

## **X. CONSERVATION ELEMENT**

### **INTRODUCTION**

Princeton is endowed with a landscape of unique features and great natural beauty. The care and protection of these areas represent a continuing commitment to protect unique and valuable resources, especially in environmentally sensitive and historic areas. As the community approaches build-out, additional pressure is placed on the remaining land for development purposes and the protection of these natural areas takes on greater importance.

A major objective of the Conservation Element is to guide growth away from environmentally sensitive areas and direct it to locations that are environmentally suitable. The location of infrastructure such as roads, utilities, sewers and community facilities as described in the Circulation, Utility Service and Community Facilities Elements has been planned to minimize their effects on unique natural resources.

The Planning Board's inventory of plans and maps includes large-scale topographic and 1990 aerial photographic maps (scale 1" = 400'), floodplain maps prepared by the Federal Emergency Management Agency (FEMA), National Wetland Inventory maps prepared by the U.S. Fish and Wildlife Service, and the Soil Survey of Mercer County prepared by the U.S.D.A. Soil Conservation Service.

These materials provide the background data used for general identification of environmentally sensitive lands or lands with special community value, and for assessment of the potential impacts of development. Development should be discouraged or restricted in sensitive areas such as land with steep slopes, stream corridors, wetlands, and floodplains. Lands that should be preserved due to their special value to the community include prime wildlife habitats and other unique ecological resources, scenic vistas or corridors, natural woodlands, and agricultural lands.

The purpose of the Conservation Element is to provide for the protection and preservation of critical environmental features, resources with exceptional community value, important ecological communities and special environmental areas.

### **1996 POLICY STATEMENT**

The policy of the Conservation Element is to provide for the preservation, proper use and management of Princeton's natural and visual amenities. These include critical environmental features, resources with exceptional community value, and special environmental areas. Conservation of these resources is a major factor contributing to the quality of life and character of the community. It also minimizes adverse effects upon the public health, safety and welfare that result from inappropriate land development.

Listed below is brief description of the natural and visual features which should be preserved.

### **Critical Environmental Features**

Areas of Steep Slopes are defined as slopes in excess of 25 percent or higher in residential developments and 15 percent in nonresidential development. Inappropriate development on steep slopes can result in the loss of slope, soil stability, erosion and sedimentation, and increased stormwater runoff, which decreases environmental quality and damages private property.

Waterway Corridors consist of any stream in Princeton for which an adjacent floodway or flood hazard area has been delineated and any water course which can be identified by the presence of a defined channel and its adjacent buffer strip.

Floodplains are relatively level areas adjacent to lakes, rivers and stream channels that are subject to periodic inundation by flood waters. Development in designated floodplains, as identified on the FEMA maps, is strictly regulated, but not prohibited by the provisions of the Land Use Code relating to Floodways and Flood Hazard Areas.

Wetlands are areas inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions, commonly known as hydrophytic vegetation. Wetlands typically have low topography and exhibit poor drainage, standing water or high groundwater table much of the year. They are characteristically occupied by wet or hydric soils and hydrophytic vegetation. Freshwater wetlands fall under the jurisdiction of the New Jersey Freshwater Wetlands Protection Act of 1987.

Unique or irreplaceable ecological resources are natural woodlands, open water, marshes important wildlife habitats, boulder fields or other unique and irreplaceable land types.

### **Resources with Exceptional Community Value**

Visual Resources both man-made and natural, define Princeton and range from historic architecture, landscaped gateways and streetscapes to natural features such as hillsides, woodlands and open fields.

Scenic corridors are visible from public rights-of-way, waterbodies or public trails which provide views over water; across other natural resources of special beauty such as woodlands, marshes or ridges; or are historic resources, landmarks or landscapes.

### **Special Environmental Areas**

The Ridge is Princeton's diabase ridge, found along the northern portion of the Township covering some 2,800 acres. The ridge was formed by a massive intrusion of diabase rock. It rises to an elevation of 400+ feet above mean sea level, a rise of over 150 feet from the toe of the slope. The south-facing slope is steeper than the north-facing slope. Most of this area is wooded with the diabase bedrock often close to or protruding from the ground surface.

Delaware and Raritan Canal represents a special environmental and historic area of regional significance along the southern and eastern boundaries of the community.

