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December 6, 2001

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March 2007

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May 2007

**CONSERVATION, OPEN SPACE &
RECREATION PLAN ELEMENT
OF THE MASTER PLAN
FOR
SOUTHAMPTON TOWNSHIP, N.J.**

PREPARED BY:

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Southampton Township Historic Preservation Commission**

REVISION STATUS

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- a. *Note: The maps included within this document are for reference only and are not intended to be used for engineering or legal purposes. The data included on maps were derived from information provided by offices of the Burlington County Freeholders and from the N.J. DEP. Preparation of the base maps was funded in part by grants from the N.J. DEP. None of the materials prepared for this secondary project have been approved by any agencies that supplied original data.*

CONSERVATION, OPEN SPACE AND RECREATION PLAN ELEMENT SOUTHAMPTON TOWNSHIP N.J.

1.0 *EXECUTIVE SUMMARY*

Southampton Township, a Burlington County municipality of 43.9 square miles, is a rural agricultural community. The Township has evolved since the early European settlement in the 1700's into the present as a municipality that offers a strong sense of place and exceptional quality of life to its residents. Approximately 70% of the Township lies within the boundaries of the Pinelands National Reserve. The Pinelands Commission strictly regulates development in that portion of the Township. About 60% of the land area of the Township is classified as wetlands. Wetlands are an important natural resource and much of the Planning for the Township is influenced by their presence. Southampton Township includes a large farming community and agricultural activities remain as an important element of life. Important historic, archeological and paleontological sites are also included within Southampton Township. The State of New Jersey has officially designated the Village of Vincentown, which includes a number of historic properties, as a "Town Center". The largest population concentration is in the retirement community of Leisuretowne that is located within the Pinelands.

It has long been the desire of officials and residents of Southampton Township to maintain the rural atmosphere that still exists. That desire is evidenced by the amount of land that is currently preserved in the Township. Including Open Space, Recreation and Farm Lands, about 17% of the Township acreage has some form of protection or preservation. In order to preserve the rural atmosphere, quality of life and relatively low tax rate enjoyed by the Township residents, development must be carefully regulated. This Conservation, Open Space, and Recreation

Element will serve as a guide to the manner in which that development can take place.

Specifically addressed in this Element are: preservation and protection of *Natural Resources*; preservation of *Open Space*; preservation and protection of *Archeological, Paleontological, Cultural and Scenic sites*; preservation of *Farmland*; and development of *Recreational Facilities*.

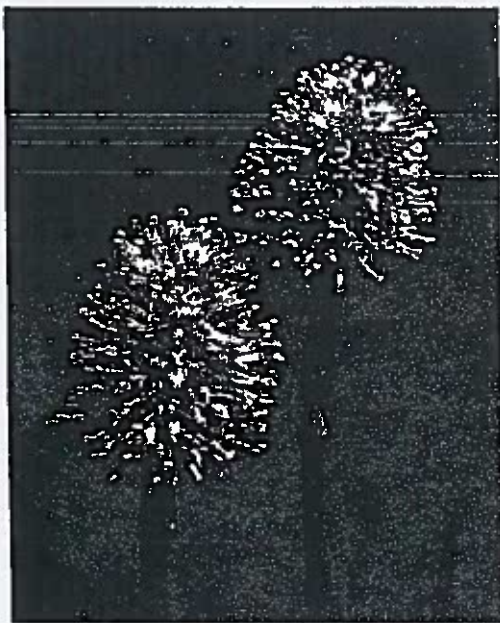
NATURAL RESOURCES

Southampton Township is endowed with a wealth of natural resources. Candidates for protection and preservation are: ground water; surface water (including streams, stream corridors, wetlands and floodplains); threatened and endangered plants and animals and their habitats; forests and vegetation; and air quality. Among those resources is a large portion of the 6000-acre Bear Swamp. Nearly 600 acres of the Bear Swamp are currently deeded to the New Jersey Natural Lands Trust and thus protected in perpetuity. Many unusual plants and animals are found there and in other areas of the Township.

The Bear Swamp is home to a population of the endangered Pine Barrens Tree Frog.



Included in the abundance of plant life that can be found there is the endangered plant *Helonius*, or Swamp Pink.



Also located in Bear Swamp is a Great Blue Heron Rookery.



Perhaps the most important natural resource is ground water. Private wells and on-site septic systems serve two thirds of the population of the Township. The agricultural community, which includes several working cranberry bogs, relies on the availability of high quality ground water. With such an extensive and diverse agricultural community and large areas that are dependent on private wells for drinking water, it is imperative that a high quality of ground water be maintained. To ensure continued availability of high quality ground water, it is recommended here that the Township adopt standards endorsed by the NJ Office of State Planning to deal with nitrates pollution. Preservation of high quality ground water is particularly important in Southampton Township since about 80% to 90% of the land area is serviced by on-site wells and septic systems.

Surface water within the Township consists of large areas of wetlands that include lakes, marshes, streams, floodplains and many sections of shallow seasonally high water table. Unpolluted surface water is necessary for the survival of many species of plants, waterfowl and aquatic life. An important goal is to assure that the quality of surface water is not impacted by development. Headwaters of the South Branch of the Rancocas Creek, an important Burlington County waterway, lie within Southampton Township.

maintain low taxes since single family homes require more expenditure for services, including education, than they contribute in taxes. Conversely, other types of ratable generally require less in expenditure for services than they generate in tax dollars. Notably, farmland can result in up to four times the revenue from taxes than is required for services.

It is important to note that the preservation of open space provides benefits beyond the protection of natural resources. Open space can provide buffers between developed areas and serve as sources of passive recreation. Vegetated open space between developments (residential as well as commercial) provides some air and noise pollution filtration. Approximately 630 acres of other open space in the Township have been preserved, some of which is privately held. Although much of the privately held land is not suitable for development (e.g., the presence of wetlands or soils that are unsuitable for on-site septic systems), some remains in doubt. Efforts will be required to acquire or deed-restrict open

such as the Vincentown Formation, the Retreat Industrial Village and the Pemberton-Southampton Agricultural Historic District.

The John D. Rockefeller Memorial Highway (NJ State Route 70) provides some excellent scenery as it winds through the Pinelands. A wide swath on either side of the roadway, dedicated to the State of New Jersey, is preserved in a semi-natural state. Dense pine forests dominate the landscape on both sides of the road. Spring-blossoming mountain laurel can be seen in abundance. Some past developments have required creation of access "cuts" along the Highway. Some of the "cuts" are relatively unobtrusive. Others are wide and dominated by signage. Better control is needed to limit the number and character of such breaks in the scenery.

FARMLAND

Farms are an essential part of the character, culture, economy and scenic background of the Township. So strongly have the Township officials and residents advocated the preserving of farming traditions that about 2650 acres of

space in areas that would result in negative benefit if they were to be developed.

ARCHEOLOGIC, PALEONTOLOGIC, CULTURAL AND SCENIC RESOURCES

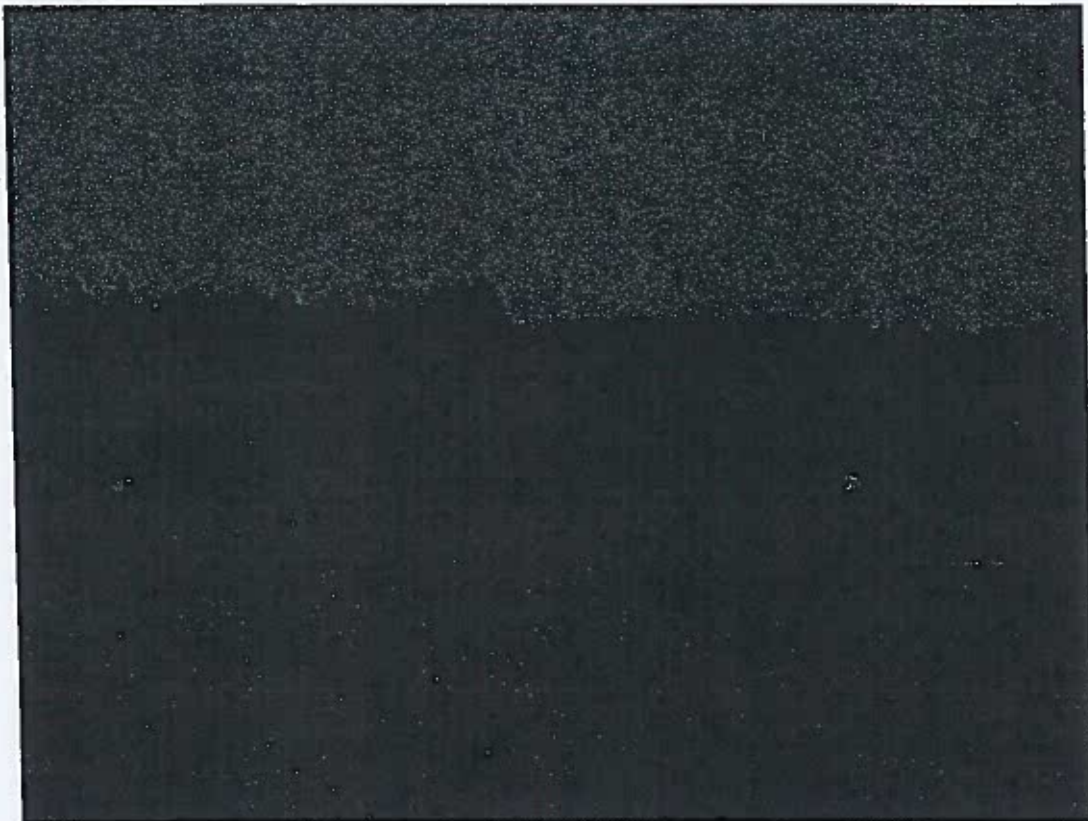
Many remnants of historic civilizations, prehistoric events and areas important to past as well as present residents are evident in Southampton Township. For example, remains of an early nineteenth century industrial village have been identified within the Township. The site was in the path of development but has now been preserved for future excavation and research. A unique aquifer outcropping, the Vincentown Formation, passes through the Township. Near the Village of Vincentown, along the Rancocas Creek, fossilized remains of prehistoric sea life can be observed within the Formation. As a result of a Pinelands Commission Study, a portion of Pemberton and Southampton Townships along Burlington Co. Route 616 has been designated a Special Historic District. Farms and portions of small villages along that corridor have remained intact since their establishment. One of the goals discussed in this Conservation Element is to protect areas farmland have been preserved and saved from development. Additionally, nearly 4000 additional acres have been targeted for preservation through various State and County Programs.

Individual farms in the Pinelands that have been preserved or are in negotiation for preservation are nearly contiguous. Continuing efforts are necessary on the part of Township officials and farmers to encourage "holdout" farmers to enter their farms into the preservation program. Should future development take place on any farms that are interspersed with those preserved, serious conflicts are likely to arise between farmers and homeowners.

There are also large areas of nearly contiguous farms preserved in the non-Pinelands areas of the Township. Development pressures in those areas will become severe. It is thus critical that efforts be expended to preserve enough farm areas to isolate farms from developed sections. Judicious siting of new recreation facilities and open space could further help to isolate farms from residential developments.

It is fortunate that thousands of acres of woodlands remain within the Township. That woodlands or forests provide scenic beauty as well as passive recreational opportunities is obvious, thus making them candidates for preservation. In addition, woodlands are essential for the preservation of the habitats of the diverse populations of wildlife that reside within the woodland confines.

Cape May. They also provide routes to Burlington County College, McGuire Air Force Base and Fort Dix.



A major defense against air pollution is the capability of vegetation and trees to absorb many air pollutants. There are no major point sources of air pollution within the Township. Acid rain, created by pollutants from the west, affects local forests and vegetation. The other most significant source is automobile exhaust. With the relatively low population of the Township, that is not a major local source. There are, however, three major highways that transect Southampton Township. Those highways are major routes between points west and north and New Jersey shore points from Long Branch to

Much of the forested areas of the Township parallel major highways, a fact that provides added incentive for preservation as air purification systems.

Currently, about 1225 acres of natural resources have been protected in: Bear Swamp; Lebanon State Forest; a natural area near Leisurtowne that includes an important stream corridor; and a Green Acres tract in the Village of Vincetown. Many stream corridors, wooded areas, natural habitat as well as additional areas of Bear Swamp are in need of protection.

OPEN SPACE

Expansion of the Township open space inventory will require expenditures that can be in part

offset through the NJ Green Acres Program and other State and Burlington County Programs. The expenditures by the Township help to



RECREATION

Existing facilities for organized outdoor sports (e.g., baseball/softball, soccer and youth football) are not necessarily optimum but are adequate to serve the needs of the current population. The existing facilities are located in two places. The largest is included within the Municipal Complex at Route 206 between Retreat and Buddtown Roads. It includes baseball, soccer, and football facilities. Also included at this location are three tennis courts and an outdoor basketball court. The second, Memorial Field, is located just outside the Village of Vincentown on red Lion Road. This is primarily a baseball facility but could be used for other sports as well. Both of those facilities are available to all Township residents.

Other active recreational facilities are included within the Leisuretowne retirement community. Those facilities, however, are available only to residents of Leisuretowne and their guests. Included within Leisuretowne are: tennis, bocce, shuffleboard, horseshoe/quoits courts; two outdoor swimming pools; a golf driving range; an outdoor golf putting green (artificial turf); two large recreation halls; and numerous lakes suitable for boating and fishing.

With few exceptions, there are no neighborhood playgrounds near developments. There is a small playground/lake access of about 1-1/4 acres in Hampton Lakes. This area is Township owned. Playground facilities are included within the Southampton Township Schools complex. The schools are adjacent to the Village of Vincentown.

"Passive recreational opportunities such as hiking, boating, birding, etc. are available in many areas of the Township. There are no areas designated, however, for such activities. Some of those areas are Township owned, some are privately owned while others are owned by agencies within the NJ Department of Environmental Protection.

This Element includes recommendations that attention be given to various means for increasing or augmenting neighborhood and passive recreational opportunities. Designated areas are needed, for example, for watercraft launching, hiking trails, bird observation facilities and similar functions.

SUMMATION

The Township of Southampton has achieved significant success in the protection and preservation of open space. This is particularly true in the case of farmland preservation. The preservation of farmland has been a continuing process that started in the mid 1980's. Much needs to be done while maintaining the ongoing efforts. New initiatives need to be taken to preserve the many stream corridors that originate in or pass through the Township. Plans for "greenway" corridors should be made to connect existing and future developments. Clustering within the constraints imposed by on-site septic systems are recommended for new development.

Lists of both specific as well as general actions that will be required to implement this element are included. Those actions will be pursued aggressively until all of the stated goals are achieved.

This Conservation, Open Space and Recreation Element was developed by the Southampton Township Environmental Commission and by Thomas J. Scangarello and Associates, the Southampton Township Planning Board Professional Planner. The preparers conducted extensive research to assemble the background, technical data and other material needed to complete the Element. Consultation and critiques were provided by members of the farming community, the Pinelands Commission, the Southampton Township Historical Preservation Commission, the Leisuretowne Trustees, the Leisuretowne Environmental Committee, and specialists and professionals expert in various subjects that are addressed in this document.

Members of the Planning Board reviewed drafts of the Element. The Planning Board held two public hearings and comments provided by members of the Planning Board and the Public were incorporated into the final version. The Conservation, Open Space and Recreation Element was approved unanimously by the Planning Board at a meeting held on December 6, 2001. The Conservation Plan was updated based on public workshop meetings held on ?. The Planning Board adopted the Open Space and Recreation Plan on ?.

Attached to this Executive Summary is a map depicting all of the preserved or protected lands within Southampton Township.

3.1 Natural Resource Conservation

The principal preservation/conservation goal of Natural Resource Conservation consists of a series of subordinate goals intended to protect different aspects of the interrelated resources that make up the natural environment within the Township. These include soils, ground water, surface waters, threatened and endangered plant and animal species, native and unique wildlife-habitat, vegetation and forests, and air quality. Each of these subordinate goals is further defined in the subsections below. Natural Resource Conservation is necessary to ensure protection of threatened and endangered species as well as the diversity of plant and animal species, to maintain the aesthetic and rural character of the Southampton landscape, and to ensure the continued quality of life and health and safety of the residents of Southampton Township.

3.1.1 Soils Protection and Conservation

The purpose of this Natural Resource Conservation goal is to assure the integrity of composition and characteristics of soils throughout the Township. Soil management practices in Southampton Township are the responsibility of the Burlington County Soil Conservation District.

Good soil management and protection in the Township are particularly critical because of the extensive system of streams and wetlands that exist here. Soil erosion can have far reaching effects on the health and integrity of surface waters.

3.1.2 Ground Water Protection

The purpose of this Natural Resource Conservation goal is to ensure the quality and quantity of ground water available to the residents of the Township.

Ground water is the primary source of potable water for a significant number of Township residents and businesses and thus the quality and quantity of ground water available directly affects the health and welfare of the population. Ground water is the source of most water in our streams (typically 80 to 90%) and therefore changes in the quality and quantity of ground water available will negatively impact the ecology of the Township. The primary risks to ground water include over-use and pollutants. The following paragraphs examine a range of pollutants that pose a threat to the ground water within the Township and identify the objectives behind controlling these pollutants.

3.1.2.1 Nitrates

Contamination of ground water by nitrates introduced by on-site disposal systems (i.e. septic systems) can result in a high concentration of nitrates. Nitrates in drinking water pose significant health hazards to infants who are under six months

2.0 BACKGROUND

Since European settlement in the 1700s, Southampton Township slowly developed primarily as a rural, agricultural community. Previous generations have passed on to today's residents a township that offers a strong sense of place and an exceptional quality of life. The Township today retains a strong rural flavor in both its environmental character and in the attitudes and values of its residents.

The sense of place and quality of life stem in large part from the clean ground and surface waters, stream corridors, freshwater wetlands and transition areas, clean air, great diversity of natural habitats and species, including a number of threatened and endangered species (see Appendix A), well preserved historic and archeological sites, landmark buildings, forests and trees, mature woodlands, prime agricultural land and farming, scenic vistas, and its generally rural character.

Southampton Township today houses a community of diverse socio-economic groups which in general share the traditional rural-American values of self-reliance, individuality, equality, hard work, community responsibility/service as well as a respect and a strong sense of stewardship for the natural and cultural resources of the township. It is the objective of this Master Plan Element to conserve and protect the township's resources and attributes for the enjoyment and welfare of current and future generations.

3.0 GOALS AND POLICIES

To achieve the goals set out for this Master Plan Element in Section 1, it is necessary to pursue four principal conservation/preservation goals:

1. Natural Resource Conservation;
2. Archeological and Paleontological Sites, Cultural Landscapes and Scenic Features Preservation;
3. Farmland Preservation; and
4. Open Space Preservation (Including Recreational Space).

