controls can realistically be applied. It should also be remembered in dealing with land use controls as a mechanism for preservation that some development will almost certainly accompany whatever preservation is accomplished. This fact is, of course, rooted in our basic concept of property rights as described in the Legal Overview section, which guarantees an individual the reasonable use of his or her land.

The following paragraphs list those land use controls that may be applicable to West Milford Township. Some are in effect now or will be implemented shortly. Others may be implemented some time from now.

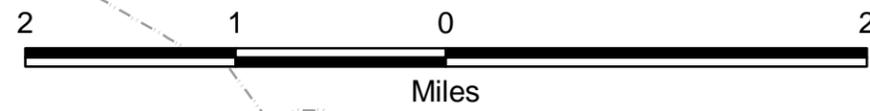
1. Large Lot Zoning and Development Restrictions

Based on certain environmental factors such as steep slopes, septic disposal limitations, aquifer recharge areas, water supply limitations, or flood plains, it is possible to specify large minimum lot sizes and development restrictions as a prerequisite for new growth. For example, the Township Master Plan (see Zoning map) proposes that the minimum lot size in the R-4 residential districts be four acres. This guarantees that where new development takes place, large portions of each lot will remain undisturbed. This guarantee, of course, remains in effect only as long as the minimum lot size is retained as four acres. Nothing can guarantee that a future Planning Board or Council will



Zone

- R-1/PN Multifamily Residential
- R-1/I R-1 Residential Inclusionary
- R-1 Higher Density Residential
- R-2 Moderate Density Residential
- R-3 Low Density Residential
- R-4 Very Low Density Residential
- LR Lakeside Residential
- SHD/R-2 SHD Rental Overlay/
R-2 Special Housing District/Residential
- LC Lake Commercial
- NC Neighborhood Commercial
- HC Highway Commercial
- CC Community Commercial
- VC Village Commercial
- OR Office Research
- OT Office Transitional
- SED Special Economic District
- LMI Limited Manufacturing and Industrial
- SCC Senior Congregate Care
- HNCP Historic New City Preservation Zone
- AHZ Airport Hazard Zone



Zoning

Open Space Advisory Committee
West Milford Township
Passaic County, New Jersey

August 2008

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not reduce the minimum lot size to three or even two acres, or substantially less. Nevertheless, large lot zoning and development restrictions are economical and effective open space preservation tools, provided they are based on sound environmental criteria.

2. **Planned Development and Cluster Techniques** Where a large piece of land can be assembled and a developer is sensitive to the environmental constraints of the property, the planned development/cluster approach can work. Very simply, instead of subdividing a piece of land entirely into individual lots, a certain number of common open space is set aside and protected. In return for setting aside this common open space, the developer is allowed to build the same number of units he would have developed had the entire tract been used. The units are clustered on concentrated within certain portions of the tract, thus guaranteeing that some of the acreage will remain relatively natural and will not be fenced or in some other way fragmented, which is common in grid-type subdivisions. The common open space that is retained may be owned and maintained by a Homeowner's Association or in some cases, the Township may wish to take possession of these areas and make them available to all residents of the Township.
3. **Transfer of Development Rights** The Transfer of Development Rights (TDR) concept is an idea that has been around for several decades, which

affords a greater degree of flexibility in terms of open space preservation than any of the land use controls previously mentioned. Whereas the Planned Development/Cluster approach requires that the land involved be almost totally contiguous, the TDR mechanism can deal with properties that are physically separated from each other by great distances. Specifically, the TDR concept would allow a developer to buy and preserve a piece of land that is not contiguous to the property he or she wishes to develop. In return for preserving this acreage, he or she would be allowed to transfer the "development rights" of the protected acreage to a piece of land he or she wishes to develop. As a result, the acreage to be developed would accommodate more growth than it would normally be permitted to absorb. The theory is that through the use of this technique, new growth can be directed to where it can be best accommodated and areas that should be protected can be preserved intact.

Donation

There are a variety of methods by which gifts of land can be transferred for permanent preservation. Some of the most commonly used methods are discussed below, but because the donative method is so highly flexible, it would be impossible to cover all the options and combinations in this document.

1. **Outright Conveyance** The most simple and direct method of transfer for both donor and recipient is to donate a gift of land in its entirety or in legal terms, in "fee simple." This means that all rights to the land are assigned to the

recipient. Aside from being the most simple and the most common method used, it also provides the donor with the greatest tax benefits. Some restrictions on the use and management of the donated land by the recipient may be included by the donor, but care must be taken so that the restrictions are not so stringent as to adversely affect the tax benefits of the gift.

2. **Bargain Sale** In instances where a landowner is concerned about preserving his or her land but cannot do so by outright conveyance for financial reasons, an alternative method is to sell the land to the recipient for less than full market value, i.e., at a "bargain sale" price. In this way, the "seller/donor" receives cash to meet his or her financial needs while still receiving tax benefits based on the difference between the land's market value as determined by a professionally qualified land appraiser and the actual sale price. Also, for land that has appreciated in value since its original purchase by the donor, there may be some savings in federal capital gains.
3. **Life Estate** For those potential donors who wish to preserve their land via donation during their lifetimes and yet are reluctant to move off the land, the alternative of a donation with retention of a "life estate," with the donor retaining the right to live on the property for the remainder of his or her lifetime may be a viable solution. The "life estate" may be extended to the lifetime of the donor's spouse or even to the donor's children. The tax

benefits for such a gift are reduced according to the donor's heirs' expected use of the land as determined by actuarial calculations.