Lake Carnegie is one of Princeton's outstanding environmental, visual and recreational resources. This priceless asset serves as an important setting for recreational activities as well as a serene buffer for the many adjacent homes and buildings of Princeton University as well as the Riverside area of the Township.

Wildlife habitat of migratory birds as well as undisturbed areas of flora and fauna native to the Princeton area should be preserved. Examples of these areas include: the John Rodgers Wildlife preserve, portions of the land around the Institute for Advanced Study, and certain stream corridors.

### **Sustainable Buildings**

It is the Princeton Community's goal that new and remodeled buildings and facilities be models of environmental, economic and social stewardship, contributing to our other goals of protecting, conserving and enhancing Princeton's environment. To that end a sustainable building policy should be implemented.

Sustainability describes the ability to meet the present needs without compromising the ability of future generations to meet their needs. It incorporates:

- energy efficiency,
- alternative energy sources,
- water conservation,
- waste minimization,
- stormwater management,
- pollution prevention,
- using resource-efficient materials,
- improving indoor air quality,
- woodland conservation/replanting with native species wherever possible, and
- taking advantage of existing infrastructure

in all phases of a building's life.

Sustainable building designs use our resources efficiently while creating healthier building habitats. Sustainable buildings are designed, constructed and operated in ways that reduce or eliminate any negative impact on the environment and occupants. These buildings integrate materials and methods that promote environmental quality, economic vitality, and social benefit through the design, construction and operation of the built environment.

There are many older, historically significant buildings in the Princeton community and retaining their character must be of primary concern. Any sustainable building policy must be sensitive to these historic structures by not requiring changes that negatively impact or degrade the historical

significance of the building. For instance, the use of building materials that would alter the appearance of a building's exterior or fenestration or window shape should be avoided.

Some features of sustainable buildings include:

- the integration of natural daylight for lighting,
- high indoor environmental air quality, and
- reduced utility bills.
- the use of finishes and materials low in volatile organic compounds which will improve indoor air quality;
- increased productivity of building occupants due to healthier work places;
- reduced impact from building construction on the environment through careful construction planning, including the protection of trees;
- use of locally produced materials which will support the local economy; and
- enhanced social interaction through community involvement in building planning and operation.

The U.S. Green Building Council has developed the rating system LEED – Leadership in Energy and Environmental Design (LEED). LEED is a voluntary, consensus-based, market driven green building rating system by which projects are registered, evaluated and certified. It is based on proven technology and evaluates environmental performance from a “whole building” perspective. LEED is a self-certifying system designed for rating new and existing public, commercial, institutional and multi-family residential buildings.

The Township and the Borough should make every effort to incorporate sustainable building principles and practices into the design, construction and operation of all public facilities and publicly funded projects. It is recommended that the LEED system should be used as a design and measurement tool to determine what constitutes sustainable building principles and practices. Applicants are urged to comply with these sustainable building principles.

### **1996 - 2001 GOALS**

- I. Identify, protect, and preserve environmentally sensitive areas and natural systems.**
  - A. Strictly limit disturbance of environmentally sensitive lands such as steep slopes, floodplains and wetlands.**
  - B. Protect the quality of groundwater and surface water to safeguard its use for drinking water supply, recreation and natural habitats;**
- II. Protect important wildlife habitat, streams, waterways, wetlands and other unique or irreplaceable land types.**
  - A. Preserve natural vegetation including woodland, old field, meadow and wetland communities and specimen vegetation.**

**III. Preserve, protect and enhance existing natural and manmade visual resources.**

- A. Preserve and enhance existing scenic corridors, historic landscapes, open agricultural land and woodlands.**
- B. Preserve and enhance the tree-lined quality of Princeton's roadways.**
- C. Review of site plans to minimize environmental disruption and encourage landscaping consistent with the above goals.**

**1989 - 1996 CHANGES**

The standards and regulations put in place prior to 1989 protect environmentally sensitive areas like the Princeton Ridge and lands along creeks and brooks. During the early 1990's, minor modifications were made to the Township's zoning ordinance to strengthen the protection of steep slopes. Waterway corridors were protected through the adoption of an ordinance requiring minimum buffer requirements.

The existing residential cluster ordinance was amended to further protect the Ridge area by encouraging preservation of open space. A Residential-Historic Farmland-Woodland zone was created to protect the Institute Woods, historically significant farm land, and lands along the Stony Brook. An ordinance permitting golf courses, a state model embodying the goals listed above was adopted to provide an alternative for large estate owners to develop their property in environmentally sensitive ways rather than as a conventional single family development. Approximately 211 acres have been preserved from development under this new zoning.