Each of these principle goals, their objectives, and associated resources are defined and discussed in the following subsections. The conditions of the resources associated with each of these principle goals as well as any current preservation/conservation initiatives are then examined in Section 4. Section 5 identifies what, in general, is needed in order to conserve, preserve and protect the resources of Southampton Township. Next, Section 6 includes recommendations for steps and processes along with specifications and standards necessary to address the needs described in Section 5. The actions presented in Section 6 are those that are necessary in order to achieve the principle conservation/preservation goals and their associated objectives. Section 7 presents a plan of action for Southampton Township to satisfy the needs identified in Section 5, carry out the recommendations made in Section 6, and in doing so, to meet the Master Plan Goal of protecting the quality of the township's resources.

- Provide passive recreation (walking, jogging, biking, canoeing, hunting, birding) resources

The destruction of natural drainage features, such as wetlands, as well as development within floodplains and flood-prone areas poses a risk to life and property. Wetlands absorb large quantities of water during flood and flood-like conditions letting them gradually and safely run off into streams, rivers and ground. Wetlands also act as natural filters for pollutants. In addition to habitat loss, destruction of wetlands exacerbates flood conditions and ground/surface water pollution. Water rights within watersheds are shared and must be protected from the adverse affects from improper development. Rights within the South Branch of the Rancocas Creek (Part of NJ Watershed Management Area #19) in particular are at risk. In fact, the N.J. DEP, in cooperation with the Federal EPA, has initiated studies of all watersheds within N.J., including Watershed 19. An overriding objective of the studies is to recommend practices for protection that will result in the watersheds being declared "no longer impaired." Stream corridors and wetlands are essential components of the Township's natural ecosystems and are part of the migratory route for a variety of wildlife. Protection of wildlife and natural diversity requires protection of the surface waters associated with their habitat and migration routes. The desire to limit development in the areas surrounding surface waters in order to protect life and property provides an ideal opportunity for passive recreation facilities to maintain and improve the quality of life within the township.

3.1.4 Diverse Natural Communities and Habitat Protection

The purpose of this Natural Resource Conservation goal is to protect and enhance the diversity of plant and animal communities within Southampton Township by protecting their habitats.

Protection of native habitats is vital to the protection of threatened and endangered species populations that exist within the Township or have migratory routes that include Southampton. In fact, Federal and New Jersey State laws mandate the protection of threatened and endangered species and their habitat. Protection of habitats and ecosystems also serves as the primary control for nuisance species (e.g., rodents, mosquitoes, etc.). Uncontrolled destruction of habitat can disturb the natural balance of species and result in overpopulation of particular species. Over population of a species can, and often does, result in undesirable interference with human activities. Raccoons, rabbits, and deer are examples of wildlife that encroach on populated areas in South Jersey when their natural habitats are destroyed or reduced in size.

3.1.5 Vegetation and Forests Protection

The purpose of this Natural Resource Conservation goal is to promote the preservation of woodlands and vegetation.

Woodlands and vegetation are essential to reduce soil loss, erosion and flooding; to increase the quality and quantity of water being recharged; to

of age and to unborn fetuses. ^{4,5,6,7} Although not proven, there is evidence that excess nitrates in drinking water can cause gastrointestinal cancer in humans and lowered milk production and aborted calves in livestock. ⁶ Moreover, nitrates in the surface water will result in stream eutrophication. Nitrates are also an indication of the presence of other pollutants and correlate with changes in the pH of surface waters. These pollutants can have a dramatic effect on the plant and animal life.

3.1.2.2 Automotive Pollutants

Automobile storage for repossessions, gas stations, repair facilities, auto graveyards and used car lots have the potential to pollute the aquifers.

Such pollutants as fuel, oil and coolant can cause contamination through leaks as well as through the intentional flushing of these fluids into the ground. Commercial/industrial parking areas can also be sites for overflows.

3.1.2.3 Other Ground Water Pollutants

Additional pollutants, such as chemicals, pesticides and animal waste can be introduced into the ground water. Agricultural and home lawn and garden maintenance can produce such pollutants. Recent studies have shown that the sandy soils of New Jersey are experiencing severe ground water degradation because of their high permeability and the need to frequently replenish fertilizers. Agricultural activities, while encouraged by this Master Plan, add to the problem of residentially sourced contamination because ground water contamination does not stop at lot boundaries. This means that Southampton must err on the side of conservative precautions when it sets ground water standards in residential zones for health reasons.

3.1.3 Surface Water Protection

This Natural Resource Conservation goal has a diverse set of purposes consistent with the critical role that protection of the Township's surface waters play in protecting life, health, property, and quality of life:

- Protect wetlands and natural drainage features
- Protect property from flooding
- Ensure quality and quantity of surface water flows
- Protect the rights of others within watersheds from adverse affects of improper development
- To protect stream corridors to sustain and provide necessary habitat for resident and migrating wildlife populations

purify the air; to provide wildlife habitat; and to maintain the aesthetic and rural character of the Township.

3.1.6 Air Quality Protection

The purpose of this Natural Resource Conservation goal is to protect and promote the improvement of air quality in Southampton Township.

Air quality within the Township is negatively impacted by local, regional, and national pollution sources. Air quality is important to the health, safety and general well being of the inhabitants and ecosystems within Southampton Township. Municipalities are limited in the actions they can take to protect air quality by preventing air pollution due to its cross-border nature and over-riding State and Federal regulations. Unfortunately, these regulations permit poorer air quality than is desirable for Southampton Township. The Township should take any actions possible, including protection of forests and green spaces, to protect air quality.

3.2 Archaeological and Paleontological Sites, Cultural Landscapes and Scenic Features Protection

The principle preservation/conservation goal of Archaeological and Paleontological Sites, Cultural Landscapes and Scenic Features Protection consists of a number of subordinate goals that together are intended to protect the irreplaceable cultural resources of Southampton Township that reflect the human inhabitants of the area over time. These resources include historic sites and their contextual setting with Southampton's rural landscape (i.e., cultural landscapes) as well as archeological sites. It is the intent of the Township to provide opportunities for all citizens to appreciate the archaeological, paleontological, cultural and scenic resources on an equal and accessible basis to the extent permitted by law.

3.2.1 Archaeological Sites Protection

The purpose of this Archaeological Sites Protection goal is to conserve and protect the archeological remains of pre-historic (pre-European) and historic (post-European) settlement within Southampton Township.

The Township desires to protect the diverse elements of its irreplaceable cultural heritage through the use of existing federal, state, and local legislation for preservation and the development of such local initiatives as will serve to protect the physical remains of prior occupation and use of the landscape. The evidence of the work habits, lifestyles, beliefs and practices of past peoples that exists above and below the soil of Southampton should be preserved for the edification and education of present and future residents, researchers, and visitors.

The Township seeks to preserve its past in a way that accommodates its present and enhances the economic well being and prosperity of its future citizens. Preservation can be accommodated in a manner that is compatible with the maintenance of property rights and values. In fact, a greater understanding of the history and prehistory of Southampton can only lead to a

greater appreciation of its appearance and unique qualities and will likely contribute to enriching the community as a whole.

Native American settlement began in the area approximately 10,000 years ago and their presence continued until the early European Settlements began to flourish. Prior to European settlement, no written history of these cultures exists. Archeological sites contain the last evidence of these cultures and our only potential source of knowledge and understanding. Additionally, Native American archaeological sites demand our protection out of respect for these past peoples, their cultures, and their living ancestors.

Since European settlement, the use of the Township's natural resources, particularly those of the Pinelands, have changed over time, following changes in transportation, energy, and technology. Uses included both non-industrialized production of among other things, charcoal, turpentine, tar, and pitch; and industrialized production of iron and wood. Iron was an important early industry within the Pinelands due to the availability of an oxidized mineral called *bog-iron* (limonite), wood for charcoal to fuel the furnaces, and streams to power the bellows. The factories for iron production were located near the resources and were accompanied by towns to house and supply for the needs of workers. As resources were consumed and manufacturing technology changed, the factories were shutdown and the towns abandoned. The bog-iron town of Retreat and its forge (operated 1808-1814) and later its factory (operated 1830s-1840s)⁸ exist only as archeological evidence. These sites should be protected as they offer evidence to compliment the limited written histories that exist of the bog-iron industry and its people. Other sites which evidence early industrialized uses of the Pinelands within the township include Burrs Mill (wood production).

3.2.2 Paleontological Sites Protection

The purpose of this Paleontological Sites Protection goal is to preserve important records of life from former geologic periods.

Aquifer outcroppings and marl beds exist in Southampton Township. Such areas may contain fossilized remains of organisms from past geologic periods. The Vincentown Formation, for instance includes visible, fossilized, remains of prehistoric sea life. Destruction or desecration of such areas through development or by fossil hunters is a threat.

3.2.3 Cultural Landscapes Protection

The purpose of this Cultural Landscape Protection goal is to conserve and protect landscapes within the Township that reflect the traditions of previous generations and provide integrity of setting for historic sites and landmarks.

The integrity of the historic towns of Southampton Township is integrally linked to the integrity of the rural landscapes in which they are located and with which they have evolved. Together, the structures and countryside strongly convey the slow evolutionary development of the township and the rural traditions of past and current generations. The significance and cultural

3.4 Open Space Preservation

3.4.1 The purpose of this Preservation goal is to help preserve contiguous areas of undeveloped land to maintain the rural atmosphere so long enjoyed by Township residents.

The preservation of open space is a good investment. In addition to the obvious benefits (e.g.: reduction of pollution by absorbing noise as well as air and water pollutants; maintenance of wildlife habitat.) preservation of open space avoids some of the infrastructure, labor and school costs associated with development.^{11,12,13}

Preservation of open space adds to the protection of the rural character of Southampton Township. The township is encouraged to preserve natural open space, stream corridors and to encourage compact and node development. Neighborhood connectors are essential to enhance the community feeling among the residents.

3.4.2 It is the intent of the Township to provide opportunities for all citizens to appreciate the open space resources on an equal and accessible basis to the extent permitted by law.

3.4.3 Connect centers and neighborhoods with open space networks. Improve the quality of the Township's network of roadways, trails, and gateways.

This goal is realized through the acquisition and development of parcels that provide connections to parts of the community through a network of green walkways and bikeways including resources such as stream corridors, railroad right-of-way, common areas preserved in private developments, large conservation areas and open areas associated with schools and parks.

3.5 Recreational Facilities Development

3.5.1 The purpose of this Recreational Facilities Development Goal is to assure that adequate recreational facilities are provided to serve the needs and desires of the Township residents.

3.5.2 Parks and recreation areas should create places where citizens of all ages will meet and take part in community activities. New development shall provide ample opportunities for connections to existing and proposed open spaces and trails.

The preservation of open space is interrelated with the development of recreational areas and facilities. Some land currently preserved as open space may serve to provide passive recreational needs. In some instances it may be necessary only to provide access to the site. Portions of streams and creeks may be suitable for fishing and canoeing activities. Township open space adjacent to such areas could serve as access for such activities. Facilities for controlled access could be constructed to limit damage to the landscape and environment. Still other open space might be converted into active recreational areas. Township owned open space that is already cleared and not in environmentally sensitive areas would be candidates for such conversion. It is the intent of the Township to provide opportunities for all citizens to appreciate the passive and active recreational resources on an equal and accessible basis to the extent permitted by law.

meaning of historic structures is immeasurably enhanced by maintaining the high integrity of the rural landscape that exists today. Protection of these landscapes is also consistent with other goals set out in this Master Plan Element including desire to protect farmland, watersheds, green spaces, environmental diversity, rural character and traditions, and quality of life within the Township.

Risks to the cultural landscapes of Southampton Township from modern development are severe and immediate. High participation in Farmland Preservation initiatives by landholders offers some protection, as do restrictions within the Pinelands areas, but the large farms remaining within critical, partially protected areas are an attractive target for large-scale suburban development. Such development will result in the destruction of the continuity of the landscape, loss of historic context for the landmarks, and has the potential for overwhelming the rural-traditions and values still present in the community.

3.2.4 Scenic Features Protection

The principal preservation/conservation goal of Scenic Features Protection consists of protection of unique scenic features for the enjoyment and education of current and future generations.

In addition to the cultural landscapes and historic sites addressed by other goals, Southampton Township has a wealth of unique scenic features worthy of protection to allow for their enjoyment by current residents and visitors as well as future generations.

3.3 Farmland Preservation

The principle preservation/conservation goal of Farmland Preservation consists of protection of contiguous (or nearly contiguous) areas of productive agricultural/horticultural lands and allow for the continuation of farming in these areas while minimizing conflicts between residential and agricultural uses. The Government and residents of Southampton Township have shown long-term commitment to maintaining the rural character and traditions of the township through financial support for acquisitions of contiguous land for farm preservation. In addition to working as a tool to preserve open space and the rural traditions within the Township, farmland preservation provides a significant tax advantage for residents. For each tax dollar levied on farms, a municipality expends \$0.21 to \$0.77 in services. Conversely, development of single-family dwellings on farmland results in an expenditure of \$1.04 to \$1.67 for each tax dollar collected.^{9, 10} By pursuing contiguous tracts of farmland, the potential impact to residential properties as a result of farming activities is minimized and the potential to preserve the scenic features and landscapes of Southampton Township is enhanced. It is the intent of the Township to provide opportunities for all citizens to appreciate the farmland resources on an equal and accessible basis to the extent permitted by law.

4.0 DESCRIPTION OF EXISTING CONDITIONS

In order to assess the portions of the Township that are in need of protection, preservation or the control of development, it is necessary to look at the current status of the various features or characteristics of the natural resources of the Township.

4.1 Land Use Distribution

Southampton Township is 43.9 square miles in size and is characterized by large open areas of farmland and natural open spaces with sporadic residential development in between. Commercial and industrial activities are concentrated on the main highway corridors (Route 206, Route 70 and Route 38-530). Vincentown, a small historic center, constitutes less than 1% of the total land area of Southampton Township and just over 5% of the total population. The largest concentration of development and population in Southampton Township is centered in the communities known as Leisuretowne and Hampton Lakes within the Pinelands portion of the Township with a combined total of 2,100 units. The Leisuretowne and Hampton Lakes developments account for approximately 53% of the total dwelling units within the Township.

4.1.1 Future Growth Build Out Map and Analysis

It is essential to examine the existing land development patterns and the potential for future growth in devising a conservation plan for the Township. The build-out mapping provides a glimpse of the potential growth that could occur within the township. The ability to identify areas of environmental, scenic and historic concern can be identified and protected from the effects of sprawl development.

As indicated in Tables 4-1 and 4-2, build out figures indicate that Southampton Township has the capability to accommodate 2,335 additional dwelling units and approximately 1.7 million square feet of commercial and/or industrial space. The figures presented are based on the existing zoning and environmental constraints. The Map of Figure 4-1, shows the zoning overlay and improved roads. One constraining factor that was not included in the build out analysis is soil suitability. Because the majority of the Township relies on on-site septic systems for treatment of wastewater, soil suitability becomes a major limiting factor on the density of development. A map (see Figure 4-2) depicting the areas that contain soils that have moderate to severe limitations for on-site septic systems is provided to graphically depict that there are many land areas that contain moderate to severe limitations and therefore constraints on growth exist.

TABLE 4-1. Vincentown Village Center Build-out						
	Residential			Non - Residential		
Zone	Existing Units	Potential New Units	Total Units	Existing Sq. Ft.	Potential Sq. Ft.	Total Sq. Ft.
Town Center	207	29	236	39,304	Unknown	39,034+
Town Center 1	0	186	186	0	87,000	87,000
Village Total	207	215	422	39,304	87,000	126,034+

TABLE 4-2. Southampton Township Environs Build-out							
ZONE	DENSITY	RESIDENTIAL			NON - RESIDENTIAL		
		Existing Units	Potential New Units	Total Units	Existing Sq. Ft.	Potential Sq. Ft.	Total Sq. Ft.
Non - Pinelands Area							
Agr. Residential	1.0 du/acre	113	381	494			
Rural Residential	1.0 du/acre	495	492	987			
Rural Residential 1	6.0 du/acre	0	336	336			
Mobile Home Residential	7.0 du/acre	2	32	34			
Highway Commercial	87,120 sq. ft. (min.)				284,935	330,980	615,915
Village Commercial	87,120 sq. ft. (min.)				119,128	0	119,128
Industrial	87,120 sq. ft. (min.)				228,699	1,236,820	1,465,519
Total Non-Pinelands		610	1,241	1,851	632,762	1,567,800	2,200,562
Pinelands Area							
Agr. Production	1.0 du/10 acres	294	35	329			
Forest A	1.0 du/5 acres	112	61	173			

Table 4-2. Southampton Township Environs Build-out (Cont'd.)

ZONE	DENSITY	RESIDENTIAL			NON-RESIDENTIAL		
		Existing Units	Potential New Units	Total Units	Existing Sq. Ft.	Potential Sq. Ft.	Total Sq. Ft.
Forest B	1.0 du/15 acres	23	85	108			
Forest C	1.0 du/40 acres	192	23	215			
Highway Comm.					53,790	174,200	227,990
Municipal Complex							
Rural Community	1.0 du/acre	178	153	331			
Rural Development	1.0 du/5 acres	2,561	522	3,083			
Total Pinelands		3,360	879	4,239	53,790	174,200	227,990
Southampton Township Total		3,970	2,120	6,090	686,552	1,742,000	2,428,552

4.2 Status of Natural Resource Preservation

There are significant natural resources in Southampton Township that have been preserved through Township acquisition, by deed to other government agencies or through acquisition by private (non-profit) organizations. There are, however, important natural resources that are not currently protected and some that face imminent loss to development.

4.2.1 Geology and Soils

Southampton Township is situated on what is known as the Atlantic Coastal Plain. The Atlantic Coastal Plain is formulated from clays, silts, sands and gravels. The boundary between the Inner and Outer Coastal Plains runs through Southampton in a generally northeast to southwesterly direction. The specific composition of the soils within Southampton Township is shown on maps published by the Burlington County soils District as shown in Figure 4-3.¹⁴ Southampton Township overlays a variety of soils ranging from porous sandy soil to poorly drained marl. The drainage characteristics of the soils are tabulated in Table B-1 of Appendix B. A major factor in determining permissible lot size is the soil type. The percolation rates and nitrate diffusion from on-site disposal systems is critically dependent on the type of soil.

4.2.2 Hydrology

The hydrology of Southampton Township includes ground water (aquifers, water bearing geologic formations), surface water (streams, lakes), wetlands and flood prone areas.

4.2.2.1 Ground Water

Currently, there is no planning mechanism in Southampton to avoid ground water degradation. Outside of the Pinelands, the protection of the ground water is the responsibility of the Township and not of the Burlington County Health Department nor of the State. One important indicator of septic system groundwater contamination is a high concentration of nitrates. Nitrates in groundwater pose serious health risks if they are infused into drinking water. The methods and data involved in the protection of high quality ground water are somewhat complex and were placed in an appendix for that reason. (For a detailed discussion of a serious ground water contaminant (nitrates) refer to Appendix B.)