4. **Endowments** Those donors who are able to do so may wish to attach to their gift of land an endowment fund to maintain the donated property for a particular purpose or to maintain specific features of the property, such as a formal garden or building in a special way. Such gifts are welcome and will assure the maintenance of the property as intended.
5. **Gifts of Money** For those who do not own property but are interested or concerned about the preservation of vitally needed open space, participation can be accomplished by the donation of money or securities for the purchase of land. Such donations can be made toward the acquisition of a specially designated tract, or can be made to the revolving land funds maintained by several recipient agencies for use in future acquisitions.
6. **Testamentary Gifts** Any of the aforementioned methods discussed can be used to make a gift of land, with or without restrictions, in the donor's will. This type of gift provides estate and inheritance tax benefits for the donor's heirs, as well as providing for the permanent preservation of land.

THE PLAN—CONCLUSIONS AND RECOMMENDATIONS

THE PLAN— A CONCEPTUAL FRAMEWORK

As noted earlier, this is a revision of a first cut at developing a framework within which the open space preservation efforts of the Township can be organized. The Open Space Plan is not a highly detailed, precise document that is cast in stone. It is intended to set the direction and tone for protection of the natural features within the Township. In a community as large as West Milford, it was felt that it would be best to learn to walk before any attempt was made to run. The Plan, as a result, is purposely vague in certain respects, but in the coming years, it should be easy to adjust the focus when and where needed.

In summary, the Open Space Plan is aimed at preserving the rural atmosphere of West Milford. It should be viewed as a system composed of many intricate components, which have been shaped in such a way that they will be more valuable as a system than they would be individually. The open space preservation techniques outlined earlier will be applied where appropriate on a case-by-case basis, in order to create the system as it is envisioned.

COMMUNITY INVOLVEMENT AND SUPPORT

Many planning efforts, although having a great deal of merit, fail to be implemented as intended. One reason behind such failures is often the lack of commitment on the part of those who would be most directly affected. It is apparent that community involvement and support is essential if the West Milford Open Space Plan is to become something more than a dust collector on a shelf. It would seem that a commitment will be forthcoming because of the common thread that runs through the fabric of this community: that is, the love of open space and the desire to retain the natural beauty of the Township.

In November of 2000, the voters of West Milford approved a 1 cent per \$100 of assessed property value for Open Space Acquisition. In early 2001, an Open Space Advisory Committee was formed, consisting of citizen representatives, as well as liaison representatives from the Environmental Commission, Planning Department, Township Council, and Recreation Department.