Site plan and subdivision review of development applications by the Planning Board in accordance with master plan recommendations resulted in the preservation of environmentally sensitive lands along Davies Drive, Arreton Road, Ridgeview Road and Cherry Valley Road (Ridgeview Development); Drakes Corner Road and Bogart Court (Province Line Woods); and, Pretty Brook Road (Pond View and de Menil tract) through dedication and conservation easements.

Princeton has recently exercised its option to purchase 52 acres of the Poe property to ensure its availability to the public as part of the Woodfield Reservation and is in the process of purchasing the Weller tract to provide both active and passive recreation.

**1996 - 2001 STRATEGIES**

- A. Strictly limit disturbance of environmentally sensitive lands such as steep slopes, floodplains and wetlands.**
  - 1. Require identification and mapping of all environmentally sensitive lands at time of development application.

2. Encourage enforcement of existing federal and state floodplain and wetlands regulations.
3. Ensure continued enforcement of Princeton's steep slope and water way corridor ordinance.
4. Encourage early review of development plans by the Planning Board to achieve site designs which recognize and respect the sensitive character of the land.
5. Require conservation easements and/or limit impervious coverage on environmentally sensitive land.
6. Encourage the use of the residential cluster provisions where appropriate.

**B. Protect the quality of groundwater and surface water to safeguard its use for drinking water supply, recreation and natural habitats.**

1. Encourage the development of a comprehensive management plan in a cooperative effort with the surrounding communities that border Lake Carnegie and the D & R Canal to address such issues as retaining views to and from the lake and canal, preserving green buffers, maintaining water quality, and allowing appropriate public access and recreational usage.
2. Require Best Management Practices to control the use of pesticides and fertilizers on properties that drain into waterways.
3. Encourage new practices in stormwater detention to increase water quality and minimize environmental disturbances.
4. Protect water supplies from non regenerative uses.

**C. Preserve natural vegetation including woodland, old field, meadow and wetland communities and specimen vegetation.**

1. Require identification and mapping of all environmentally sensitive lands at time of development application.
2. Insist on enforcement of existing federal and state floodplain and wetlands regulations.
3. Ensure continued enforcement of the Township's steep slope and water-way corridor ordinance.
4. Require conservation easements and/or limit impervious coverage in environmentally sensitive land.

5. Encourage the use of the residential cluster provisions where appropriate.

**D. Preserve and enhance existing scenic corridors, historic landscapes, open agricultural land and woodlands.**

1. Enhance the protection of scenic corridors by encouraging conservation easement agreements with private landowners.
2. Recommend public acquisition of identified critical sites.
3. Develop appropriate setback and landscape buffer requirements.
4. Encourage the efforts of the Delaware and Raritan Greenway to expand the Canal Park into a regional network of greenways.

**E. Preserve and enhance the tree-lined quality of Princeton's' roadways.**

1. Design private and public roads, buildings, bridges and drainage structures that are consistent with the desired visual character of the community.
2. Enhance shade tree maintenance, replacement and new plantings.
3. Require the planting of shade trees within new developments and parking lots in accordance with the Princeton's Shade Tree ordinances.

Reexamine the parking lot landscaping ordinances to assure that parking lots are attractive and shaded for those who use them and not detrimental to the public streetscape.

**RECOMMENDATIONS**

The Planning Board has identified several environmentally significant properties and areas of exceptionally high community value for conservation and preservation. These properties are continually threatened by development and the critical features and attributes of each should be preserved. Preservation need not be only through acquisition. Zoning and land development provisions for these and other similarly classified areas should be reviewed relative to their effectiveness in preserving these valued resources. Consideration should be given to appropriate densities and the use of clustering and other regulatory tools.

The Princeton Community will face many difficult choices between competing uses for the remaining parcels of land as we approach build-out. Careful consideration should be given to preserving critical areas that are identified as the most environmentally sensitive.

Critical environmental properties and their sensitive features are as follows:

Textile Research Institute (20 acres) Approximately 50 percent of this site should be preserved to maintain an attractive vista of Lake Carnegie and because this part of town does not have adequate open space areas. Portions of the site are wooded with many large specimen trees. The rear portion

of the site provides access to and excellent views of Lake Carnegie. A permanent conservation and access easement should be considered for a portion of the property.