Appendix B contains a discussion of:

- Major health and environmental effects of nitrates contamination
- Dilution of nitrates
- Facts related to nitrates
- The composition of nitrates and other chemical elements in natural undisturbed soils and streams

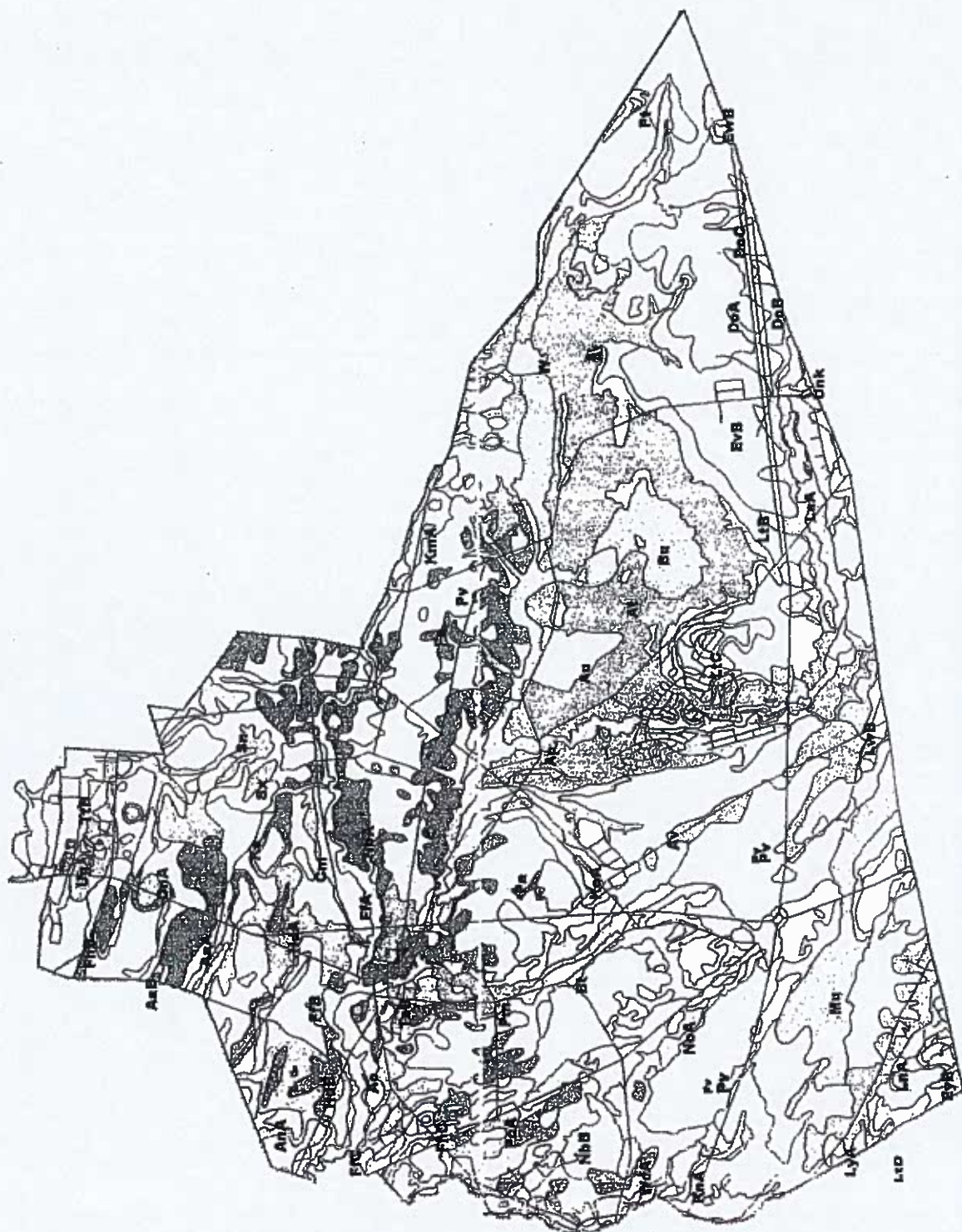


Figure 4-3. Southampton Township Soils (see note on page v)

- Local, State and Federal controls, including the Pinelands Commission
- New Jersey Office of Planning guidance for protecting ground water

Ground water contamination from vehicle fluids may also be occurring at auto graveyards and at heavy equipment dealers and repair shops.

Other potential contamination sources include businesses that use chemicals and businesses that use ground water as part of their business or in manufacturing processes.

A number of point source ground water pollutants are known to exist within the Township. The Big Hill Landfill is an example. Although this 113-acre closed landfill has been capped and vented by the NJDEP, some pollutants that leached out prior to the capping are still migrating toward ground water sources.

At least two sources of underground gasoline storage tanks have leaked gasoline into the ground. One has been remediated and one is in process. The NJDEP also monitors a mobile home sewage disposal system that has malfunctioned from time to time. Nitrates from that system may have been introduced into ground water.

4.2.2.1.1 Potable Water

Except for areas of concentrated housing (Leisuretowne, Hampton Lakes, and the Village of Vincentown), the Township is served by surface water from individual wells. A private water company (Pinelands Water Company) supplies water from four deep wells (three in Leisuretowne and one in Hampton Lakes) that draw from the Mt. Laurel-Wenona aquifer. The areas serviced by the Pinelands Water Company include about 2300 properties. The Mt. Holly Water Company services about 700 customers in Vincentown. The Southampton Township schools located on Pleasant Street are also supplied from the Mt. Holly Water Company. The water is supplied from 2 wells located on Retreat Road east of Route 206. That water is also drawn from the Mt. Laurel-Wenona aquifer. A mobile home complex and a trailer park in the northern section of the Township each have two wells that serve those areas. The approximate locations of the public wells are shown in Figure 4-4.

Individual private wells are supplied from a number of aquifers. The largest aquifer outcroppings in Southampton are the Kirkwood and Cohansey formations. The deepest wells (greater than 100 feet) draw water mostly from the Magothy and Raritan Formation. Shallow wells utilize the Cohansey Sand and in some instances the Kirkwood Formation as a water source. The aquifer outcroppings are depicted in Figure 4-5.

4.2.2.1.2 Waste Water

The Pinelands Water Company provides waste water services for three areas of Southampton: Leisuretowne, Hampton Lakes and the Village of Vincentown. In addition, Mobile Estates in the extreme northern portion of the Township, has an on-site, common wastewater disposal system. A trailer park in the same area also has a common on-site disposal system. The rest of the Township operates with on-site septic systems.

4.2.2.2 Surface Water

Southampton Township local waterways that feed the South Branch of the Rancocas Creek tributaries include the following:

- Bear Swamp-Little Creek (West to Medford/Lumberton border)
- Jack's Run -Beaverdam (central, parallel to Route 206)
- Burr's Mill Stream- Friendship Creek (central, Westerly from Woodland Twp.; North through Hampton Lakes-Leisuretown); (Budd's Canal & Hilliard's Run parallel)
- Company Swamp Branch-Cedar Run (East, Northwest to the Rancocas and Budd's Cranberry Bogs)
- Stop the Jade Run (East from Ong's Hat to West through Buddtown and to the Village of Vincentown)

The North Branch of the Rancocas Creek flows East to West (approx. 2500 feet) in the northern portion of the Township.

The streams and stream corridors are shown on the map of Figure 4-6.

A stream corridor is an area consisting of both a stream channel and the area of vegetation that extends along each side of the channel. The protection of these corridors is an objective of the State Planning Act NJSA 52:184-196 et seq.

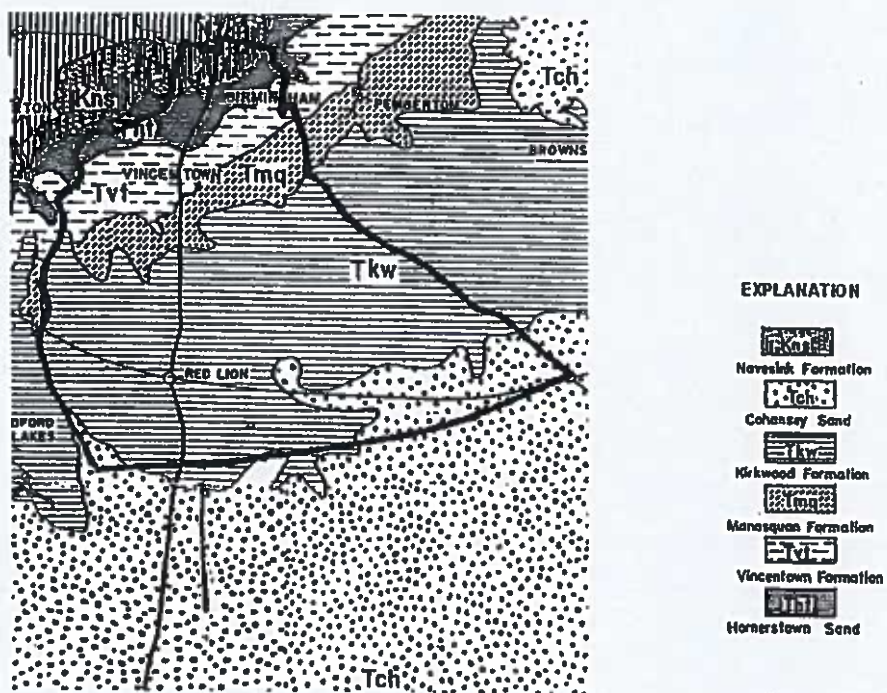


Figure 4-5. Southampton Township Aquifer Outcroppings Map (see note on page v)

The stream corridors include the stream channel, the land on either side of the stream channel which is within the one hundred (100) year floodplain, or is a sloping area of fifteen (15%) percent or greater and/or associated wetlands which are contiguous to the stream channel or hundred year flood plain.

The stream channels are the permanent or intermittent water courses shown on USGS quadrangle maps, the Burlington County Soil Survey and/or Southampton Township Environmental Commission (STEC) Geographic Information System (GIS) maps (original base maps produced by NJDEP grant in 1995) and approved as part of Southampton's Natural Resource Inventory (NRI).

Soils and vegetation located along the stream corridors perform important natural functions that maintain the ecological and hydrological balance of the surface water systems. These functions include:

- Runoff and flood control
- Stream bank and streambed erosion control
- Wildlife habitat protection
- Ground Water recharge

Stream corridors are among the most valuable natural resources which, if not managed properly, can result in flooding and the loss of important environmental, aesthetic and recreational resources. Stream corridor management places primary emphasis on water quality protection and enhancement and on the protection of natural resources located along the stream corridor. Floodplain management also places emphasis on the protection of the man-made environment from flood hazards. With proper management, a stream corridor can serve as a buffer to filter sediment and pollution produced by development, as well as farming. It can also provide a margin of safety for adjacent neighborhoods from flood and erosion hazards.

Streams are divided into two (2) categories: perennial and intermittent. Perennial streams flow year-round while intermittent streams flow only during storms and certain seasons. Both are important to the protection of the ecological and hydrological balance of the stream system.

Some known point source surface water pollutants exist within the Township. The same mobile home park sewage plant that has been closely monitored by the NJDEP discharges into the North Branch of the Rancocas Creek. It is a potential source of pollution to that waterway.

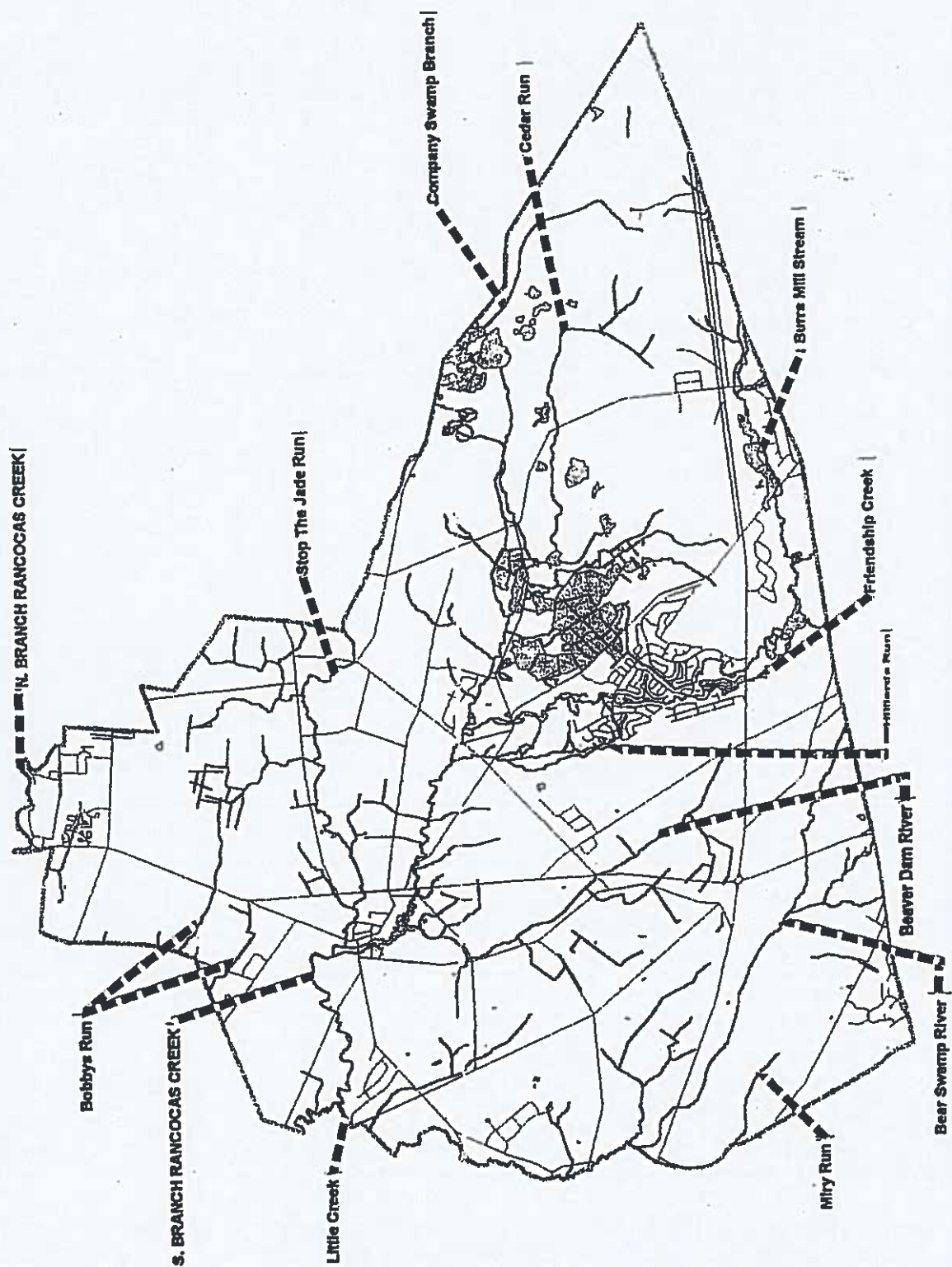


Figure 4-6. Southampton Township Streams and Stream Corridors (see note on page)

4.2.2.3 Wetlands and Flood Prone Areas

Freshwater wetlands, wetland transition areas, floodways and flood hazard areas are considered important natural resources within the Township. These resources are vital links in the ecological system. Freshwater wetlands are defined by NJDEP as areas that are inundated or saturated by surface or groundwater at a frequency and duration to support, and under normal circumstances do support a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands are typically delineated on the basis of the following three parameters:

- Hydrology: Evidence of soil saturation.
- Vegetation: Plant species adapted to anaerobic soil conditions.
- Soil: Characteristics of anaerobic soil conditions.

Freshwater wetlands within Southampton Township are derived from NJDEP GIS data that is based on the National Wetland Inventory Maps. Wetlands and the associated transition areas are controlled by State wetlands regulations and are identified on the Map of Figure 4-7. As indicated on the Map of Figure 4-7, approximately 15000 acres within Southampton Township are considered wetlands. The flood hazard areas within Southampton Township have been identified and mapped by the Federal Emergency Management Agency (FEMA). These areas are regulated by standards that control construction consistent with the national flood insurance program. Flood hazard areas are depicted on the Map of Figure 4-8.

4.2.3 Diverse Natural Communities and Their Habitat

The Natural Resources Inventory (NRI) developed by the Southampton Township Environmental Commission (STEC) includes the identification and mapping of over 600 plant species including many rare, threatened and endangered species of local, regional and national significance. The Natural Heritage Program (NJDEP) has identified two Natural Priority sites in Southampton Township: Green Acres on Mill Street and at Ong's Hat. Several unusual plants can be found in Southampton that are infrequently found in South Jersey.¹⁵

A survey completed in 1993 for the Southampton Township Environmental Commission resulted in the identification of over 260 types of wildlife. The data were gathered through field surveys conducted by the Aces Environmental Co. Data provided by several Township wildlife professionals were integrated into the field database. A Grant from the NJDEP, Office of Environmental Services, funded the survey, in part. The Southampton Township Committee provided matching funds. Table 4-3 includes a summary of that survey and includes data from Appendix A.