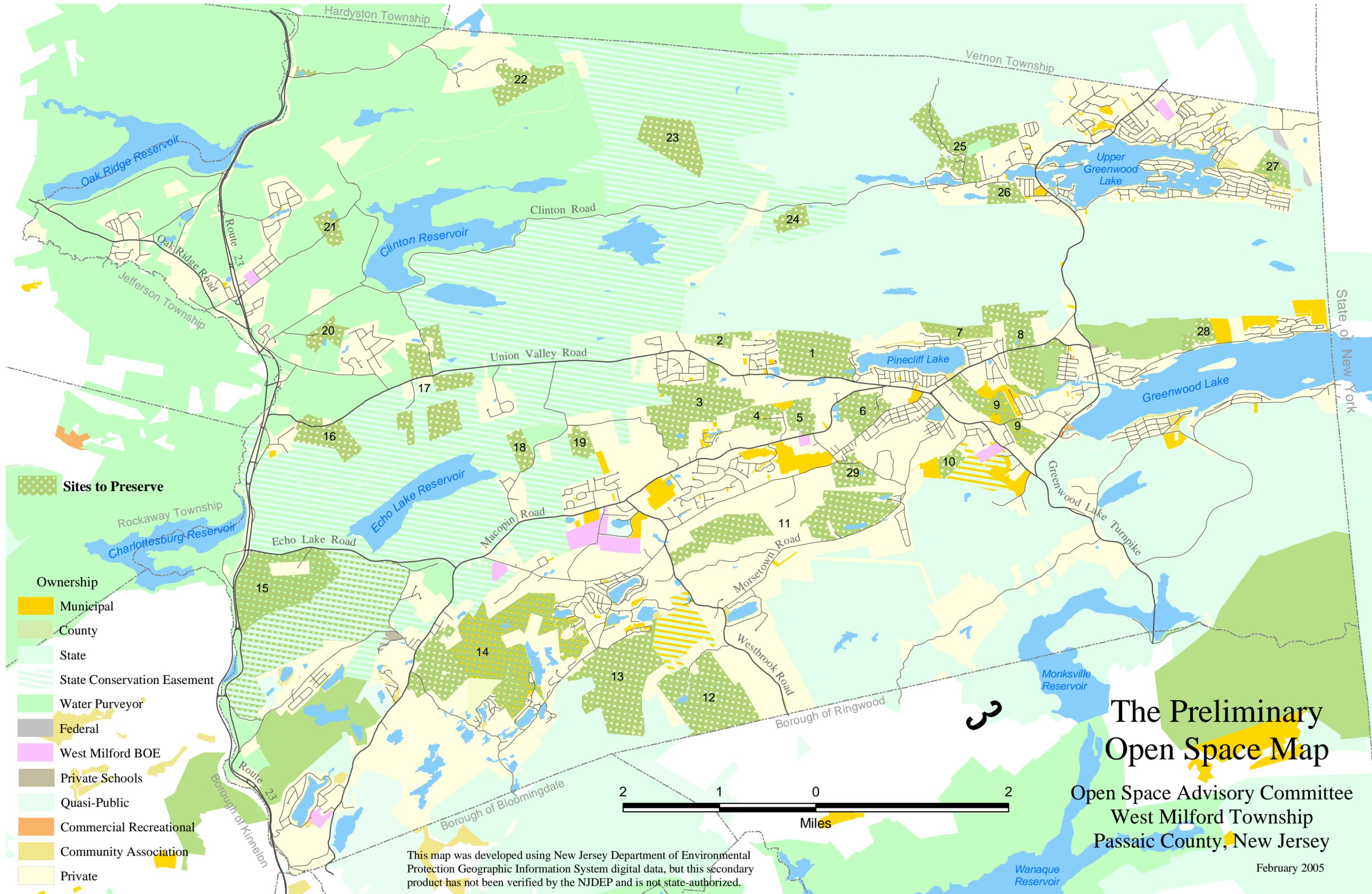
AREAS TO PRESERVE

The Open Space Advisory Committee has targeted the following areas as important to preserve, based on their proximity to existing protected open space, water protection, and environmental sensitivity (steep slopes, wetlands, and so on):

1. The area immediately south of Stowaway Park, in the Wawayonda State Park-Bearfort Ridge-Belchers Creek connection;
2. Immediately south of the above (#1), which connects on the north side to Wawayonda (Union Valley Road);

WEST MILFORD OPEN SPACE PLAN

3. Further south on Union Valley Road, east of the above (#2), encompasses fields, pine forest, rugged mountains, wetlands, and headwaters of the Kanouse Brook;
4. Connection to the east of the previous tract (#3), off Macopin Road, which contains wetlands and a tributary to Belchers Creek;
5. Slopes directly across from Hillcrest Community Center, which connects to the previous tract;
6. North of above (#5), west side of Macopin Road, bordered on the east by Ridge Road;
7. Bearfort Mountain area;
8. Immediately north of previous (#7), encompasses large tracts west and east of Union Valley Road; also borders Belchers Creek and Camp Hope;
9. Belchers Creek corridor, immediately north of Pinecliff Lake;
10. Area southwest of Greenwood Lake Airport;
11. West side of Morsetown Road (Wanaque watershed);
12. West of township-owned KOA camp, on Snake Den Road access, south of West Brook Road;
13. South of KOA, Norvin Green State Forest connection;
14. Norvin Green connector, from Schofield Road to Norvin Green State Forest, home to part of the Highlands Trail;
15. East side of Echo Lake Road and Rt. 23 (northbound);
16. Southwest side of Union Valley Road, connects to Kanouse River;
17. Eastern and western sections of Union Valley Road (near Van Orden Road);
18. Highlands north of Echo Lake Road;
19. Black dirt area—east side of Wooley Road (directly across from the Mountain Rest Inn);
20. End of Coventry Lane;
21. Paradise Road (former nudist camp);
22. Northeast end of Henderson Road (surrounded by watershed lands);
23. Landlocked parcel, west of Clinton Road and Cedar Pond (also surrounded by watershed);
24. Uttertown Bog (off Clinton Road);
25. Cherry Ridge Road (surrounded by Wawayonda);
26. Mt. Laurel section;
27. Northernmost end of Upper Greenwood Lake, borders Abraham S. Hewitt State Park;
28. Western shore of Greenwood Lake, also borders Abraham S. Hewitt State Park and Sand Cap (to the south);
29. Eagle Ridge



Sites to Preserve

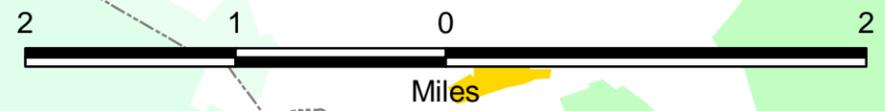
- Ownership**
- Municipal
 - County
 - State
 - State Conservation Easement
 - Water Purveyor
 - Federal
 - West Milford BOE
 - Private Schools
 - Quasi-Public
 - Commercial Recreational
 - Community Association
 - Private

The Preliminary Open Space Map

Open Space Advisory Committee
 West Milford Township
 Passaic County, New Jersey

February 2005

This map was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by the NJDEP and is not state-authorized.



APPENDIX A—METHODOLOGY

In order to fully understand the Open Space Plan and the implementation strategy, it is necessary to describe the methodology that was used in preparing the Plan so that it is clear what was considered as well as what items were not.

With the completion of the Township Natural Resources Inventory (NRI), the Environmental Commission discussed how the NRI might be put to use relative to planning the future growth of West Milford. It was recognized that the NRI could and should be utilized in the review of specific development applications. However, it was felt that perhaps the NRI could also be used as the basis for a long range planning project. The preparation of a community-wide open space plan seemed to be an appropriate project that would utilize the NRI and help to shape future growth in the Township.

The possibility of creating such a plan was first raised in the later part of 1976. Preliminary work began on the plan in early 1977. The first work sessions held by the Environmental Commission involved discussions regarding the scope of the project and the components of the Plan. A review of the NRI indicated that the following information had been mapped. Basic Soil Map, Septic Effluent Disposal Limitations, Soils which Severely Limit or Complicate Development, Depth to Bedrock, Wetlands, Sand and Gravel Deposits, Prime Agricultural Lands, Topography, Slope, Geology, Historic Sites, and Potable Well and Water Areas.