Institute for Advanced Study (587± acres) The preservation of a portion of the Institute for Advance Studies 734± acre site has been a long standing goal of the community. The 587 acres identified for preservation include approximately 225 acres of woods, 228 acres of farmland and 134 acres of the Stony Brook floodplain and buffer zone for the D & R Canal. The 1989 Master Plan recommended rezoning this parcel to preserve the Institute Woods and lands along Quaker Road. This master plan recommendation was implemented in 1993 as part of a settlement agreement entered into with the property owner which ensures preservation of the environmentally sensitive portions of the property. Currently, the Institute Lands Preservation Committee is raising funds to purchase the development rights for this parcel. More than 90 percent of this tract is critical due to a combination of historic significance (Princeton Battlefield, Stony Brook Settlement, D & R Canal Park, Institute Woods and Wildlife Preserve), community values, and environmental sensitivity (floodplain). The farm fields along Quaker Road are important to the historic character of this roadway and is an important gateway into Princeton.

deMenil/Tent Rock (8 acres) This triangular piece of property adjacent to the Woodfield reservation is scheduled to be preserved as part of a subdivision approval granted by the Planning Board. The property provides a critical link to portion of the Woodfield reservation and is an environmentally sensitive area with woodlands, steep slopes and rock outcroppings. This site is also known as Tent Rock due to a unique rock formation. Final major subdivision was granted by the Planning Board in 1996 which provides the dedication of this area.

Stony Brook Floodplain including Worth Mill & Millrace Pond (7± acres) The Planning Board has supported the development of a greenway along the entire length of Stony Brook. In addition to supporting the development of a greenway, Worth's Mill, located near the Stony Brook and Route 206, has historical significance as one of the first structures in Princeton and is in a National Landmark area. A permanent conservation easement should be obtained over this area.

Stony Brook Flood Plain Quaker Road Area (95 acres) The flood plain area between the Stony Brook and Quaker Road should be preserved. This area is subject to flooding and a conservation easement should be obtained.

Elizabethtown Water Company/Rodgers' Wildlife Refuge (46 acres) The Rodgers' Wild Life Refuge off West Drive is owned by the Elizabethtown Water Company and is one of the most important bird sanctuaries along the eastern flyway. A permanent conservation easement or acquisition should be sought for this property.

Princeton University's Floodplain Land Adjoining the Charles H. Rodgers' Wildlife Refuge (35 acres) The lands lying between the Stony Brook and West Drive are a critical part of the wild life area and should be kept in a natural state. A conservation easement should be sought for these lands.

Thompson River Road Site (10 acres) This site is located within the flood plain for the Millstone River and is adjacent to 40 acres of municipal owned property. The preservation of this area will

ensure a contiguous open area along the Millstone River. A permanent conservation easement or acquisition should be sought for this property.

Nassau Builders (76 acres) This area off Mount Lucas Road is of critical importance due to stream corridors, wetlands, woodlands and steep slopes. A conservation easement should be sought for the environmentally sensitive portions of this site.

Gulick (41 acres) - The historic house and grounds should be preserved through either acquisition or easements.

Winant/Coventry Farm (172 acres) Much of this property is critical because of its strategic location next to existing public parks and its environmental sensitivity. The two lots which make up Coventry Farm provides an excellent vista of open space on either side of The Great Road. The easterly lot contains 140 acres including a number of houses and barns. The southerly portion is wooded with areas of wetlands associated with the stream running through it. These environmentally sensitive lands should be preserved and incorporated into the existing open space areas of Mountain Lakes. Approximately 35 acres to the north of these environmentally sensitive lands are recommended as an active recreation site if the conservation effort is not successful. Consideration should be given to acquiring all 60± acres and creating a community center, active recreation area and passive park that when combined with Mountain Lakes and Community Park North would create a 250± acre open space system.

All Saints' Church North of the Church and Cemetery (46 acres) These lands should be preserved in a natural state due to the extensive wetlands, woodlands and proximity to other publicly owned open space. Drainage from this property impacts the entire Meadowbrook area. A permanent conservation easement or acquisition should be considered for this property.

McAlpin (25 acres) - The western and northern portion of this tract are critical due to its frontage on the Stony Brook and the presence of a tributary stream, steep slopes and floodplain areas.