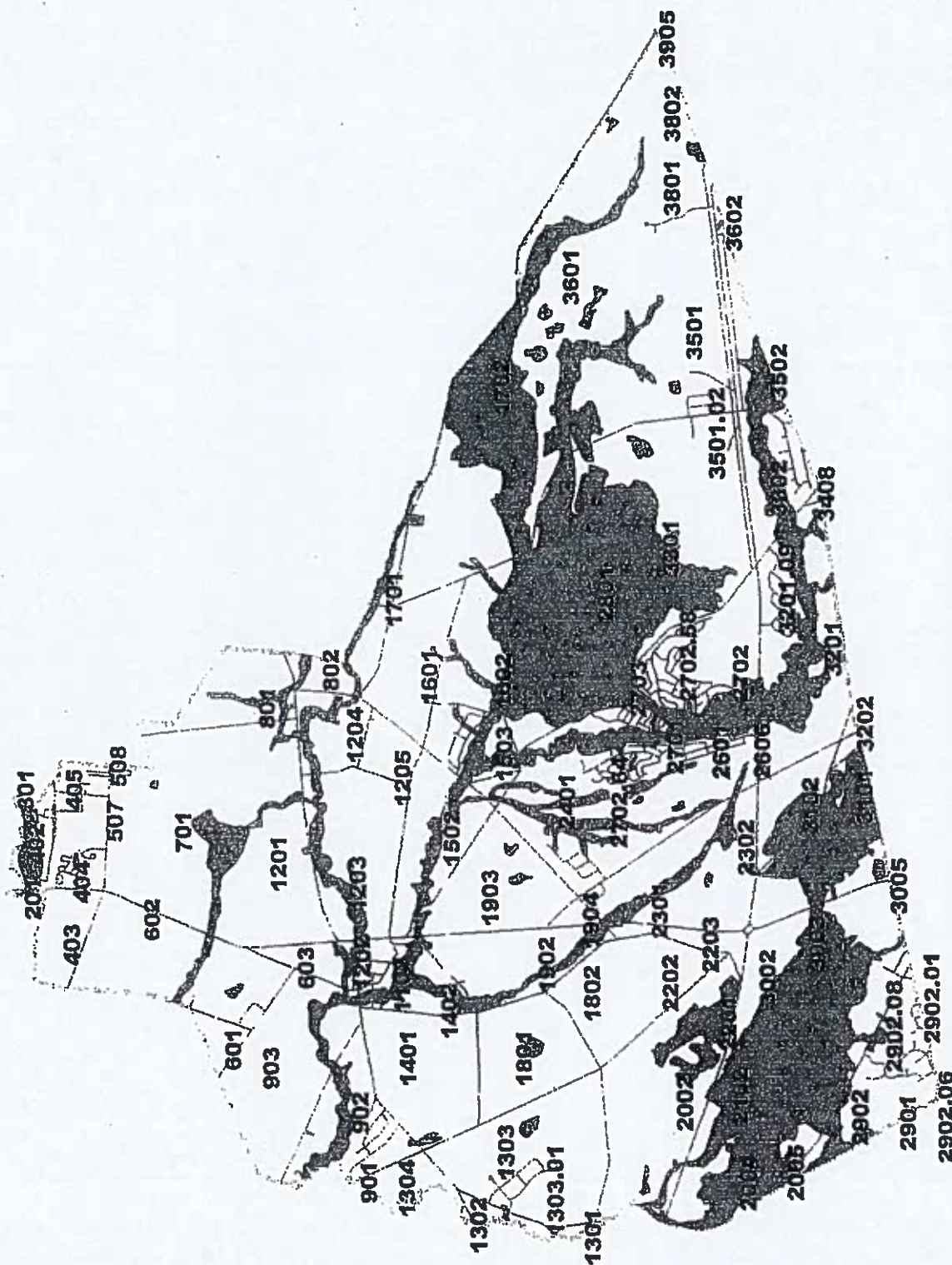


Figure 4-8. Flood Hazard Areas of Southampton Township (see note on page v)

An example of an important habitat is a Great Blue Heron rookery that for many years has been found in the Bear Swamp in the southern portion of the Township. The endangered Pine Barrens Tree Frog is also known to be present in the southern section of Southampton Township.

TABLE 4-3. SOUTHAMPTON TOWNSHIP WILDLIFE

SPECIES	QTY.	T&E	AREA(S) WHERE OBSERVED	NOTES
HERPTILES	35	5	Predominantly in Eastern section of Township bordered by New Road, Ridge Road and the Northern and Southern Boundaries of the Township	
BIRDS	185	14	Not recorded but generally throughout the Township	
BREEDING	(95)	(5)		1
MAMMALS	44	—	Not recorded	
FISH	13	—	Burr's Mill Run	2

T&E – Threatened or Endangered

1 – Numbers () included in Total Birds

2 – Information gathered by the New Jersey State Aquarium Personnel

4.2.4 Vegetation and Forests

Southampton Township lies within the Atlantic Coastal Plain. Generally, the Pinelands area within the Township is included within the Outer Atlantic Coastal Plain. Other parts of the Township are included within the Inner Atlantic Coastal Plain. Vegetation and forests in the two areas have a distinctively distinctive makeup and character.

Inner Coastal Plain- Woodland areas in Southampton Township located outside of the Pinelands consist primarily of lowland (palustrine) deciduous forests. These woodlands are typically associated with floodplain areas and areas of seasonal high water table, which made them unsuitable for crop production. Thus, farmers often did not clear these lands, or if once farmed through the laying of drainage tiles, have subsequently preferred to cultivate the drier, upland areas of the Township. The nature and extent of these woodlands are related to soil types and the geologic formations from which the soils are derived.

Forested wetlands within Southampton Township are characterized by a preponderance of woody vegetation taller than twenty feet, adapted either to mesic (moist) conditions or to inundated or saturated soil conditions. Dominated by Red Maple, these wetland communities are typically associated

with Sycamore, Sweet Gum, Silver Maple, Muscelwood, Box Elder, River Birch, Pin Oak, Willow Oak, Sweet Bay, American Holly, Tulip Poplar, White Ash, Black Willow, and Persimmon. Several of these species can also occur on upland or transitional sites.

Common undergrowth shrubs and herbs in these wetlands include Arrowwood, Spice-bush, Common Elderberry, Swamp Azalea, Sweet Pepperbush, Green briars, Skunk Cabbage, Spotted Jewelweed, Sensitive Fern, Marsh Fern, and Sedges. Among the invasive species of both wetlands and uplands are Poison Ivy, Japanese Honeysuckle, Grapes, and Virginia Creeper.

Non-forested palustrine emergent wetlands (emergent marshes) frequently occur on the edges of farm fields and pastures, or they were once used as pastures. These often contain Soft Rush, Multiflora rose, Swamp Loose strife, Sensitive Fern, and Tussock Sedge.

Associated with the Vincentown Formation, the stream corridor, flood plain, and upland slopes and forest along the South Branch of the Rancocas Creek from Vincentown to the Lumberton Township border comprise a significant paleontological site as well as a rich soil flora worthy of protection. Similar conditions prevail along the old marl excavations within the Beaverdam Creek corridor south of Vincentown.

Natural upland vegetation within the Township includes mature deciduous associations and edge of field shrub and scrub species. Typical trees in these uplands include American Beech, Poplars, Black Oak, White Oak, Southern Red Oak, Sassafras, Hickories, Sweet gum, and Virginia Pine. A number of these species can also occur on mesic sites within the Beaverdam Creek corridor south of Vincentown and within sections of the Little Creek corridor along the western border of the Township.

Outer Coastal Plain (Pinelands)- Wooded areas in the Pinelands section of the township are occupied by both upland and lowland (wetland) forests. Dominating large upland areas are oak -pine forests, comprised of mixed oak species (Black, White Chestnut, and Post) and to a lesser degree of Pitch and Short-leaved Pines. The undergrowth consists largely of huckleberries, blueberries, and other members of the heath family. Pockets of Virginia Pine also are present as well as a White Pine plantation on a portion of Lebanon State Forest within the township.

Lowlands are dominated by mixed hardwood swamps comprised of Red Maple, Black Gum, Swamp Magnolia, Grey Birch, and perhaps scattered Atlantic White Cedar. The undergrowth consists of heath shrubs. Pitch Pine lowland forests and almost pure pockets of Atlantic White Cedar also are present.

Three active commercial cranberry bogs comprise a significant portion of the wetlands. There are also several abandoned cranberry bogs that have reverted to shrub or forested communities.

4.2.5 Air Quality

Southampton Township has no major sources of industrial pollution. Air pollutants generated in Southampton consist of vehicle exhaust, home heating fuels, and exhaust from collision repair and vehicle painting businesses. The Southampton forests and swamps provide natural filters for much of the pollution.

4.3 Status of Archaeological and Paleontological Sites, Cultural Landscapes and Scenic Features

A number of important archaeological sites are known to be located within Southampton Township. (Specific sites will not be identified here because of the concern for looting and destruction of the sites.) Important, known paleontological sites also are located within the Township. Cultural Landscapes abound throughout the Township. Some have been afforded some measure of protection while others are still at risk. While the term "Scenic Features" may convey various meanings to various elements of the populace, there are certainly some features that most individuals would consider worthy of being preserved and protected.

4.3.1 Archaeological Sites

There are areas that have archaeological significance located within Southampton Township. Historic and prehistoric artifacts are cataloged and mapped by the Pinelands Commission in both the Pinelands and in the adjacent area within the borders of Southampton Township. Because of the sensitivity of these sites, they are not published in this Conservation Element but are available to development applicants by contacting The Pinelands Commission for information on specific sites.

4.3.2 Paleontological Sites

Of particular interest, the Vincentown formation is a geological layer that outcrops throughout Burlington County in a one-to-two mile wide belt that covers an area of about 21 square miles. The outcropping is visible in places along the South Branch of the Rancocas Creek in and around the Village of Vincentown. In places along the creek one can observe the distinct fossils and glauconite that indicate that the Formation is of marine origin.

Areas along Little Creek, on the western boundary of the Township, are expected to be of Paleontological significance.

4.3.3 Cultural Landscapes

A 1993 Pinelands Commission study ¹⁶ identified that the corridor of lands bordering Burlington County Route 616 between Southamptton and Pemberton Townships was so intact within the Pinelands that it merited the creation of a special historic district: The Pemberton-Southampton Agricultural Historic District.

The lands bordering Route 616 outside the Pinelands (i.e., west of US Route 206) through Vincentown village and on to the Medford Township are equally intact, critical and severely at risk. A 1983 survey of the Village of Vincentown showed that this area is vital to the integrity of the Village. ¹⁷

4.3.4 Scenic Features

All of the land in Southamptton Township that is east of NJ State Route 206 and the land west of Route 206 that is south of NJ Route 70 is within the Pinelands Natural Reserve. The Pinelands region of New Jersey is so significant that in 1978 the first US National Reserve was created to protect it and in 1983 it was designated an International Biosphere Reserve by the United Nations.

The John D. Rockefeller Scenic Highway (NJ State Highway Route 70) through the Township provides residents and visitors the ability to experience the solitude and expansiveness of the Pinelands as well as to view natural woodlands and plants.

Bear Swamp is a 4000-acre wilderness just south of Red Lion. A large portion of the area is replete with towering white cedars. Unusual plant life and wildlife can be observed there in abundance, including Helonias (Swamp Pink), a New Jersey State and federally endangered species. Fortunately, through a donation from Chemical Bank of New Jersey and other sources, 553 acres have been placed under the stewardship of the New Jersey Natural Lands Trust.

Whether or not an area within the Township can be considered a scenic feature rests in the eye of the beholder. There are, however many places that at least during certain seasons should qualify as scenic features. For example: Cranberry bogs that can be seen from public roadways are often colorful. That is particularly the case during harvesting. Attractive Pinelands forests, including stands of cedar, as well as cranberry bogs can be viewed alongside the roadway of Ong's Hat Road. Similar features exist along Big Hill Road adjacent to Leisuretowne.

The Planning Board adopted a Community Design Element in 2006 that designated areas along Route 206 as scenic corridors. Scenic Corridors are major thoroughfares designated by the Township through the Master Plan process. The area designated as a scenic corridor should be developed and

redeveloped consistent with the vision statement and plan. Scenic Corridors are designated to:

- Preserve and encourage the restoration of the natural setting along the thoroughfare;
- Provide views of significant landscape features such as agricultural land and associated facilities; and
- Allow for connectivity in the form of trails/walk system of non-vehicular travel buffered safely from vehicular traffic.

The Planning Board adopted specific design guidelines applicable to preservation and development in the area designated on the map (Exhibit ?) as a scenic corridor. The guidelines are policies, standards, details and concepts that are to be used to establish the health, safety, welfare, quality and character of physical improvements along roadways having particular emphasis on retaining the natural environment and cultural heritage of the area.

4.4 Status of Farmland Preservation

For the purposes of this plan, there are two (2) categories of farms. The Township presently has farms that are preserved through local, county and state funding and farms that are actively farmed but not preserved. These parcels are identified on the Map of Figure 4-9. Table 4-4 includes a list of preserved properties in the non-Pinelands section of the Township.

Table 4-5 shows the farms that have been preserved within the Pinelands. These farms have been preserved through a combination of State and County funds, through conservation easements and Pinelands Development Credits "retirement."

The farms preserved within Southampton Township (both Pinelands and non-Pinelands) are also shown in Figure 4-9 and represent about 21% of the Township land area.

TABLE 4-4. Southampton Township Preserved Farmland – Non-Pinelands			
Block	Lot	Program/Funds	Total Acres
601;903	1;6,8	(a)	341.14
601;903	2;3;3	(a)	50.6
602;603	7; 2	(a)	97.5
603	1; 1.01	(a)	72
902;903	1;4	(a)	158
902;903	2; 5	(a)	215.62
903	1	(c)	4
903	5.02	(a)	28.528
1303;1304;1401	8;3;1	(a)	250

1303;2002	20;4	(a)	120
1401	4, 4.03.6.06	(c)	135.4
1401	6.04	(a)	34.48
1401	15	(a)	107.072
Total			1614.34

(a) Burlington County Farmland Preservation & Agricultural Retention & Development Program

(b) Burlington County Deed Restricted Sale

(c) Combination of (a) and Township Open Space Tax

TABLE 4-5. Southampton Township Preserved Farmland – Pinelands			
Block	Lot	Owner	Total Acres
701; 1201	2, 3, 3.01, 10.01, 11-13; 5.01	(d)	791.8
701	7	(e)	138
801	7	(c)	112
801	9	(e)	48.43
802	12	(d)	79
1201	4	(e)	158
1201	6.01	(e)	72.79
1201	8	(f)	43.052
1203	6	(d)	13
1203	9.02	(f)	31
1201; 1203	7; 11	(e)	152.2
1204	1	(d)	72
1502; 1903	8; 4	(d)	280.5
1502; 1903	10; 5	(d)	157.2
1601	9	(d)	23.5
1602	2, 3	(e)	96.485
1602	4.01, 4.02, 4.03, 6	(d)	166.79

1702	11,23.06	(d)	22.75
1702	23	(d)	50.8
1702; 3601	30, 31, 52, 55, 57; 1,3-6,13,31	(g)	530.15
1903	40	(d)	30
2801	20;47	(d)	1184.19
Total			4253.637

- (d) Deed Restriction, Pinelands Development Credits (PDC)
 (e) Deed Restriction, State Agricultural Development Credits (SADC)
 (f) Burlington County PDC
 (g) Burlington County Conservation Easement

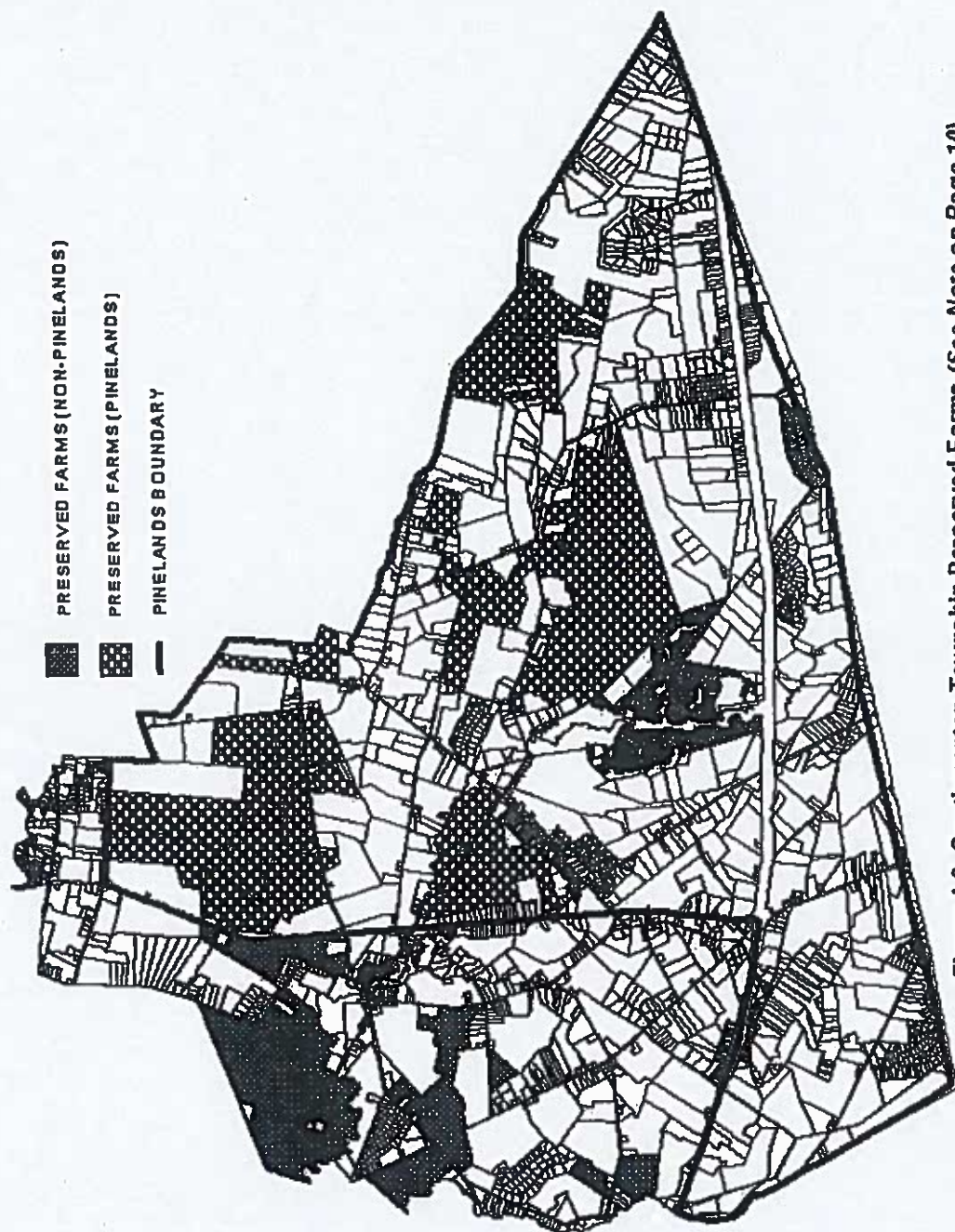


Figure 4-9. Southampton Township Preserved Farms (See Note on Page 10)

Figure 4-9. Southampton Township Preserved Farmland (see note on page v)

4.5 Status of Open Space Preservation

Tables 4-6 through 4-9 includes properties preserved for open space use. The parcels are depicted on the Map of Figure 4-10 and Exhibit A.