Initially, it was decided to include the following factors in the Plan: areas with slopes in excess of 20%, rock outcroppings of a substantial nature, areas poorly drained from October through June, watercourses and bodies, prime agricultural lands, and historic sites. Furthermore, certain items not

included in the NRI were also felt to be important. They were vegetation and wildlife, trails, scenic sites, and existing protected open space.

After several additional meetings, it was decided to further reduce the components that would be included. The items to be dropped were:

1. Poorly drained sites, because it was determined that these areas were included in the vegetation/wildlife map;
2. Prime agricultural land because West Milford was never really a true agricultural community and there are no Class I soils in West Milford, only Class II and Class III.

Once agreement was reached regarding the items to be included, the next two steps were undertaken simultaneously: The first of the two involved seeking public input regarding scenic sites and unique natural features in the Township. In order to obtain as much public input as possible, suggestion boxes were located at strategic points throughout the community. In addition, a press release was distributed to the news media and community organizations to reach those individuals who missed the suggestion boxes. As a result of this effort to obtain public input it is hoped that the process of selecting scenic areas within the Township has been made somewhat more objective than if the Environmental Commission members alone had selected these areas.

The second of the two steps involved the mapping of the Plan components. Commission members were given specific assignments and the following maps were prepared: existing protect open space, vegetation/wildlife, rock outcroppings, excessive slopes, water courses and water bodies, historic sites, and trails.

Since the writing of the original Plan, the township has acquired a GIS (Geographic Information System) platform, and the maps included in this revision are all products of that system. In addition to updating the original maps, these maps include more detailed information.

Upon completion of the original individual maps, the next step involved determining how these maps should be combined in order to illustrate the proposed open space system as effectively as possible. It was decided to utilize one color for existing "protected" space, regardless of whether it was state, county, municipally or privately owned (note: the updated maps do employ the use of color to differentiate ownership). All water courses and water bodies would also be delineated using a separate color (see Groundwater Recharge and Freshwater Wetlands maps).

Next, a great deal of debate ensued regarding how the proposed open space areas should be delineated. The simplest approach considered involved using one color for all of the proposed open space areas. At the other end of the spectrum, a more complicated approach was suggested that would have involved delineating eight or nine separate categories of proposed open space.

The method finally selected involved mapping only three proposed open space areas. Specifically, the first category indicates where only one of the primary selected factors applies to the land (either excessive slope, rock outcropping or vegetation/wildlife). The second category delineates those areas where two of the selected factors overlap (i.e., excessive slope-rock outcropping, excessive slope-vegetation/wildlife). The final category illustrates those areas where all three factors overlap. Obviously, each succeeding category is

more valuable than the previous one from an open space perspective. The two and three factor areas should generally be considered priority preservation areas while the one factor areas, though still important, can be considered more flexible. Once the guidelines were established for the map, work began on preparing a rough draft for review and discussion purposes. It was further determined that historic sites, scenic areas, and trails would be added later, using a variety of symbols rather than colors.

For the updated version, we have taken the lead from the original in a map showing where all three converge, and have separate maps for historic sites, scenic areas, and existing trails.

During the time when the original aforementioned map was prepared, work began on the Open Space Plan text. The decision was made to be as comprehensive and detailed as possible, but at the same time, to make it a readable document that would be of interest to the residents of West Milford.

The Open Space Advisory Committee (established in 2001) decided to simply update this existing document, because we did not feel the need to reinvent the wheel. The work of the Environmental Commission is a tremendous foundation, and what applied over twenty-five years ago, in regard to open space, has really not changed. Protection of water resources, natural resources, and wildlife habitat, in a contiguous manner, is still on the forefront of preservation strategies.

Upon completion of the rough draft open space map, the next step involved shaping the areas that were mapped into an interconnected system. This was done by adhering to a set of criteria which was intended to make the finalization, and eventually this revised version of the Plan as objective as

possible. Specifically, the guidelines used can be summarized as follows:

- Create a system of interconnected sites
- Provide buffers along roads and water areas
- Envision and allow for cluster residential development in selected areas of the township
- Consider very low-density residential development and commercial recreational facilities to be consistent with the intent of the Plan
- Provide buffers and/or interconnections adjacent to existing development areas as needed
- Recognize that designated industrial and commercial areas will not contain large areas of open space
- Consider Newark-owned acreage to be privately owned (i.e., where areas appear to be developable, designate as such; where areas are valuable for open space purposes and/or are extremely remote, designate accordingly)

The methodology outlined constitutes the work completed to date, with of course the additions to the Plan by the current Open Space Committee. Additional input is expected from the public and certain modifications may be made based on comments and criticisms that are received.

APPENDIX B— VEGETATION AND WILDLIFE DATA

West Milford has an unusual diversity of plants and animals within its boundaries because of the wide variations in topography and drainage. In contrast to many other areas of the state, there are large wooded regions which continue to support black bear and limited numbers of bobcat which are territorial and generally shy of humans.

This section will describe the major habitats found within the township and the vegetation associated with each habitat. In addition, checklists of mammals, birds, reptiles, and amphibians indigenous to the area are provided.

MAJOR VEGETATIVE HABITATS

In West Milford, we can divide vegetation into two major types, wetland and upland, consisting of five main types of habitats:

Wetland

1. **Marshes**—Wetlands where standing water occurs most of the year, generally adjacent to lakes, ponds and rivers
2. **Swamps and floodplains**—Wetlands where standing water is present part of the year, usually in spring and late fall
3. **Bogs**—Wet sites with very poor drainage in which peat accumulates to form a highly acidic environment of low fertility

Upland

4. **Upland forests**—Well drained forested areas of varying topography ranging from gentle slopes, hilltops, valleys, and ravines to flat land—while these

areas have no standing water for long periods of time, their soils retain a good supply of water for use by plants

5. **Steep slopes and ridges**—Drier, poorer, often shallower soil areas at higher elevations

Before describing the five major habitats, it must be remembered that plant communities are not static, but are constantly changing. Abandoned farmfields are invaded by weeds, then shrubs, then trees and eventually become a forest. Many present day swamps represent the lakes of long ago. This more or less orderly process of change is called succession. When this change becomes extremely slow, a "climax" type of vegetation is said to exist and will persist indefinitely unless disturbed.

Humans frequently interrupt the natural succession of an area as the Indians and early settlers did in West Milford by burning the forests, by farming and clear-cutting trees for charcoal production. If people had never settled in West Milford, it is likely that the upland forest climax would be quite different with oak forests being much more limited and sugar maple forests more common.

These interruptions continue today as people continue to dominate the environment in many ways by creating lakes, draining swamps, and clearing land for houses. Each change sets up a new series of changes or succession in vegetation that destroys habitat for some species and creates it for others. An awareness of the more stable plant communities of our area allows greater sensitivity whether making decisions for open space preservation or development.

Wetlands

Any extensive wetland in our area can usually be traced to a glacial origin. These were the sites of glacial lakes that have gone through the process of succession, filling in

with debris and plant remains until almost solid land exists. Wetlands serve as habitats for a multitude of living things and are some of the most productive habitats of all. Many species of animals frequent all three types of wetland groupings.

1. **Marshes**—The vegetation of the marsh is dominated by grass-like plants, usually cattail, reed grass, or wild rice. Next to the Queen of Peace Church, at the intersection of Warwick Turnpike and Greenwood Lake Turnpike, a marsh dominated by reed grass, *Phragmites communis* occurs. The showy seed plumes are very conspicuous in late summer, autumn and winter. Surrounding Reflection Lakes is another familiar marsh habitat. Marshes, as well as other wetland sites, furnish habitat to many land dwelling animals—raccoons, otter, mink, muskrats, and rabbits, among others. Ducks, pheasants, geese, and many other waterfowl use marsh areas for nesting or migratory resting places.
2. **Swamps and floodplains**—Because they are flooded only part of the year, swamps and floodplains do support the growth of trees, including the yellow and river birches, red maples, and willows. Pussy willow and alder are common in the shrub layer and skunk cabbage in springtime is clearly visible just east of the main entrance to the former Jungle Habitat property on the south side of the road along a tributary of the Wanaque River. Areas within the Reflection Lakes property also qualify as typical swampland.

Beaver are one of a variety of mammals that inhabit swamps and floodplains. The last active beaver colony in the township was

exterminated when the Shop Rite Shopping Center was constructed. At this shopping center as well as the Lakeland Plaza, adjacent to Route 23 and the Pequannock River, filling in swamps and floodplains has been a commonly accepted practice.

Fortunately, the DEP regulates such activity in an effort to preserve habitat like this.

3. **Bogs**—A bog can be readily recognized by its distinctive vegetation which is dominated by a thick mat of sphagnum moss. Swamp azalea, low bush cranberry and sheep laurel are very common. Several types of insect-eating plants including the pitcher plant and several species of sundew can be found. Black spruce and larch are characteristic trees of the bog, and seldom occur outside this habitat except where planted. Southern white cedar, atypical this far north, is represented in the Utertown Bog on Newark Watershed property, north of Cedar Pond. This bog is the most famous and studied bog in the township as it is known to be home to the endangered Bog Turtle. In addition, it serves as a wintering area for deer and supports many species of smaller animals.

TABLE A–1 Plants of Freshwater Marshes

Dominant	Cattail
Closest to Water	Reed grass Wild rice
Outzone	Bulrush Swamp Loosestrife Arrowhead Arrow-arum Blue flag Spike rush Bur reed Water dock Sedges
On higher land	Marsh fern Swamp milkweed Touch-me-not

TABLE A–2 Plants of Northern New Jersey Swamps and Floodplains

Typical trees	Yellow birch Red Maple Ash Basswood Tulip Tree Black Gum Willow
Also on Floodplains	Box elder River Birch
Typical shrubs	Alder Pussy willow Buttonbush Spicebush Witch hazel Others
Typical groundcover	Skunk cabbage Spring herbs Sedges and mosses

TABLE A–3 Plants of North Jersey Bogs

Trees	Black spruce Larch Red Maple Black gum
Also some:	Hemlock White Pine Yellow Birch Southern white cedar
Shrubs	Typical Heath shrubs Leatherleaf Sheep laurel Swamp azalea Cranberry Blueberry Huckleberry Bog rosemary Labrador tea Other heaths
Groundcover	Sphagnum moss Sedges Swamp loosestrife Pitcher plant Sundews Marsh, chain and other ferns Many other herbs

Uplands

The dramatic upland mountains and hills of the township also were formed during the last glacial period. Their orientation from northeast to southwest has cut off easy access to interior areas and protected habitat for some of the last larger predators of the region. The relationship of these areas to wetlands and surface water areas is important in protecting the continuance of excellent habitat for a myriad of wildlife species.