TABLE 4-6. Southampton Township Owned Open Space			
Block	Lot	Description	Acres
201	23	Vacant Lot (N. Br. Rancocas Creek)	0.29
501	9	Carson Road/Maple Avenue	0.13
509	1	204 Cedar Street	0.024
801	3	305 Pemberton Road (R)	1.0
902	12	Farm (R)	92.13
903	19	Wooded Lot (G) (R)	51.36
903	27	Monument (R)	0.008 (a)
1003	5	Old Telephone Building	0.4 (a)
1003	22	Old School/Parking Lot (R)	2.1
1003	26	Vacant Lot (R)	0.6
1003	27	Rancocas Creek Sandbar (R)	0.13
1005	9	25 Church Street (R)	0.18
1005	10	Vacant Lot (R)	0.1463
1005	11	Vacant Lot (R)	0.1122
1007	7	23 Plum Street (Old Town Hall) (R)	0.11 (a)
1007	9	27 Plum Street	0.11 (a)
1102	17	Main Street (Rear) (R)	0.512
1201	3	Route 206, North	0.003
1202	2	North Main Street	0.005
1303	4.01	Road Angle	0.009
1401	4	Farm (R)	19.8
1401	4.03	Farm (R)	7.6
1401	6.05	Future Rec (R) (G)	79.3
1402	5	Red Lion Road (Rear) (R)	0.009
1402	11,12,13,15	Mill Pond Islands (R)	10.5(b)
1402	14	Race Street Park (R)	0.62
1402	16	Park (R)	9
1502	1.01(p/o)	Municipal Building/Pub. Works (R)	50.5
1503.06	9	Willoughby Lane (Rear) (R)	8
1701	12	Vacant Lot (R)	1.4
1702	58	Burrs Mill Road (Rear)	0.42
1902	29.02	Wooded Lot (R) (G)	2

TABLE 4-6. Southampton Township Owned Open Space (Continued)

Block	Lot	Description	Acres
1903	52.05,52.06, 52.07,52.08, 52.09	2018 Route 206 (R)	16.8
2005	3	19 North Pricketts Mill Road	0.23
2201	1	14 Purgatory Road	2.17
2301	14	433 New Road (R)	11.6
2301	15.02	427 New Road (R)	14.36
2301	18	Route 206 (Rear) (R)	1.0
2302	3,4	Hog Farm Road (R)	32.3
2601	31	33 Holly Boulevard(Beach/Playground) (R)	1.377
2601	42	Gloria Lane (R)	0.07
2601	43	Lakeview Terrace (R)	0.009
2702.64	83	Mayfair Road (R)	1.441
2801	21	Retreat Road (R)	1.38
2801	23,24,25	Burrs Mill Road (R)	5.64
2801	31	Vacant Lot (R)	3.6
2801	38	Vacant Lot (R)	2.9
2902.01	1.01	311 Hawkin Road	0.1
3003	62,64	Hawkin Road (R)	9.7
3003	79	Old Red Lion Road (Rear)	3.0
3003	86	Vacant Lot (R)	1.68
3102	3	Vacant Lot	0.08
3102	5	Vacant Lot	0.459
3102	14.03	Vacant Lot (R)	2.478
3102	32	Vacant Lot (R)	5.3
3103	6	201 New Road	0.351
3201	4	2008 Route 70 (R)	5.6
3201	32	Vacant Land (R)	5.6
3201	34,37	Friendship road (Rear) (R)	14.8
3201	47	Route 70, East (Rear) (R)	0.115
3202	2	204 New Road	0.115
3301	25	Burrs Mill Road (Rear) (R)	28
3301	55	105 Burrs Mill Road (R)	6.8
3302	2	Big Hill Road	0.06
3403	3	215 Second Street (R)	1.01
3407	26	Vacant Wooded Lot (R)	0.505
3501	1	Vacant Lot (R)	1.6
3501	2	Vacant Lot (R)	6.4
3501	5	Vacant Lot (R)	2.0
3501	16	Burrs Mill Road (R)	4.5
3501	27	56 Burrs Mill Road (R)	16
3601	7	Ongs Hat Road (R)	12.5
3601	28	724 Magnolia Road (R)	10

TABLE 4-6. Southampton Township Owned Open Space (Continued)			
Block	Lot	Description	Acres
3601	29	734 Magnolia Road (R)	3.54
3601	30	Ongs Hat Road (R)	5.5
3601	45	Vacant Lot	0.4
3903	2	Vacant Lot	0.5
Total			499.1615

(a) Denotes structure(s) on property

(b) Shown on Tax Map – “Exempt – Southampton Township”

Does not appear directly in tax records

(R) Included on Green Acres Recreation & Open Space Inventory (ROSI)

(G) Acquired through Green Acres Funding

TABLE 4-7. Southampton Township – Other Public- Owned Open Space		
Block	Lot	Acres
403	4	15.3 ^(c)
403	5	0.8 ^(c)
403	7	24 ^(c)
2005; 2102; 3003	4, 5;1;3-11,14,47,48,49,50-59,61,67, 68, 70-72,74-78,80,83-85,87,88,91-94	573.88
2101	5	1.6 ^(a)
2302	12,13	25.2 ^(a)
2401	14-19,24,25,54	197.1 ^(b)
2401	23	33 ^(a)
2401	26.03	12.8 ^(a)
2702.70	11, 11.03,11.04,11.05	196 ^(b)
2702.70	46- 51	5.148 ^(b)
2702.72	9,10	165.43 ^(b)
3003	81,82	40.4 ^(a)
3101	36	29.2 ^(a)
3102	4	6.4 ^(a)
3201	1	7.8 ^(a)
3601	34	7.7 ^(a)
3601	39	0.8
3601	40	1.6 ^(a)
3601	92,93	344.93
3801	3	41.6 ^(a)

TABLE 4-7. Southampton Township Other Public- Owned Open Space (Continued)		
3801	23	5 ^(a)
3802	3	26.3
Total		1761.988

- (a) NJ Department of Environmental Protection
(b) NJ Natural Lands Trust
(c) Burlington County Board of chosen Freeholders
(d) Southampton Township Board of Education
(e) Denotes structure on property

TABLE 4-8. Southampton Township Private/Non-Profit Owned Open Space		
Block	Lot	Acres
603	1.02	11 ^(d)
1204	9	0.688 ^(e)
1503	5.02, 6.02	16 ^(e)
1903	43	5.29 ^(e)
2301	2	0.92 ^(e)
2401	11.01, 12	6.367 ^(a)
2401	26.01	6.39 ^(e)
2401	26.02	6.38 ^(e)
2701	1, 2	125.5 ^(a)
2702	3-5, 7, 8	113 ^(b)
2702.10	1, 2	9.4 ^(a)
2702.14	37	0.65 ^(c)
2702.19	2, 4, 11, 25, 27	3.67 ^(c)
2702.20	17, 97, 151, 152	19.3 ^(c)
2702.23	73	4.35 ^(c)
2702.25	98	0.153 ^(a)
2702.29	38, 39, 64, 65, 107, 108	7.86 ^(a)
2702.42	63, 72	1.757 ^(a)
2702.46	19	2 ^(c)
2702.47	48	3 ^(a)
2702.51	17	0.25 ^(c)
2702.58	56	9.86 ^(a)
2702.62	33	0.64 ^(c)
2702.63	9	1.74 ^(a)
2702.64	5, 16, 73, 89	21.378 ^(a)

TABLE 4-8. Southampton Township Private Non-Profit Owned Open Space (Continued)		
2702.66	9	0.2 (a)
2702.68	1	0.18 (a)
2702.72	9.01	3.74 (c)(d)
2703	3	20.947 (a)
3003	1	33.3 (e)
3003	20	66.5
3201	7	25 (a)
3201	12, 18	62 (e)
3407	29	0.52 (e)
3501.03	1, 3, 10, 26, 40	70.71 (e)
3502, 3602	1;4	26.7 (e)
3601	44	16.47 (d)
3601, 3601.01	55, 61, 76, 80, 90, 94;1	52.652 (c)
Total		756.462

- (a) Privately Owned Not-Buildable (Most will be acquired either by Leisuretowne Assn. or Southampton Township)
(b) Privately Owned Probably Not-Buildable
(c) Homeowners' Associations
(d) Conservation Organizations
(e) Private

4.6 Status of Recreational Facilities

Southampton Township currently provides two large areas for active recreation. About 40 acres of facilities exist on the property on which the municipal building and maintenance facilities are included. This area contains ball fields, soccer fields, tennis courts an outdoor basketball court and a "tot-lot." Southampton Memorial Park (Block 1502, Lot 1.01) is located on Red Lion Road in Vincentown and accommodates baseball/softball fields. A park/fishing/picnic area is also located on Race Street. A small playground with lake access is located on Holly Boulevard in Hampton Lakes (Block 2601, Lots 31-35). Table 4-9 summarizes those facilities.

TABLE 4-9. Southampton Township Owned Recreation Facilities		
Block	Lot	Acres
1502	P/o 1.01	40+/-
1402	14	0.6152
1402	16	8.7
2601	31-35	1.38
Total		50.70

Substantial recreational facilities are included in the Leisuretowne section of the Township. Those facilities include recreation halls, two outdoor swimming pools, a golf driving range, an outdoor putting green, and tennis, shuffleboard, bocce, and horseshoe courts. A summary of those facilities is provided in Table 4-10. The total land area devoted exclusively to active recreation is about $\frac{1}{4}$ of 1% of the total Township land area. The Map of Figure 4-11 shows the locations of recreational areas.

TABLE 4-10. Southampton Township Private/Non-Profit Owned Recreation Areas		
Block	Lot	Acres
2701	p/o 2	1.5+/-
2702.19	3	4.85
2702.19	13	0.1
2702.20	97	5.6
2702.64	p/o 19	4.47
2702.72	9.01	3.74
Total		20.26

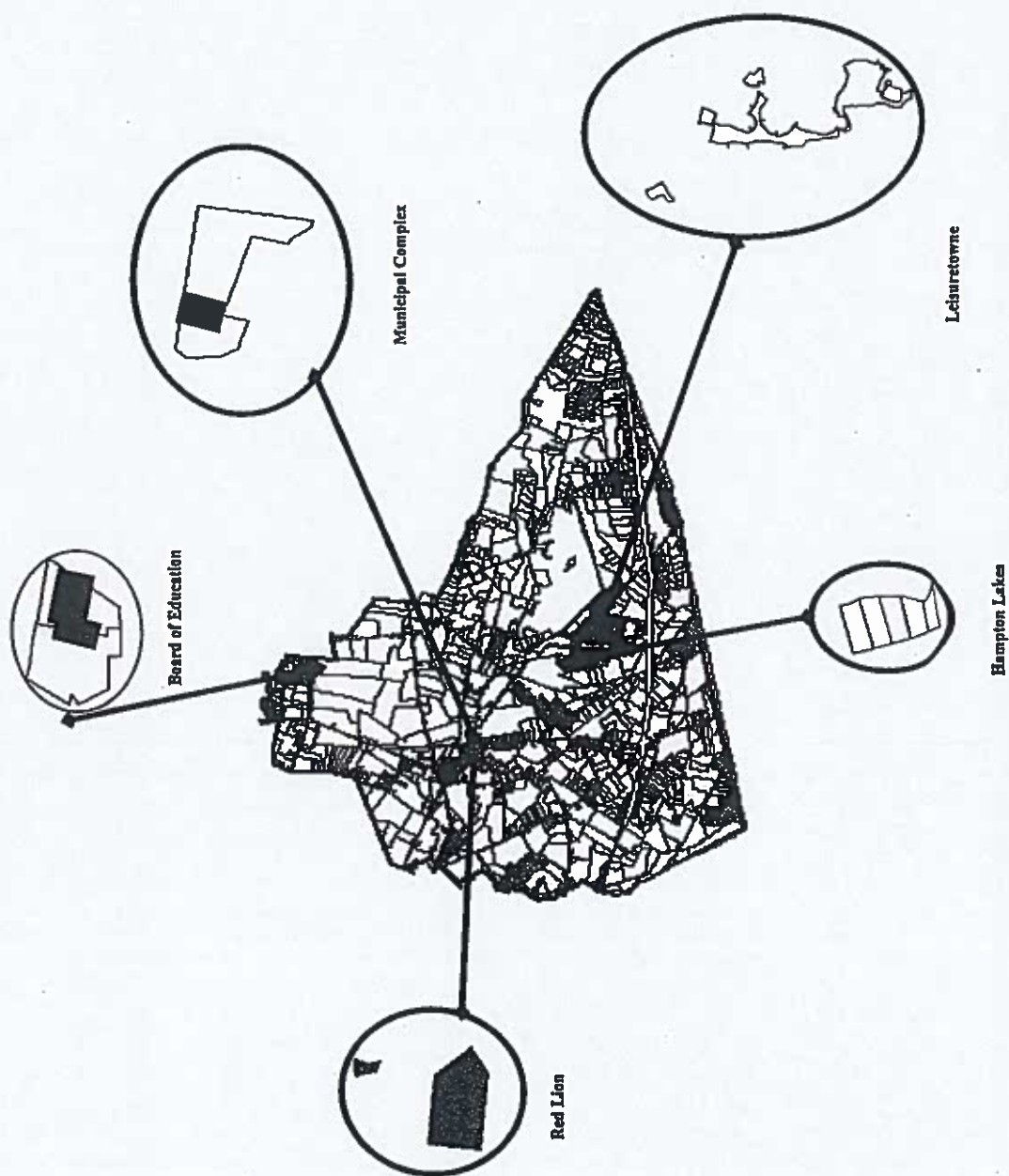


Figure 4-11. Southampton Township Recreation Facilities (see note on page v)

5.0 NEEDS ANALYSIS

Four components comprise the space preservation needs of the Township: open space necessary to protect the important natural resources of the Township; space required to conserve and protect archeological and paleontological sites, cultural landscapes and scenic features; the need to conserve farmland; the land area that should be owned and controlled by the Township and dedicated for public use and access for outdoor recreation. Those four needs are addressed in detail by this Conservation, Open Space and Recreation Plan Element.

5.1 Resource Protection Needs.

The Township needs open space to preserve environmentally critical lands and natural resources. Such open space provides habitat needed for biodiversity, helps maintain water quality and air quality, and provides flood control. Resource protection areas in Southampton include the following:

- Freshwater wetlands and transition areas
- Floodways and flood hazard areas
- Stream corridors
- Ground water
- Soils
- Air
- Habitats of threatened and endangered species and wildlife corridors
- Mature woodlands and diverse natural communities
- Important historic, archeological and paleontological sites
- Cultural resources

Some resource protection areas are suitable as passive open space and provide opportunities for resource-based recreation such as hiking, fishing, camping, nature study, and scenic enjoyment. There is no set formula for calculating the land area that should be preserved in public ownership for resource protection. *The objective is to preserve sufficient land to protect the resource.* Extensive resource protection areas have been secured by the Township as purchases or as conservation easements along streams and in wetlands. Government regulations in combination with additional public land acquisition are the primary tools for protecting the environmentally important features of the Township.

Resource protection in Southampton Township will continue to take several forms:

- Township Regulation - Design standards enacted by the Township to protect stream corridors, floodplains, ground water, soils, and woodlands, The Township typically requires, as part of any development approval of lands where a floodplain or stream is located, that floodplains and stream corridors be protected by public conservation easement.
- State Regulation - State law protects wetlands and wetland transition areas in Southampton. The Township typically requires, as part of any development approval of lands where wetlands are located, that wetlands and wetland transition areas be delineated and that any required disturbance permits be obtained from the State.

- Township Acquisition - Where public access and improvements are desired, the Township may be able to acquire resource protection areas by purchase of easements or fee simple title, or acceptance of dedication of land.

5.2 Archaeological and Paleontological Sites, Cultural Landscapes, and Scenic Vistas Preservation Needs

Significant resources and sites that should be preserved need to be identified and a plan developed for the preservation and protection of such resources. A procedure should be put in place to help preserve archaeological areas that have not yet been identified.

A consolidated approach is needed to integrate various sites and resources with other areas of preservation such as open space and farmland. Consideration should be given to preserving cultural landscapes that are adjacent to preserved open space, preserved farmland or historic districts or groupings of historic structures. Scenic sites, "greenways," and stream corridors should be expanded where necessary and practical to be integrated with other preserved areas. Preservation of the Vincentown Formation Outcropping, for instance, could be integrated with the protection of the stream corridor and acquisition of adjacent open space.

Potential paleontological sites should be identified by consultation with geological societies and with the aid of publications available from the New Jersey and U.S. Geologic Surveys. An inventory should be maintained and available for developers to determine if a potential site exists on a parcel considered for development.

Cultural landscapes should be identified and an assessment made as to whether preservation or development would be the best policy.

Scenic features need to be identified and then prioritized for protection. Developers should be encouraged to clear and to locate structures in such a way as to maximize the preservation of vistas. Developments need to be planned to harmonize with the rural, agricultural and forested areas.

5.3 Farmland Preservation Needs

Farming contributes to the economic base of the Township and is essential to maintaining the open rural landscape that characterizes much of the community. Southampton has zoned its farm areas for low densities and has limited the sewer service area in an effort to discourage urban sprawl and the conversion of farms to suburban uses. It has also encouraged farming by permitting farms and farm markets in large areas of the Township. The number of farms and the amount of farmland in Southampton have, however, continued to decline.

As part of the State open space preservation effort, there will be an increase in State funding to preserve farmland. The Township is within the Burlington County Agricultural Development Area. Consequently, Township farms are eligible for farmland preservation funds from the County Agriculture Development Board and

from the State. This program ensures the preservation of farms through public purchase of the development rights. The farm remains in private hands and farm operations continue. However, the land can no longer be developed for non-farm uses. A farmer or farmland owner voluntarily enters into an agreement with the County and the State to sell the development rights to the public. On average, the County pays for 35% of the cost and the State pays 65%.

There is competition among municipalities for the limited program funding. The goal should be to permanently preserve at least 1000 additional acres of farmland throughout the Township.

5.4 Open Space and Outdoor Recreation Needs.

Recreation includes a wide range of activities including but not limited to:

- * Hiking and nature study
- * Hunting and fishing
- * Participation in sports
- * Biking, skating, general play
- * Music and art appreciation
- * Historic education
- * Cultural events

Outdoor recreation, both active and passive, is an important aspect of the quality of life in a community. Evaluation of the existing recreation facilities is necessary in order to determine future needs. The evaluation performed is based on national standards and on a local response to the public outreach related to the update of the Conservation Element.

An evaluation of the current and future recreational needs of Southampton Township requires an understanding of how well the availability (supply) of such facilities meets existing and projected needs (demand). The National Recreation and Park Association (NRPA) provide recommendations for park open space based on population. The NRPA recommends providing a hierarchy of facilities including mini-parks, neighborhood parks/playgrounds and community parks.

Mini-parks are usually one acre or less and oriented to a particular population such as young children or senior citizens. The mini-park would serve a concentrated population or a limited population in isolated development areas. The guidelines call for approximately 0.25 – 0.50 acres per 1,000 population. Less dense developments located in the environs of Southampton Township may contain small areas for general play or passive recreation serving a limited population.