4. **Upland forests**—As mentioned earlier, the use of fire, the demand for charcoal, and the selective use of valley areas for settlement and agriculture have left a major imprint on the composition of our present forests. Some trees, including oaks, have the ability to easily resprout after being damaged by fire or when cut. In contrast, sugar maples or hemlock must rely on seeds for reproduction. In northern New Jersey, only young trees of sugar maple, hemlock, yellow birch, sweet birch, beech, hop hornbeam, and dogwood appear to develop well in full shade and in time, may lead to new climax for the area.

Man has not been the only cause of major vegetative changes. The chestnut blight in the first quarter of the last century practically exterminated the chestnut tree that until that time, had dominated our forests along with the oak. Today, only stumps and roots remain alive and continue to resprout only to die back after reaching about 15 feet of growth. In more recent history, the gypsy moth, with its taste for oak trees, may again drastically influence the composition of our forest trees.

Four main types of upland forest are represented in West Milford today:

- A. North Jersey Mixed Oak
- B. Sugar Maple—Hardwood
- C. Hemlock—Hardwood
- D. Plantations

North Jersey Mixed Oak

The most common forest type in the Highlands, particularly on drier sites, is the mixed oak forest. In most areas, the red oak predominates, but there are also black oak and white oak as well as a few scarlet and chestnut oak. A mixture of other trees are present, including maple, hickory, ash, beech, and birch. The dogwood tree is abundant with witch hazel and viburnum common in the shrub layer. A fair variety of wildflowers can be found in these woods, but more commonly, the groundcover is monotonous. Some of the most common include poison ivy, wintergreen, and partridge berry.

Sugar Maple—Hardwood

In the moister, deeper valley sections where much of today's development occurs, there is a more lush and varied forest where the sugar maple predominates. Associated with it are all the tree species of the mixed oak forest, but in more evenly distributed numbers. This is the most productive and botanically diverse of our forest types with a well developed shrub and herb layer. At the original writing of this plan, a very dense growth of sugar maple could be seen along the corridor of Union Valley Road; unfortunately, it has succumbed to development and no longer exists. As well, the sugar maples along Clinton Road, just north of the reservoir, are no longer there.

Hemlock Forest

This forest type is typical of cool ravines and north-facing slopes and represents forests more common to northern Canada. It is thought to be a remnant of the early post-glacial forests that once dominated this forest, but hardwoods, including birch, beech, maple, and oak are present in limited numbers. Locally, rhododendron are often associated with the hemlock, such as along the Warwick Turnpike. Rhododendron are a favorite food of deer and forest supplies excellent winter shelter for wildlife. The dense shade of the hemlock forest and the tannin-containing needles inhibit the growth of understory herbs and shrubs.

Plantations

The plantations are a man-made forest type planted in the 1930s by the Civilian Conservation Corps to protect watershed function. They include primarily the dense Norway spruce plantations and the pine plantations which include white, red, Scotch and pitch pine. The spruce plantations provide habitat for several unusual breeding warblers and are generally rich in avifauna. Because of very close spacing, the spruce plantings are very dark and have negligible understory, but the pine plantings now include a number of red maple, black cherry, and ash, along with a number of acid-tolerant herbs. They supply food and shelter to a large variety of wildlife including white-tailed deer. The best know plantations for bird watchers are along Macopin Road near Echo Lake and along La Rue Road in Newfoundland.

5. **Steep slopes and ridges**—Under the drier, poorer soil, conditions of higher elevations, the chestnut oak, a less abundant tree in the mixed oak forest, is able to dominate. In rocky, shallow areas, the trees are often stunted. The pitch pine at the highest elevations of Bearfort Mountain and shrub oak are represented. The trees are widely spaced and do not form a close canopy. Blueberries, huckleberries, and mountain laurel are common in the understory with a relatively sparse herb layer except for certain ferns.

There are no distinct boundaries that separate one habitat from another. Rather, a gradation of one habitat into another should be expected except in those few cases where equally abrupt changes in soil conditions have been and will continue to be followed by the adjustment of more tolerant species and the exodus of others. Care should be taken to safeguard this diversity. Consideration of past impacts as well as present vegetation and wildlife are critical to determining the impact of future decisions on these living resources.

TABLE B-1 Upland Forests

Community Structure	Mixed Oak	Sugar Maple— Mixed Hardwoods	Hemlock—Mixed Hardwoods
Tree Dominants	Red Oak White Oak Black Oak	Sugar maple and many	Hemlock (dominant) and only a few
Other typical trees	Chestnut Oak Scarlet Oak Hickories Reed Maple Ash Beech Tulip tree	Sweet birch Yellow birch Basswood Beech Ash Red maple Red and white oaks Tulip tree Others	Sweet birch Yellow birch Basswood Beech Ash Red maple Sugar maple
Tree understory	Dogwood (dominant) Sassafras Hop horn- beam Ironwood	Hop hornbeam Dogwood Ironwood Sassafras	Few
Shrubs	Viburnum Spicebush Witch hazel Others	Viburnum Spicebush Others	Few Rhododendron (locally)
Groundcovers	Many spring and fall herbs	Many spring and fall herbs	Few Partridge berry Mosses