REFERENCES (Continued)

17. "Development of Nitrate Dilution Model for Land Use Planning in the State of New Jersey," New Jersey Office of state Planning
18. Kirby vs. Township Committee of Bedminister, Somerset County, New Jersey SOM L 002464-9
19. "Protecting the New Jersey Pinelands," Collins and Russell, Rutgers University Press
20. "Water Quality in the Long Island-New Jersey Coastal Drainages, New York and New Jersey 1996-1998," US Geological Circular 1201, Mark A. Ayres, J.G. Kennen, P.E. Stackberg
21. "A Comparative Study of Nitrate Loading to Groundwater from Mound, In-Ground, Pressure and At-Grade Septic Systems," Byron Shaw, Professor of Soil and water Science, University of Wisconsin
22. N.J. Statute w.r.t. Environmental Protection
23. "Geology and Ground Water Resources of Burlington County," Special Report No. 20, State of New Jersey Department of Conservation and Economic Development, Division of Water Policy and Supply

REFERENCES

1. Municipal Land Use Law, Chapter 291, Laws of N.J. 1975, Article 3 "Master Plan" C.40:55D-28.b(8)
2. New Jersey State Development and Redevelopment Plan
3. "The Secretary of the Interior's Standards for Archeology," United States Department of the Interior, National Park Service
4. Nitrates in Drinking Water, Carpenter and Maltzberger, University of Missouri-Columbia; Anderson, MI Dept. of Health
5. Nitrates in Household Water, Woodward, Parrot and Ross, Virginia Cooperative Extension
6. Nitrates and Coliform Bacteria in Water Supplies; Nebraska Health and Human Services System, Dept of Regulation and Licensure
7. Nitrates: Health Hazard; Wilkes University Center and Consumers Product Group
8. Forgotten Towns of Southern New Jersey, Henry Charlton Beck, Rutgers University Press, New Brunswick New Jersey, 1961
9. Burlington County Farmland Preservation Program, STRATEGIC PLAN, (Draft), May 22, 1996 (Table 2)
10. Publication (Untitled) by the Environmental Education Fund
11. Mendham Township Committee, "Report of the Financial Impact on Taxpayers for Acquisition of the Schiff Tract by Mendham Township," 1994
12. Citizens For Controlled Development, Fariello, Leonardo A. and Largman, Rich, "Economic Analysis for the Schiff Tract by Mendham Township," 1993
13. Pinelands Commission, "Comparison of Financial Statistics of Several Pinelands and non-Pinelands Municipalities," 1994
14. "Soil Survey" Burlington County, New Jersey
15. Southampton Township Natural Resource Inventory
16. A Survey of Potential Historic Districts in the Pinelands, New Jersey Pinelands Commission, 1993
17. Nitrates in Drinking Water, Michigan State University
18. New Jersey Pinelands Comprehensive Management Plan
19. Vincentown Historic Preservation Study, Thomas J. Scangarello and William C. Bolger, 1983

Table B3. EXAMPLE MODEL RUNS (5 mg/l Water Quality Standard)

INPUT PARAMETERS							
Date of Run: December 6, 1988	Supportable Housing Density	Effluent O(p)	P	Recharge C(e)	R(i)	Volume V(e)	Volume V(i)
Aquifer Type/							

REFERENCES (Continued)

17. "Development of Nitrate Dilution Model for Land Use Planning in the State of New Jersey," New Jersey Office of state Planning
18. Kirby vs. Township Committee of Bedminister, Somerset County, New Jersey SOM L 002464-9
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1. Municipal Land Use Law, Chapter 291, Laws of N.J. 1975, Article 3 "Master Plan" C.40:55D-28.b(8)
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5. Nitrates in Household Water, Woodward, Parrot and Ross, Virginia Cooperative Extension
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7. Nitrates: Health Hazard; Wilkes University Center and Consumers Product Group
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13. Pinelands Commission, "Comparison of Financial Statistics of Several Pinelands and non-Pinelands Municipalities," 1994
14. "Soil Survey" Burlington County, New Jersey
15. Southampton Township Natural Resource Inventory
16. A Survey of Potential Historic Districts in the Pinelands, New Jersey Pinelands Commission, 1993
17. Nitrates in Drinking Water, Michigan State University
18. New Jersey Pinelands Comprehensive Management Plan
19. Vincentown Historic Preservation Study, Thomas J. Scangarello and William C. Bolger, 1983

Table B3. EXAMPLE MODEL RUNS (5 mg/l Water Quality Standard)

INPUT PARAMETERS							
Date of Run: December 6, 1988	Supportable Housing Density (acres/lot)	Effluent Q(p) gpp/day	P per home	Recharge C(e) mg/l	R(i) in/yr	Volume V(e) gpp/ yr	Volume V(i) gal/ac/ yr
Aquifer Type/ Parameters							
Argillite/Coastal							
Aquitards/Conglomerate							
Normal Parameters	7.1	100	3.75	40	5	136,875	135,771
Conservative Parameters	1.8	100	3.75	40	3	136,875	81,463
Best Coastal Sands							
Normal Parameters	1.8	100	3.75	40	20	136,875	543,086
Conservative Parameters	2.4	100	3.75	40	15	136,875	407,314
Crystalline/Shale/Siltstone							
Normal Parameters	4.4	100	3.75	40	8	136,875	217,234
Conservative Parameters	8.8	100	3.75	40	4	136,875	108,617
Diabase/Basalt/Quartzite							
Normal Parameters	8.8	100	3.75	40	4	136,875	108,617
Conservative Parameters	17.6	100	3.75	40	2	136,875	54,309
Limestone							
Normal Parameters	2.9	100	3.75	40	12	136,875	325,851
Conservative Parameters	3.5	100	3.75	40	10	136,875	271,543
Regular Coastal Sands							
Normal Parameters	2.0	100	3.75	40	18	136,875	488,777
Conservative Parameters	2.9	100	3.75	40	12	136,875	325,851
Sandstone/Shale							
Normal Parameters	3.5	100	3.75	40	10	136,875	271,543
Conservative Parameters	3.9	100	3.75	40	9	136,875	244,389

Table B2. EXAMPLE MODEL RUNS (3 mg/l Water Quality Standard)

Date of Run: December 6, 1988 Aquifer Type/ Parameters	Supportable Housing Density (acres/lot)	Effluent		Recharge		Volume V(e) gpp/ yr	Volume V(i) gal/ac/yr
		Q(p) gpp/day	P per home	C(e) mg/l	R(i) in/yr		
Argillite/Coastal Aquitards/Conglomerate							
Normal Parameters	12.4	100	3.75	40	5	136,875	135,771
Conservative Parameters	20.7	100	3.75	40	3	36,875	81,463
Best Coastal Sands							
Normal Parameters	3.1	100	3.75	40	20	136,875	543,086
Conservative Parameters	4.1	100	3.75	40	15	136,875	407,314
Crystalline/Shale/Siltstone							
Normal Parameters	7.8	100	3.75	40	8	136,875	217,234
Conservative Parameters	15.5	100	3.75	40	4	136,875	108,617
Diabase/Basalt/Quartzite							
Normal Parameters	15.5	100	3.75	40	4	136,875	108,617
Conservative Parameters	31.1	100	3.75	40	2	136,875	54,309
Limestone							
Normal Parameters	5.2	100	3.75	40	12	136,875	325,851
Conservative Parameters	6.2	100	3.75	40	10	136,875	271,543
Regular Coastal Sands							
Normal Parameters	3.5	100	3.75	40	18	136,875	488,777
Conservative Parameters	5.2	100	3.75	40	12	136,875	325,851
Sandstone/Shale							
Normal Parameters	6.2	100	3.75	40	10	136,875	271,543
Conservative Parameters	6.9	100	3.75	40	9	136,875	244,389

Table B1. AQUIFER TYPES and REPRESENTATIVE VALUES for INFILTRATION
(cont'd)

Aquifer Type	Geologic Unit (Atlas Sheet 40)	Normal R(i) (in/yr)	Conservative R(i) (in/yr.)
Crystalline/Shale/ Siltstone	Losee Gneiss (lgn)	8	4
	Byram Gneiss (bgn)		
	Pochuck Gneiss (pgn)		
	granite (gr)		
	gabbro (gb)		
	Wissahickon Mica Gneiss (wgn)		
	Martinsburg Shale (Omb)		
	High Falls Formation (Shf)		
	Marcellus Shale		
Diabase/Basalt/ Quartzite	basalt flows (Trbs)	4	2
	diabase (Trob)		
	Esopus Grit (Des)		

References:

- | | |
|--|----------------------------|
| Barksdale, 1958; 1943 | Luzier, 1980 |
| Carswell and Hollowell, 1968 | Nemickas, 1976 |
| Disko, Nusser, and Doheny, 1978 | Nichols, 1977 |
| Farlekas, 1979 | Posten, 1982 |
| Geraghty and Miller, 1978 | Poth, 1970 |
| Gill and Vecchioli, 1965 | Rhodehamel, 1970 |
| Gill, 1962 | Rush, 1968 |
| Greerman, Rima, Lockwood,
and Meisler, 1961 | Trela and Douglas, 1978 |
| Harbaugh and Tilley, 1984 | Vecchioli and Miller, 1973 |
| | Vecchioli, 1973 |
| Hardt and Hilton, 1969 | Wood, Flippo, and |
| Kasabach, 1966 | Lescinsky, 1972 |
| Lang and Rhodehamel, 1963 | Wright Associates, 1982 |

Table B1. AQUIFER TYPES and REPRESENTATIVE VALUES for INFILTRATION

Aquifer Type Geologic Unit		Normal R(i) (in/yr.)	Conservative R(i) (in/yr.)
Best Coastal Sands	(Atlas Sheet 40)		
	Cohansey Sand (Tch)	20	15
	Kirkwood Sand (Tkw)		
	Magothy and Raritan (Kmr)		
Regular Sands	Vincentown Sands (Tvt)	18	12
	Mount Laurel/Wenonah (Ktw)		
	Englishtown (Ket)		
	Beacon Hill Gravel (Tch)		
	Red Bank/Tinton Sands (Krb)		
Sandstone/Shale	Brunswick Formation (Trb)	10	9
	Stockton Formation (Trs)		
	Bellvale & Pequannock (Dbp)		
	Kancuse Sandstone (Dkn)		
Limestone	Kittatinny Limestone (Cok)	12	10
	Onondaga Limestone		
	Jacksonburg Limestone (Obj)		
	Devonian/Helderbergs		
	Oriskany and Bedcraft		
	Becker/Bossardville/Manlius/		
	Rondout/Poxino Island (Sbd)		
Argillite/ Coastal Aquitards Conglomerate	Lockatong Formation (Trl)	5	3
	Shark River Marl (Tsr)		
	Manasquan Marl (Tmq)		
	Hornerstown Marl (Tht)		
	Navesink Marl (Kns)		
	Marshalltown Formation (Kmt)		
	Woodbury Clay (Kwb)		
	Merchantville Clay (Kmv)		
	Shawangunk (Ssg)	10	6
	Green Pond (Sgp)		
	Hardyston (Ch)		
	Skunnemunk (Dsk)		

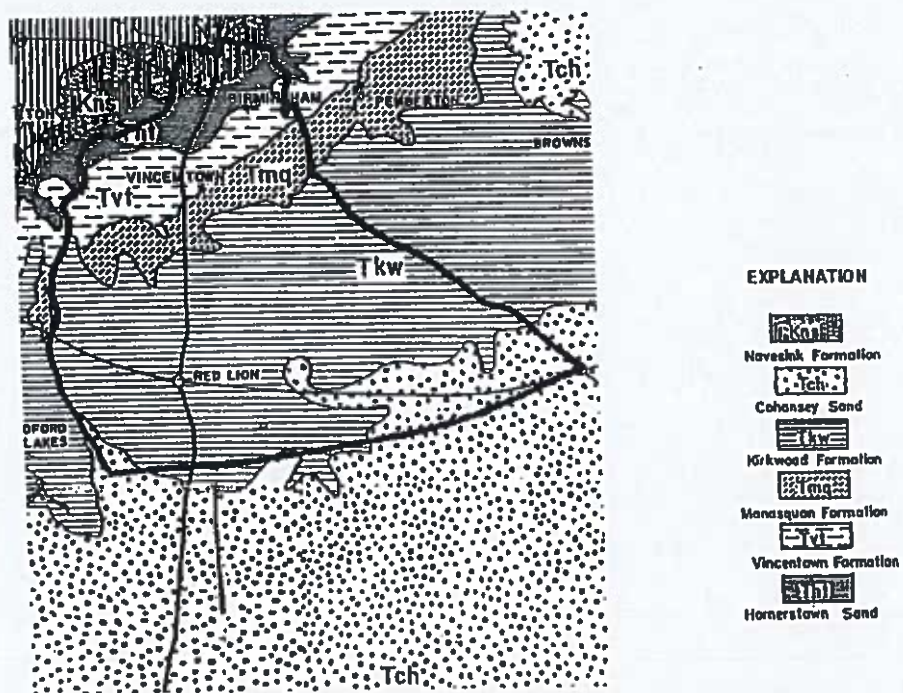


Figure B1. Aquifer Outcroppings in Burlington County, NJ

There are no Southampton local controls for ground water quality. Other townships have employed ground water controls for high quality ground water. Bedminster Township, for example, has a 3 milligrams per liter nitrate concentration limit²⁰.

B.5. NEW JERSEY OFFICE OF STATE PLANNING (NJOSP) GUIDANCE

The NJOSP has defined a model for determining the nitrate concentration in the ground water resulting from an on site disposal system. The Pinelands Comprehensive Management Plan has adopted such a model²⁵. The nitrate dilution model developed for the NJOSP is discussed in Section 5 of reference²⁰. The model incorporates factors resulting from disposal of residential waste water through conventional septic systems that affect nitrate concentrations.

The following paragraph is excerpted from the "Development of Nitrate Dilution Model for Land Use Planning in the State of New Jersey."

"The NJDEP-Division of Water Resources recommends that a target water quality standard of 5 milligrams per liter be used in applying this model (NJDEP, Division of Water Resources, 1988). This approach builds in a certain amount of conservatism to compensate for imprecise data inputs and model assumptions. In addition, utilizing a 5-milligram per liter standard is consistent with the anti-degradation policy contained within the State's water pollution control act. Alternative standards may also be chosen for certain watersheds, depending on existing water quality maintenance goals for the area. ... In the Pinelands Comprehensive Management Plan (New Jersey Pinelands Commission, 1980), a target water quality standard of 2 milligrams per liter is used. Based on a review of surface water quality data, the Pinelands nitrate levels are some of the lowest in the State. A slightly higher standard of 3 milligrams per liter as a target would be supportable in other areas of the State where the objective is to maintain high-quality water, because the USGS has reported that nitrate rarely occurs naturally in ground water in concentrations greater than 3 milligrams per liter (USGS, 1984)."

The nitrate concentration on a lot with an onsite disposal is inversely proportional to lot size and also depends upon geologic and water infiltration factors and parameters. One of the parameters is shown in Table B1, which tabulates the aquifer types represented in the model²⁰. To determine the factor for that parameter Figure B1 depicts the aquifer outcroppings in Burlington County and can all be correlated to Table B1²⁶. Table B2 and Table B3 are example model runs under varying conditions²⁰. Other parameters, as shown in the table of the model runs are the waste water per person per day, Qp, number of residents per home, P, the nitrate concentration, Ce, the precipitation that infiltrates the shallow aquifer, Ri, where Ri is the precipitation minus the evaporation and runoff, and the water quality standard Cq. The State recommends use of 100 gallons of wastewater per person per day with a nitrate concentration discharged to the aquifer of 40 mg/l for a conventional on site disposal system. Runoff is governed by many factors including permeability of the surface and slope.

water or other precipitation that infiltrates into the ground and the natural (background) concentrations of nitrates in the precipitation.”

The soil composition for Southampton is that of the “New Jersey Atlantic Coastal Plain.” Southampton Township ground water quality then must be protected by applying a nitrate dilution model appropriate to the soil conditions and other controls as appropriate to specific sites.

B.3. FACTS RELATED TO NITRATES IN STREAMS AND GROUND WATER

Nitrate (NO₃) and Nitrate-Nitrogen (NO₃-N) is a colorless, odorless chemical that moves with the flow of groundwater ¹⁸. The soils of the Pinelands are chemically inert. Pollution flows through the soil with little renovation ¹⁹.

The ambient water quality conditions ¹⁹ in undisturbed areas of the pinelands are:

- Nitrates-nitrogen – 0.17 parts per million, seasonally higher in the winter
- Ammonia Nitrogen- 0.036 parts per million
- Total phosphate - 0.019 parts per million
- pH < 5
- Total dissolved solids < 100 parts per million

Excess groundwater discharges through swamps and bogs to provide approximately 90% of surface water volume ^{18,22}.

Septic system type (mound, in ground pressure, or in grade) makes no difference in groundwater contamination ²⁴.

B.4. LOCAL, STATE AND FEDERAL CONTROLS

The Federal EPA advocates a limit of 10 milligrams per liter as a drinking water maximum health standard.

The “New Jersey Pinelands Comprehensive Management Plan” (CMP) provides controls for groundwater quality using formulas (models) which limit nitrate ground concentration to 2 milligrams per liter¹⁹. The CMP imposes other limits for Southampton Pinelands groundwater and surface water including:

(Criteria equal to or less than)

<u>Parameter</u>	<u>Surface Water</u>	<u>Groundwater</u>
pH	3.5-5.5	4.2-5.8
Nitrate-nitrogen	2.0 mg/l	2.0 mg/l
Ammonia nitrogen	-	0.5 mg/l
Total phosphate	0.7 mg/l	0.7 mg/l
Total dissolved solids	100 mg/l	100 mg/l

APPENDIX B NITRATES

B.1. MAJOR HEALTH AND ENVIRONMENTAL EFFECTS

One important indicator of septic system ground water contamination is a high concentration of nitrates. Nitrates in groundwater pose serious health risks if they are infused into drinking water. For infants under 6 months of age, concentrations greater than 10 parts per million are toxic⁶. Nitrates have an oxygen starving effect resulting in slow suffocation⁶ the symptoms of which include vomiting, diarrhea, and labored breathing⁶ and can ultimately result in death.^{4,7} The health problem extends to pregnant women and their fetuses. Prenatal⁶ health effects are the same as for children under six months with the added risk potential for birth defects. Cancer risks are suspected but not proven (gastrointestinal cancer^{6,7}).

There is also evidence of livestock susceptibility resulting in lowered milk production and aborted calves⁶. Surface water can also be contaminated by ground water degradation because as much as 90% of the surface water comes from shallow ground water that discharges to nearby streams²². This discharge is termed "base flow." Because of the relationship between base flow and stream flow, high nitrate concentrations in ground water can cause eutrophication of surface water²³. Lower quality water high in nitrates is associated with higher pH values which result in altered stream ecosystems including changed species pools²². High nitrate concentration, therefore, has severe implications by itself. Nitrates are also an indicator of other pollutants that have their own deleterious consequences.