TABLE B–2 Plants of the Steep Slopes and Ridges

Community Structure	Chestnut Oak Forest
Common trees	Chestnut oak (dominant) Red oak White oak Scarlet oak Sweet birch Pitch pine
Other typical trees	Black oak Red maple Hickory Black cherry White pine
Understory	Laurel Blueberry Scrub oak
Groundcover	Few Brackenfern

TABLE B–3 Mammals of West Milford

Opossum	Coyote
Smoky shrew	Gray fox
Masked shrew	Red fox
Least shrew	Bobcat (few)
Shorttail shrew	Woodchuck
Eastern mole	Eastern chipmunk
Starnose mole	Eastern gray squirrel
Hairytail mole	Red squirrel
Big brown bat	Southern flying squirrel
Silver-haired bat	Beaver (uncommon)
Eastern pipistrel	White-footed mouse
Red bat	Alleghany packrat
Hoary bat	Boreal redback vole
Small-footed myotis	Meadow mole
Little brown myotis	Meadow jumping mouse
Keen myotis	Muskrat
Indiana myotis	Porcupine (rare in NJ)
Black bear	Norway rat
Raccoon	House mouse
Longtail weasel	New England cottontail
Mink	Eastern cottontail
River otter	Snowshoe hare
Striped skunk	Whitetail deer

**TABLE B-4 Reptiles and
Amphibians of West Milford**

American toad	Alleghany mountain salamander
Fowler's toad	
Northern cricket frog	Five-lined salamander
Northern spring peeper	Northern water snake
Gray treefrog	Northern brown snake
Upland chorus frog	Red-bellied snake
Bullfrog	Eastern garter snake
Green frog	Eastern ribbon snake
Northern Leopard frog	Eastern hognose snake
Pickerel frog	Northern ringneck snake
Wood frog	
Marbled salamander	Eastern worm snake
Spotted salamander	Smooth green snake
Red-spotted newt	Black rat snake
Northern dusky salamander	Eastern milk snake
Red-backed salamander	Northern black racer
Slimy salamander	Timber rattlesnake
Four-toed salamander	Northern copperhead
Northern red salamander	Stinkpot
Northern two-lined salamander	Snapping turtle
	Wood turtle
	Bog turtle (endangered)
	Spotted turtle
	Eastern painted turtle
	Eastern box turtle

CHECK LISTS FOR BIRDS OF WEST MILFORD

West Milford supports a rich and varied environment for avifaunas. To even the most casual observer, a large variety of bird species are readily apparent.

To help locate particular species, the following list has been separated into preferred habitats. A bird listed under wetlands would have a high probability to be seen in a wetland area than any other habitat. However, because of their mobility, a particular bird may be seen in any of the other habitats listed.

There are many birds that pass through our area during migration and others who winter in this area, returning north in the spring to their breeding territories. Others are unlikely to be seen except by the trained persistent observer. These qualities are indicated by letters next to a particular bird as follows:

W—winter resident only

M—seen during migration only

R—rare, unlikely to be seen except by the assiduous observer

TABLE B-5 Check list for birds of West Milford

Wetlands:

Shallow fresh water with growth of typical marsh vegetation. Marshes often, but not always, border on open water including lakes, ponds, rivers, and streams. Around the edge of the marsh, on damp ground, there may be stands of willows, alders, or red maples in which birds listed under 'thickets' may be found.

During migration, flocks of birds may often inhabit such marshes temporarily.

- | | |
|-------------------------------|--------------------------------|
| Common loon (M) | Red-throated loon (RM) |
| Red-necked grebe (RM) | Horned grebe (M) |
| Pie-billed grebe (M) | Double-crested cormorant (M) |
| Great blue heron | Little blue heron (M) |
| Green heron | Great egret (M) |
| Black-crowned night heron (M) | Yellow-crowned night heron (M) |
| Least bittern (M) | American bittern (M) |
| Mute Swan | Whistling swan (RM) |
| Canada goose | Brant (M) |
| Snow goose (M) | Mallard |
| Black duck | Gadwall (M) |
| Pintail (M) | Green-winged teal (M) |
| Blue-winged teal (M) | American Widgeon (M) |
| Northern shoveler (M) | Wood duck |
| Redhead (RM) | Ring-necked duck (M) |
| Canvasback (M) | Greater scaup (M) |

TABLE B–5 Check list for birds of West Milford (continued)**Wetlands (continued)**

Lesser scaup (M)	Common goldeneye (M)
Bufflehead (M)	Oldsquaw (M)
White-winged scoter (RM)	Common scoter (RM)
Ruddy duck (M)	Hooded merganser (M)
Common merganser (M)	Bald eagle (RM)
Marsh hawk (M)	Osprey (M)
Peregrine falcon (RM)	Virginia rail (RM)
Sora (RM)	Common gallinule (M)
American coot killdeer (M)	Semipalmated plover (M)
Solitary sandpiper (M)	Spotted sandpiper (M)
Lesser yellowlegs (M)	Greater yellowlegs (M)
White-rumped sandpiper (RM)	Pectoral sandpiper (RM)
Dunlin (M)	Least sandpiper (RM)
Stilt sandpiper (RM)	Short-billed dowitcher (M)
Sanderling (RM)	Semipalmated sandpiper (RM)
Laughing gull (RM)	Herring gull
Bonaparte's gull (RM)	King-billed gull
Common tern (M)	Forester's tern (RM)
Short-eared owl (M)	Caspian tern (RM)
Bank Swallow	Belted kingfisher
Fish crow (RM)	Rough-winged swallow (M)
Short-billed marsh wren (M)	Long-billed marsh wren (R)
Northern waterthrush	Water pipit (M)
Red-winged blackbird	Louisiana waterthrush
	Swamp sparrow