B.2. NITRATE RENOVATION AND DILUTION

The following paragraph is excerpted from the "Development of Nitrate Dilution Model for Land Use Planning in the State of New Jersey."²⁰

"Nitrogen compounds introduced into the ground as septic wastes are attenuated by two processes: chemical renovation and physical dilution with transport out to watershed. The capacity of a soil to renovate nitrate-containing effluent is dependent on the dissolved oxygen content, pH, anion/cation adsorption capacity, and organic carbon content of the soil. These factors combine to create the right physical environment for the chemical adsorption of nitrogen compounds and create a favorable environment to support denitrifying bacteria. The mineral composition of a soil is a key factor in determining its diluting and renovating capacity. Soils rich in clay minerals are generally good chemical renovators but can be poor transporters. In these soils, the physical transport and dilution of nitrates is relatively slow. However, in the permeable sandy soils typical of New Jersey's Atlantic Coastal Plain, nitrates derived from septic effluent will pass rapidly through the unsaturated subsoil into the saturated zone below the water table with little natural renovation. When the nitrate renovation capacity of a soil is low or non-existent, then the primary mechanism for the attenuation of nitrate (and other contaminants) is dilution of nitrate-containing effluent by infiltrating rain water. Some dilution of septic effluent by ground water may occur, depending on individual site conditions. However, because groundwater flow tends to be non-turbulent or may be restricted by low-permeability zones in the soil, the amount of mixing may be highly variable. This assumption is based on several studies of nitrate plume migration and appears to be valid for soils and sediments similar to many of those found in New Jersey. The environment's dilution capability is then a function of the quantity of rain

09 FEB 1994

**Southampton Township
Environmental Commission
P.O. Box 2417
Southampton, NJ 08088-2417**

**SOUTHAMPTON TOWNSHIP, BURLINGTON COUNTY
RARE SPECIES AND NATURAL COMMUNITIES PRESENTLY RECORDED IN
THE NEW JERSEY NATURAL HERITAGE DATABASE**

FEB 18 1994

NAME

COMMON NAME

FEDERAL STATUS

STATE STATUS

REGIONAL GRADE

SRANK

DATE OBSERVED IDENT.

*** Vertebrates

ANDEA HERODIAS
BARTANIA LONGICAUDA
CRITALLUS MORRISUS
DOLICHONTX ORYZIVORUS
DOLICHONTX ORYZIVORUS
HYLA ANDERSONI
HELAERPES ERYTHROCEPHALUS
PITLOPHIS MELANOLEUCUS
POECETES GRAMINEUS
STRIX VARIA

GREAT BLUE HERON
UPLAND SANDPIPER
TIMBER RATTLESNAKE
BOBOLINK
BOBOLINK
PINE WARRENS TREEFROG
RED-NECKED WOODPECKER
PINE SHAKE
VESPER SPARROW
BARNED OAL

*** Invertebrates

CELITHENIS MARTINA
EMALLAGNA PICTUM
EMALLAGNA PICTUM
EMALLAGNA NEQUYATUM
GOMPHUS APONTIUS

MARTIN'S PERNANT
SCARLET BLUET
SCARLET BLUET
PINE WARRENS BLUET
BARNER CLUSTAIL

*** Vascular plants

CAREN BARRATTII
CAREN BARRATTII
GELM VERMUM
HELOMIS BULLATA
RITINGOSPORA PALLIDA

BARRATT'S SEDGE
BARRATT'S SEDGE
SPRING AVENS
SWAMP-PINK
PALE BEAK BUSH

20 Records Processed

**APPENDIX A
ENDANGERED AND THREATENED SPECIES WITHIN
SOUTHAMPTON TOWNSHIP**

Upon acquisition of new parkland, a plan to guide its future use and improvement to meet Township recreation needs should be prepared by the Township Committee. Where greenway trails are to be constructed as part of a development, the desirable development sequence is to develop the trail prior to the development of adjoining residences.

The Township should actively support the New Jersey State "Right -to -Farm" Act to encourage continued farming operations in Southampton Township.

In order to facilitate the accomplishment of the Objectives of this Conservation Element, the following measures should be taken:

- a. Cooperate with State and County Agencies to preserve a system of greenways that links public parks and conserves the natural environment, rural landscape, and rich heritage of the Township
- b. Conserve areas and features of the township that have environmental, cultural, historic, or scenic value
- c. Control the location and expansion of Township Infrastructure to conserve the rural areas of the Township
- d. Support and encourage participation in State and County Farmland preservation programs
- e. Work with municipal officials and local recreation users to create a concept plan and action plan for the development of a community park that meets the needs of Township residents.

7.5 Cultural Resource Plan

A Township cultural resource plan should be developed to include the following actions:

1. Integrate cultural resource concerns into early phases of planning for proposed development through consultation with the Pinelands Commission, the New Jersey Historic Preservation Office, the Burlington County Cultural and Historic Commission and other public entities, as well as with appropriate municipal agencies and private historical organizations;
2. Develop a municipal-wide inventory that identifies known and likely locations of significant cultural resources and guard against unregulated access to, and disclosure of, such locations;
3. Seek New Jersey and National Register listing, with the concurrence of affected property owners, for historically significant properties;
4. Enact appropriate ordinances to ensure the historically accurate restoration or rehabilitation of significant structures;
5. Seek grant funding and gifts and donations which will help underwrite the costs of accumulating inventory information and rehabilitating historic structures and sites;
6. Provide guidance to home and business owners who wish to rehabilitate their historic structures through oral advice and dissemination of written standards and guidelines, such as those available from the National Park Service, the New Jersey Historic Preservation Office and the Pinelands Commission;
7. Preserve historic and archaeological sites through public acquisition and open space initiatives that are also designed to conserve natural resources
8. Support and encourage the accumulation of historical and archaeological information about the Township by private organizations and the dissemination of such information to residents, students, and others in a manner consistent with private property concerns and the long-term preservation of significant historic resources.

7.6 Additional Actions.

The Township should initiate an acquisition program to implement open space, recreation, and conservation plans. The Township should negotiate with property owners for the acquisition of land for additional park and recreation sites or greenway trails. The acquisition program should be reviewed annually by the Planning Board to assess progress in implementing the open space, recreation, and conservation plan and to determine whether the sites identified for acquisition should be modified to reflect changes in the availability of land or new opportunities for meeting plan objectives.

The Township should cooperate with the State and the County in planning and preserving the rural landscape and greenways of the Rancocas Watershed.

The Township, in cooperation with the Burlington County Agriculture Development Board, should market the farmland preservation program to local farmers. Information, assistance, and support should be provided to farmers who are interested in making application for preservation funding.

7.4 Management and Regulation of Growth and Development.

The Township should continue to limit development in rural areas and environmentally sensitive areas to low density and low intensity use.

To conserve open space, farms, and rural areas, the Township should continue to limit the extension of growth-inducing infrastructure, particularly sewers.

To the extent permitted by law, the Township should continue to require that developers preserve open space and provide recreation facilities within new development. Sections of stream corridor greenways have been successfully preserved as conservation easements through development regulation. Where appropriate and permitted by law, the Township should accept dedication and improvement of open space for public use pursuant to development review approval.

The Planning Board, in the development review process, should give substantial weight to the comments of the Township Environmental Commission, the Historic Preservation Commission and the Shade Tree Commission. Development should be designed to conserve the environmentally important features of a site and the natural resources of the Township. It should also be compatible with the Township plan for open space, recreation, and conservation. The Planning Board should require revisions to development designs or layouts or require that alternative approaches be used to eliminate or minimize adverse or undesirable impacts on environmentally important site features and the natural resources of the Township.

The Township should continue to allow residential cluster development where such development, compared to conventional development, would reduce site disturbance, reduce impervious cover, preserve a significant area of open space, preserve important site features and natural resources, and help achieve the objectives of Township open space, recreation, and conservation plans. Consideration should be given to permitting non-contiguous residential clustering to facilitate the preservation of open space in accordance with the Township plan. The density of any cluster development should not exceed the density that could be achieved by a conventional development on the same tract or tracts of land.

7.1 Maintenance of the Conservation Element.

The Township Planning Board should initiate positive action to assure that the Conservation Element is kept current as development progresses. In addition, as new government programs, laws and regulations are put into effect, the Conservation Element should be modified to take advantage of such developments.

7.2 Enact Appropriate Ordinances.

With an approved Conservation Element in effect, the Township should enact ordinances that are designed to achieve the Objectives of the Conservation Element. The Planning Board should submit a prioritized list of new or modified ordinances to the Township Committee.

7.3 Coordination with State and County Open Space Programs

The Township should submit this Conservation, Open Space and Recreation Plan for approval by the Office of Green Acres in the New Jersey Department of Environmental Protection. The approved plans can then be used to secure grants and funds from the State for open space preservation and the establishment of recreational facilities.

The Township established by referendum, an Open Space Trust Fund. The voters authorized an annual levy that provides funds to be dedicated to the acquisition, development, and maintenance of park and recreation lands, (in addition to the preservation of farmland), or for the payment of debt service for open space preservation.

A portion of the Trust Fund revenue should be earmarked for farmland preservation. This would provide the Township commitment and cost share to State and County farmland preservation funds. It can be used to leverage State and County funds to preserve additional farms in Southampton Township.

A portion of the Trust Fund should be earmarked for acquisition of additional Township park and recreation land and implementation of the greenway network. The Township funds would be matched by grants from the State to acquire additional acres of park and recreation land. The funds could also be used to repay low interest State loans under the NJDEP "Infrastructure Financing Program" to develop recreation facilities or to leverage other available State and Federal funds for improvements such as greenways, trails, bikeways, lake and pond restoration, and recreation development.

The Township should create a Land Preservation Committee to help aid in the outreach and administrative efforts needed to realize the overall goals of land preservation.

The Township should actively support State legislation that will enable the collection of development impact fees for recreation. This will allow Southampton to fairly assess new development for a portion of the costs of providing public parks and open space and recreation services.

Cluster developments can be carefully planned to be very effective tools in creating open spaces for the public good. The Township's existing cluster ordinance has not been effective in preserving useful and visible open spaces; they have also been ineffective in creating viable habitat protection. These ordinances must therefore be revised, to not only ensure that the new developments are attractive and functional (as stated in the Land Use Plan), but that the open spaces they create serve the entire Township.

Recommendations for specific areas

Obtain public control and/or access over key stream corridors, along which to create pedestrian and biking trails. Construct the trails as the control is obtained, with each segment setting the stage for connections to the other segments. This network is very complex in its form but it will be the major link between neighborhoods, schools, the library, the municipal complex, recreational facilities, and commercial centers. This use of the stream corridors is the heart of the greenway network.

Use the stream corridors and the railroad right-of-way to link the land preserved by cluster developments with the overall walking/biking network. Construct trails in those areas that are part of the community linkage system.

Identify those privately owned wetlands and steep slope areas that cannot be built upon, to determine whether they can be usefully integrated into the overall greenway network. Determine if the owners will permit access easements or will make tax-deductible gifts of those lands. When approvals are obtained, construct trails that will connect to the community-wide system.

Several of the roadways in the Township are particularly beautiful, and therefore worthy of preservation efforts. Examples of some of those roads are portions of Route 206 and Church Road. Their preservation requires maintaining the adjacent farmlands, the creation of planning and design standards for future developments so that the road character remains, and the establishment of roadway design criteria which prevents their excessive widening.

7.0 ACTION PLAN

The action plan identifies the measures that should be taken to achieve the recommendations for the Township Conservation Element plan. To implement the plan, the Township should establish a land conservation program that is coordinated with State and County programs to finance the preservation of open space and farms. In addition, the Township should manage, regulate, and direct growth to ensure that development design and location are compatible with and support the conservation and protection of resources for Southampton Township. The specific implementation actions are described below.

Preservation of open space should be accomplished through a combination of measures such as:

- Direct acquisition by the Township
- Encouragement of compact rather than sprawling development patterns. Such a policy can be economical for both the developer and the Township. Compact development saves infrastructure costs for the developer and municipal services for the municipality.
- Encouragement of deed restrictions or dedication to the Township of land that is least desirable for development.
- Encouragement of developers of contiguous properties to preserve contiguous open space. The open space should be situated so that future developments can add to the contiguous open space.
- Individual lots acquired by the Township (e.g. through foreclosure action) should be considered for preservation as open space. (e.g. Township owned lots within the area of Bear Swamp administered by the Natural Lands Trust.) In other areas, individual lots should be preserved as open space where feasible to be used for recreation or as a buffer for adjoining properties.

General Recommendations

Fee simple acquisition by the public (state, county or Township) is recommended where full control of the property is desired. This often applies to property to be used as park and recreational facilities. In addition to the purchase of property with public funds, it is also possible that nonprofit entities, such as a conservation land trust, can be effective in making fee simple acquisitions. In this case, it is possible for the trust to acquire and hold title in perpetuity, or to hold the title until the public entity has the funding for the acquisition.

Conservation easements are generally recommended for preserving passive open space, protecting visual access to scenic views, and providing limited public access onto the property. Such easements are recorded agreements by which the landowner retains ownership of the property but conveys, for the public good, certain rights of control over the property. Typically, the rights are granted to a governmental entity or a conservation land trust. The easements are strongly binding, run with the land from owner to owner, and can only be broken by the agreement of all affected parties (the owner, the Township, and/or the land trust). They can be secured by purchase or donation, or through Township/developer negotiations during the planning review process. Easement donations may also qualify for deductions for income tax purposes. If public access onto the property is to be allowed, then the easement terms must specifically provide for it and must define the type and extent of access, the maintenance responsibilities, and the responsibility involving liabilities. The monitoring and enforcement of the terms of the easement therefore become very important and must be established at the early stages of the planning process.

Table 6-3 Southampton Township Targeted Open Space			
Block	Lot	Owner	Acres
902	13	M & M Dolan	80 +/-
1702	23.02; 23.07	SJ Beagle Club	109
1702	27; 27.01	Rosen & Bathgate, etal	215
1702	33	Kliener	95.92
2301	11	L. Bater	21.4
2302	2	R. Miller	21.3
2801	39	G. Pikunis	11
3003	12	Gail Henly Pratt	87.6
3003	22; 29	Mark Simons Sr.	99.8
3003	30	Simons Berry Farm, LLC	19
3003	33.02	Jeanne Simons	44.96
3101	13	Stanley Bakely Jr	18
3102	14	Thomas Alessi	82.38
3201	38	Melvin Black	21.8
3301	19; 20; 24; 27	James Sr and Jr Messner	76
3501	13	D. & Lisa Fay Bain	86.9
3802; 3902	8, 9, 10; 2	Nicholas & Janet W. Agolio	30.6
3802; 3901; 3903; 3904; 3905	12; 1; 1; 1; 1, 2	Sunny Pine	33.7
TOTAL			1154.36

The parcels listed above represent the top candidates for open space preservation based on ranking criteria created to ensure realization of open space goals and objectives which include but are not limited to the following:

- Linkage of parcels to existing preserved parcels
- Protection of stream corridors and stream headwaters
- Protection of endangered habitat and species
- Protection of wetlands, cedar wetlands and floodplain
- Protection of historic, archeological and paleontological resources
- Protection of the scenic corridor
- Potential for active and passive recreation

intent is to create these uses as conditional uses, and to ensure their compatibility with the rural environment. Some conditional uses in the zone could include: fruit and vegetable stands (which are already permitted for sale of products grown on the farm only), hay rides, farm-related gift shops (note that the products need not be grown or made on the farm, and can include antiques), bed & breakfasts, offices small enough to fit in the existing farm buildings and that preferably include companies that serve the farming operations, (e.g., rental of existing buildings for residential uses, veterinarian offices, farm equipment sales, and feed and grain sales). An important part of this recommendation is the establishment of design and site planning criteria that will ensure the maintenance of the rural character of the farm. The intention is to permit the farmer to take advantage of the available farm resources without permitting significant (non-farm) building development.

Discourage Large Lot Development

In the past it was assumed that large lot zoning (e.g., one or two acres) was a satisfactory method for preserving the rural feeling and farming operations. In contrast to the other methods described above, the experience throughout the state and the nation in recent decades is that large lot zoning has exactly the opposite effect. Farms are developed as housing at an increasing rate under this zoning; very large areas therefore become devoted to roads, driveways, and lawns. The conflicts between farming and residential life make farm operations more difficult, and, in the end, the ambiance of the area becomes more suburban rather than rural. Because the current Southampton Township zoning code permits this pattern of development, the other methods for farm preservation that are listed above become even more important.

6.4 Preservation and Protection of Open Space

Open Space, as referred to in the context of this Plan, are those areas that are not qualified as farmland, are not used primarily for active recreational purposes, and cannot be developed. Some criteria for "cannot be developed" are:

- Owned by Southampton Township or other Governmental agency and not designated for any other use.
- Deed restricted for preservation
- Unavailable for development (e.g.: wetlands, streams)
- Property has a Conservation Easement that precludes development

Open Space as referred to in this Plan is thus land that is usually acquired by or the use controlled by a governmental, conservation or land trust agency. (Farmland, which could be considered as open space, is preserved by purchase of development rights. Ownership and operation of the farm is then usually maintained by the farmer receiving remuneration for development rights.

Table 6-3 is a listing of parcels targeted by Southampton Township for preservation through the Green Acres and Burlington County Open Space Preservation Program.

Fee Simple Acquisition, by the Township

In some very specific situations, Townships have purchased farmland in fee (i.e., the purchase of land as well as the development rights) to prevent development. In those situations, the farm can then be resold at farm use prices (versus the price determined by potential development), or can be leased for farming use. In effect, this is another technique for acquiring the development rights, since the public entity can retire those rights prior to lease or resale. The Township is in the process of implementing an open dedicated tax to help in the purchase of properties.

Development Rights, Development Easements: Acquisition by the Township

Since part of the goal of preserving farmland is the maintenance of farming as a viable business in the community, and since the price of land as valued by developers is higher than what farmers can afford exclusively for farming purposes, Township acquisition of the development rights is considered an effective preservation tool. There are several advantages to development rights purchases. They include a more direct public preservation of farmland (this is the major advantage over any other method); lower cost agricultural land is available upon resale (after the development rights are retired by the public entity making the purchase); compensation is made to the land owner; no development bonuses (and therefore no increase in population) are required; and, no loss of farmland occurs. In addition, there is no loss of land management, since the farmer continues to perform farming activities.

Although this technique appears to have the disadvantage of being costly to the Township, in effect, the policy of public purchase of development rights is often shown to be a significant cost saving. If development takes place, which is permitted by the zoning code, the additional population increase will require more schools (by far the biggest long and short term cost), more police and fire protection, more roads and road maintenance, etc. It is far less expensive for the community to purchase development rights than to fund these services and amenities.

Planned Cluster Developments

Recent experience in Southampton Township has revealed that the current pattern of using the cluster option in residential development has not succeeded in the preservation of farmland. New criteria are therefore proposed in the Land Use Plan, for inclusion in the appropriate zoning ordinances that govern cluster developments. New ordinances criteria must require cluster plans to create deed restricted preserved open spaces that are, indeed, useful for the community at large. In appropriate locations, this could include arranging and siting the open land so that it is an extension of neighboring farmland.