Grasslands:

In our area, these refer mainly to man-made grasslands such as pastures, meadows, croplands, airfields, and golf courses

Cattle egret (R)	Rough-legged hawk (W)
American Kestrel	Bobwhite
Ring-necked pheasant	Upland sandpiper (M)
Barn owl	Common night hawk (M)
Eastern Kingbird	Red-headed woodpecker (M)
Horned lark (M)	Barn swallow
Cliff swallow	Eastern bluebird
Northern shrike (RM)	Loggerhead shrike (RM)
Palm warbler (M)	Bobolink
Eastern meadowlark	Browed-headed cowbird
Dickcissel (W)	American goldfinch
Savannah sparrow	Grasshopper sparrow (M)
Henslow's sparrow (RM)	Vesper sparrow (RM)
Field sparrow	Lapland longspur
Snow bunting (W)	

TABLE B–5 Check list for birds of West Milford (continued)

Suburban yards:

Area much modified by humans—especially residential. These birds are often tolerant of such disturbed habitats. In winter, many species are seen at backyard feeders.

Rock dove	Mourning dove
Chimney swift	Ruby-throated hummingbird
Common flicker	Eastern phoebe
Purple martin	Common crow
House wren	Mocking bird
Gray catbird	American robin
Starling	Cedar waxwing (M)
House sparrow	Common grackles
House finch	Dark-eyed junco (W)
Chipping sparrow	Song sparrow
Black-capped chickadee	Tufted titmouse
White-breasted nuthatch	Purple finch (W)
Evening grosbeak (W)	American goldfinch
Northern oriole	Rose-breasted grosbeak
Cardinal	Blue jay
Brown creeper	Downy woodpecker
Hairy woodpecker	

Thickets:

Partly open with scattered small trees, bushes, and shrubs. Such habitat often develops on land that has been cleared of forest and may follow a grassland stage. There is a rich understory of bushes and herbaceous vegetation.

Yellow-billed cuckoo	Black-billed cuckoo
Alder flycatcher	Carolina wren
Brown thrasher	White-eyed vireo (M)
Golden-winged warbler	Blue-winged warbler
Orange-crowned warbler (M)	Nashville warbler
Yellow warbler	Chestnut-sided warbler
Prairie warbler (M)	Common yellowthroat
Yellow-breasted chat (R)	Wilson’s Warbler (M)
American redstart	Cardinal
Indigo bunting	Common redpoll (W)
Rufous-sided towhee (W)	Tree sparrow (W)
White-crowned sparrow (M)	White-throated sparrow (W)
Fox sparrow (M)	

TABLE B–5 Check list for birds of West Milford (continued)**Deciduous forests:**

Forests made up primarily of trees that shed their leaves seasonally. The main trees here are oaks, maples, hickories, and beech.

Turkey vultures	Cooper's hawk (M)
Red-tailed hawk	Red-shouldered hawk
Broad-winged hawk	Golden eagle (RM)
Ruffed grouse	Turkey (R)
American woodcock	Common snipe (M)
Screech owl	Barred owl
Saw-whet owl (W)	Whip-poor-will
Pileated woodpecker	Red-bellied woodpecker
Yellow-bellied sapsucker	Hairy woodpecker
Downy woodpecker	Great crested flycatcher
Arcadian flycatcher	Least flycatcher
Eastern wood pewee	Blue jay
Black-capped chickadee	Tufted titmouse
White-breasted nuthatch	Brown creeper
Wood thrush	Veery
Blue-gray gnatcatcher	Yellow-throated vireo
Red-eyed vireo	Warbling vireo
Black and white warbler	Prothonotary warbler (M)
Worm-eating warbler	Cerulean warbler (M)
Ovenbird	Kentucky warbler (M)
Mourning warbler (M)	Hooded warbler
Orchard Oriole (R)	Northern oriole
Scarlet tanager	Rose-breasted grosbeak

TABLE B-5 Check list for birds of West Milford (continued)

Coniferous forests:

Forests consisting mainly of cone-bearing evergreen trees, such as hemlock and pines. In our area, these are often mixed with deciduous trees.

Goshawk (R)	Sharp-skinned hawk
Marlin (RM)	Great-horned owl
Long-eared owl (M)	Yellow-bellied flycatcher (M)
Olive-sided flycatcher (M)	Common raven (RM)
Boreal chickadee (M)	Red-breasted nuthatch (M)
Winter wren	Hermit thrush
Swainson's thrush (M)	Gray-checked thrush (M)
Golden-crowned kinglet	Ruby-crowned kinglet (W)
Solitary vireo	Philadelphia vireo (M)
Tennessee vireo (M)	Northern parula (M)
Magnolia warbler	Cape May warbler (M)
Black-throated blue warbler	Yellow-rumped warbler (M)
Black-throated green warbler	Blackburnian warbler
Yellow-throated warbler (M)	Bay-breasted warbler (M)
Blackpoll warbler (M)	Pine warbler (M)
Connecticut warbler (M)	Canada warbler
Rusty blackbird (M)	Evening grosbeak (W)
Purple finch	Pine grosbeak (W)
Pine siskin (W)	Red crossbill (W)
White-winged crossbill (W)	Lincoln's sparrow (R)