Right to Farm Ordinance

The Township already has a strong right-to-farm ordinance that they encourage continued compliance with. The right-to-farm ordinance helps protect the farmer from nuisance lawsuits generated by nearby non-farm residents. Changes are recommended to this Township ordinance, which would permit certain uses on the farm that may or may not be directly related to the specific business of that farm, but which can help farming and its associated culture remain viable and profitable. The

The State of New Jersey, through the Agricultural Retention and Development Act (NJSA 4:1c-11 et seq, P.L. 1983 c.32), provides for these farmland preservation programs:

1. Fee Simple Acquisition, wherein the state and the county use this funding source to purchase farms outright. Once these purchases are made, the farm can then be resold for agricultural purposes at a price that reflects the value of farmland, with covenants that remove the development rights.
2. Purchase of Development Easements (or "Rights") are used to purchase the right to develop from the farm owner, leaving the right to farm intact. In this case, the farmer continues to own the land and can continue to farm or to sell the land (at farm value prices) to another farmer. No further development can take place.
3. Easement Donation Program, wherein the owner/farmer donates the development rights as easements to the State Agricultural Development Committee or the County Agricultural Development Board. This step preserves the use of the land for farming, eliminates the development opportunity, and gives the owner significant federal (income and estate) tax benefits.
4. Eight Year Farmland Preservation Program, wherein landowners place development restrictions on the lands for a period of eight years. In return for this action, they receive certain benefits such as cost-sharing grants for conservation, protection from nuisance law suits, protection from eminent domain actions, etc. At the end of the eight years, the land returns to its original state, without development restrictions.
5. Soil and Water Conservation Cost-Sharing Program, wherein an owner who is enrolled in the eight year program is eligible for a 50% cost-sharing grant for approved soil and water conservation projects on the farm property.
6. Farm Link Program, which assists farmers who have preserved their farm by one of the state programs to be in touch with other farmers, for the purpose of sales or purchase of additional (protected and therefore affordable) farm land. In essence, this is a registry of farms and owners in the state program for the uses of expanding or retiring their farming businesses.
7. Right to Farm Act (NJSA Act 4:1C-1 et seq), which is a state law that complements similar local ordinances.

Note that these programs have recently been enhanced by the 1999 vote that authorized the issuance of bonds, permitting the state to spend \$1 billion on farm and open space preservation (an act that demonstrates great commitment on the part of the citizens of New Jersey for meeting this goal).

Table 6-2 Southampton Township Targeted Farmland			
Block	Lot	Owner	Acres
802	11	Goodfellow, C & C	32.3
1201	1	Good, J.	70
1203; 1204; 1205	12;5;1	Rossell, E.	30.7
1203	13	411 Brace Realty	63.3
1203	14.01	Pine Bridge Farm, LLC	58
1203	5,15	Alloway Family LTD Partners	136
1204	4	Roohr, J. & D.	53
1204	6	Fisher, D.	91.6
1303	2.11	Branca	53
1303	7	Braddock, J.	26.8
1303	11	Coco, E.	97
1303	15.01	Manuel, M.	32.7
1503	8	Hancock, J.	33
1801; 1802	20.01; 3	Warfield Bros.	225
1801	21	Little, J.	34
1802	10.01	Reynolds, F.	70.92
1902	37, 47, 53	Warfield Bros.	200
1903	40.01	Kerry, N.	30
2002	5,8,9, 12.01,14	Pinmar /Singh Real Estate	389.1
2004	6	Warfield Bros.	63.09
2301	1	Binning, E.	122.6
2301	19	Walker, S. & T.	48.5
2901	4	Gerber, T. & C.	123
2902	2	Gerber, T. & C.	27.8
3003	39	Stavros, J. & A.	135.52
3101	2	Kumpel, Fam.	65.7
3101	23.01, 32	C & G Property Assoc.	242.5
3101	37	Falconi, J.	20.3
3102	6	Hunter, M.	63
3301	1	Budd, T & Sons	218
3301	8,11,12, 14,15,16, 17,18,27	Messner, J.	228.9
TOTAL			3085.33

Source: Burlington County State Agricultural Board list of farms targeted for preservation in Southampton Township, 2006

Agricultural operations utilizing the recommended management practices should be exempt from ordinances or regulations that inhibit efficient crop production as provided for in the New Jersey "Right-to-Farm" Act.

Farmlands targeted by Burlington County are listed in Table 6-1. Table 6-2 is a listing of farms targeted by Southampton Township for preservation through Green Acres, Pinelands Development Credits, Burlington County PDC's or State Agriculture Development Credits.

TABLE 6-1 Southampton Township Burlington County Targeted Farmland			
Block	Lot	Owner	Acres
701	1	Gerikont, J. & R.	142
701	4	Richards, E.	185.4
701;801	5;8	Doyl, E.	154.2
701	6	Roohr, L. & B	61.5
701	10	Haines, B.	47
801	7	Schontz, C & R	118
903	11	C. Thompson, et. al.	28.3
903	25	Yates Enterprises of NJ	23.0
1205	2	Miquel, J.	322.8
1201	7	Borko, V.	129.1
1203	1,4	Biglin, R.	113.4
1203	5.01,8,9	McCollister, H & C	129.5
1205	3.03	Jannen, C. & B.	223.8
1303	9	Hampshire, C.	158.7
1303	19	A. Holtz Farm Trust	107
1401	16.01	Clark, J. & K.	98.56
1502	13	Hancock, H. & R.	61.6
1502	14	Gonzalez, H & C	324.9
1502; 1601; 1602	1,1.04;10,1 0.03;9	Alloway Family LTD Partners	249.17
1601	6	Cheung, N. & N.	11.3
1601	6.03	Demastro, Inc.	31.03
1602	4	Melegari, D. & D.	24.65
1702	4	Seward, J. & J.	
Total			1918.26

Burlington County State Agricultural Board list of farms targeted for preservation in Southampton Township. 2001

- “Vincentown Corridor” (A 1983 survey of the Vincentown Village Historic District¹⁷ identified development of the land between Red Lion Road and Church Road as a major risk to the integrity of the Village.)

6.2.4 Protection and Preservation of Scenic Features

- **Specific Sites**

The John D. Rockefeller Scenic Highway (NJ Route 70) The Township should develop a plan for this stretch of highway and enact an ordinance that limits the number and character of “cuts” for access to developments. Standards imposed by the Pinelands Commission for setbacks, clearing, etc. should be adopted throughout the Township.

- **General Esthetics**

Measures should be undertaken by the Township to insure that general esthetic characteristics are not degraded by new or existing development. Some specific measures are:

1. To alleviate problems caused by road litter, the following steps should be taken:
 - a. Sponsor a program similar to the New Jersey “Adopt a Highway” Program for Southampton Township roadways.
 - b. Encourage the use of recyclable and/or biodegradable containers for fast food establishments, convenience stores and similar businesses. Ordinances should be enacted where appropriate and legally acceptable to implement the program.
 - c. To the extent permitted by law, for disposable items that cannot be made biodegradable, require business to affix an identification label to the materials. The label would serve as a means for the Township to bill the business for the cost of removing the items from the landscape.
 - d. Increase setback regulations for parcels along the scenic by-ways.
2. Facilities that are used for the storage of wrecked or junk automobiles should be required to obscure such items from public view. The use of native Pinelands vegetation should be encouraged as a means for obscuring the view. In addition, sufficient on-site parking should be provided and located so as to provide minimal visibility from the road.

6.3 Preservation and Affirmative Encouragement of Agriculture

The use of the land for agricultural activities, including the preparation of land and planting, nurturing and harvesting crops should be accomplished utilizing recommended management practices established for the particular agricultural activity by the New Jersey Department of Agriculture, the U.S. Department of Agriculture Soil Conservation Service and the N. J. Agricultural Experiment Station of Rutgers University.

Over time, some of the more significant archaeological sites in the Township should be made accessible for legitimate perusal by organizations such as schools, clubs and research organizations. Adequate security must be provided to prevent unauthorized access.

6.2.2 Protection and Preservation of Paleontological Sites

Existing, important paleontological sites such as the Vincentown Formation should be protected through the use of several measures. Development near such sites should be directed so that the sites are not disturbed either by the siting of structures or due to construction activities. Direct acquisition by the Township of sufficient surrounding land to protect the site should be considered. If acquisition is not feasible then easements should be negotiated. Physical protective measures, such as fencing, should then be put in place to prevent unauthorized access. Sufficient clearing should be provided for viewing of the sites without physical access.

An expert in paleontology or geology should be engaged to survey the Township for potential new sites. That information should be added to the Township N.R.I. The Planning Board should use the N.R.I. to direct developers to do sufficient site research prior to approval of construction to establish the existence and/or importance of the site.

If additional significant paleontological sites are found or suspected to be present in the Township, means should be in-place to prevent the arbitrary destruction of such sites. A qualified expert should be employed to establish the best method for preservation of the site(s) and/or for the removal of items of significance.

6.2.3 Protection and Preservation of Cultural Landscapes

A comprehensive municipal inventory of the Township's cultural resources should be conducted to provide a more thorough understanding of the location, or probable location, of lesser-known or unknown sites of potential significance. Such an inventory would aid municipal agencies and developers in planning for future development in a manner that recognizes and respects the cultural heritage of the Township.

Specific, known settlements should be considered for special preservation measures because they maintain their historic characteristics reasonably intact and visually convey a sense of the past. Examples are:

- Buddtown
- Vincentown (Officially declared a "Town Center" by the State of New Jersey and placed on the National Register of Historic Places in 1988)
- Pemberton-Southampton Agricultural Historic Area (Created as a result of a 1993 Pinelands Commission study ¹⁶)

Archaeology and Historic Preservation to guide their treatment and to promote their restoration or rehabilitation.

Increased public awareness and appreciation of the Township's unique heritage and the struggles and triumphs of its past residents and ancient occupants can be accomplished through the following preservation efforts and initiatives:

1. Preservation of the historic built environment (buildings, structures, and features on and below the landscape that are instructive/illustrative of the development of the Township);
2. Preservation of the remnant evidence of prehistoric Native American culture;
3. Preservation of the unbiased record of past human activity through archaeological survey and excavation and the correct archiving of recovered materials.
5. Preservation of prehistoric organisms such as fossilized remains of sea life, vegetation and insects.

6.2.1 Protection and Preservation of Archaeological Sites

The Township should require an archaeological information search for any commercial or industrial subdivision or site plan, and for any major residential subdivision. Any area of archaeological significance should be preserved and protected from development along with a 100-foot buffer. Preservation or, when necessary, the careful excavation of the material culture of the earliest residents of the Township, the ancient Native Americans who settled in this area approximately ten millennia ago, as well as the many generations that followed them, should be required.

Where there is a question of the archaeological value of an area, a letter from the Pinelands Resource Planner should be required to recommend further action to investigate the value or, alternatively, to proceed with development.

Research should be conducted into the remnants of former settlements and occupation sites to determine their potential to provide information about the lives of past residents. Important examples are:

- Retreat (Factory)
- Burrs Mills

Continued security of unprotected historic sites should be assured by maintaining strict confidentiality of their precise locations, except when divulging this information is a necessary part of planning for public and private development projects or for research that will increase knowledge of the Township's past.

Clear cutting should not be permitted. Where such clear cutting occurs prior to plan review by the Planning Board, then full restoration should be required prior to any further plan review.

6.1.6 Protection and Preservation of Air Quality

Consistent with the goal of maintaining a rural character of Southampton Township, all nonresidential applicants should include certification from licensed professional engineers that the application for future development complies with the air quality standards of the New Jersey Air Pollution Control Regulations (N.J.A.C.7.27 et seq.) but also provide pre- and post- air quality data assuring that there is no significant change in the air quality attributable to the development. In order to minimize air pollution while improving energy efficiency, the planning should include energy savings design such as:

- maximizing solar access
- landscape plantings to provide shade and wind protection
- bikeways and/or walkways that allow safe pedestrian access with minimal motorized vehicle use where feasible
- encourage the use of energy efficient appliances and heating
- allow the use of wash lines in the interest of energy efficiency, homeowner association rules notwithstanding.
- permit energy efficient constructs, e.g., Trombe walls, solar panels and the like, homeowner association rules notwithstanding.
- require reforestation where farms are used for development
- encourage minimal clearing where forested areas are used for development

6.2 Protection and Preservation of Archaeological and Paleontological Sites, Cultural Landscapes and Scenic Features.

Preservation should be accomplished by whatever means are effective and economical. Such methods as acquisition with State or County funded programs, negotiation of easements, dedication by individuals or developers, and the enactment of ordinances should be considered, as necessary.

Over time, the Township should endeavor to identify the full range of its archeological, paleontological, historic and cultural resources, and scenic features through support for systematic research and field survey. The historical significance of all such resources should be evaluated according to the criteria for entry on to the National Register of Historic Places. For resources determined to meet the Register criteria, the Township endorses the use of the Secretary of the Interior's Standards for

6.1.4 Protection and Preservation of Diverse Natural Communities

Prior to any major development, (and in some instances a minor development) the applicant should consult with the Natural Heritage Program of the NJDEP, Trenton, N.J., for records of critical habitat(s) and of rare, threatened or endangered plant and animal species that may occur on or in close proximity to the project site. For projects within the Pinelands, the records kept by the Pinelands Commission in New Lisbon can serve as an additional source. The STEC Natural Resource Inventory of the entire Township also should be used as a source of information. The latter materials document species that are desired to be protected and preserved.

An on-site rare, threatened and endangered species survey should be made by a qualified environmental consultant, preferably throughout the life of the growing or active season. Under special conditions (e.g. a severely denuded or compacted site), this requirement could be waived at the option of the responsible Board. The presence of species of concern may require the development of a management plan for the project. In some cases, it could severely alter the design of a project.

No construction, grading or vegetation removal should take place in critical habitat areas during breeding or mating of rare, threatened or endangered species and protection for the critical habitat area appropriate to the species should be provided.

6.1.5 Protection and Preservation of Vegetation and Forests

There should be minimal tree removal and lot clearance as a result of any major subdivision or commercial/ industrial development. Existing trees should be preserved to the extent possible. A tree inventory and location should precede such development. Special attention should be given to the preservation of selected indigenous species such as Atlantic White Cedars. The development should proceed only after consultation with the Southampton Township Shade Tree Commission.

Development techniques that have the effect of significantly harming the woodlands should be discouraged. Woodland preservation should take precedence in subdivision planning over convenience of lot lines and house placement. Natural clearings should be used where possible. Other cleared areas should be planted to compensate for necessary development clearing. Trees removed to facilitate development should be replaced.

Planting of trees and shrubs should be limited to native types as specified in Southampton Township Land Use Ordinance. The Southampton Township Shade Tree Commission and/or the New Jersey Pinelands Commission should be consulted for site-specific recommendations.

- Lands with a stream corridor protection plan should receive priority in Township land acquisitions.

The water in streams is provided largely by ground water. Streams must be protected at the source by limiting the contamination of the ground water. The recommendations for ground water quality (paragraph 6.1.2.1) need to be implemented to protect both ground water and surface water.

Since ground water is the source for much of the surface water, point sources of pollution that contaminate the ground water may also affect surface water. STEC should determine whether specific sites listed by the NJDEP could have an effect on any surface water bodies.

6.1.3.1 Wetlands and Flood Prone Areas

Wetlands and transition areas should remain undisturbed in accordance with the State of New Jersey Freshwater Wetlands Protection Act. (N.J.A.C. 7: 7A-1 et seq.)

Southampton Township soils, vegetation, freshwater wetlands and high water tables make much of the Township unsuitable for septic system use. Those areas must be protected as valuable resources of regional as well as of local importance. Such areas are identified by STEC Maps, the Burlington County Soil Survey and other sources as appropriate.

On- site wetlands delineation should be provided by a qualified consultant indicating how the applicant will avoid encroachment into State regulated wetlands during and after construction.

Permits are required for alterations to stream channels or floodplains within the 100-year flood boundary, under the Flood Hazard Control Act (NJSA 58:16A-50 et seq.). This program is administered by the NJ Department of Environmental Protection, Division of Water Resources, and Bureau of Floodplain Management. The US Army Corps of Engineers, New York District, regulates the dredging or filling of navigable waters, their floodplains and tributaries under the Clean Water Act (33 USC 1344). To protect water quality, public agencies and private corporations which discharge wastewaters into surface waters are required to obtain permits in accordance with the Federal Water Pollution Control Act (PL 92-500) under the National Pollutant Discharge Elimination System process. Permits are also required under the New Jersey Water Pollution Control Act (NJSA 58:10A-1 et seq.) for discharges into surface or groundwaters. This program is also administered by the NJ Department of Environmental Protection, Division of Water Resources. To avoid negative impacts to floodplains, floodplain boundaries should be delineated for all development projects and Township officials should ensure all required permits are received prior to any construction.

define some way of guaranteeing that such pollution will be detected, then such business should not be permitted to open and operate. To do otherwise is to invite undetected ground water contamination.

The NJDEP maintains a record of locations that have on-site contamination. (e.g. fuel oil and gasoline leaks) Such sites should be monitored by STEC with a follow-up of the remediation required by the NJDEP.

6.1.3 Protection and Preservation of Surface Water

Development should include plans for minimizing non-point source pollution utilizing:

- Buffer strips
- Overland stormwater flow
- Vegetated swales
- Wetland or marsh creation
- Infiltration practices
- Porous pavements
- Water quality inlets

On sites where a body of water is present and surface water quality monitoring data is unavailable, the applicant should evaluate the pre-development condition of the surface water and provide this background data to the Southampton Township Environmental Commission

No construction of any type should be permitted within three hundred feet of any lake, pond, or other surface water body except for impervious bikeways, trails, footbridges, gazebos and/or canoe launches.

As required by the Pinelands Commission in the Pinelands areas of Southampton, in the remainder of the Township it should be a goal to maintain a minimum of a three hundred (300) foot buffer to stream corridors where no development shall take place, Pinelands Commission relaxation of this requirement on selected cases notwithstanding. In exceptional cases, where there is an overriding Township benefit, reduced buffers may be established. In addition, where other agencies (Such as the DEP as a result of recommendations by the local "Watershed 19" Program) have established other acceptable conditions, the buffer requirements may be modified. In any case the relaxation must be based on objective data for each of the local watersheds where the applicant has provided for one or more of the following:

- Objective, site-specific hydrologic data and funds for long term water quality monitoring
- Perpetual conservation easement of the stream corridor and buffer
- Passive recreation opportunities
- Where the lands proposed for development include a stream corridor, and prior land uses

In addition, zoning regulations should be enacted that preclude the establishment of businesses that require the use of large amounts of water usage in areas in or close to severe septic limitations. Such businesses as restaurants, hair salons, car wash facilities and food processing facilities should not be permitted in such areas.

In order to minimize chemical infusion into the aquifer from lawn maintenance, subdivisions on cleared land should be reforested as part of the subdivision requirement. Reforestation should be completed prior to final approval. Such a requirement will discourage expansive lawns using large amounts of nitrate fertilizer, insecticides, and weed killers that ultimately find their way into the aquifers and streams. Where the developed land is farmland, natural vegetation and trees should be planted with a coverage percentage consistent with the percentage required of developments on already forested land. Such vegetation would also help to renovate the nitrates residual from farming operations. Similar plantings should be required wherever possible including in Highway Commercial and Industrial Zones. Forested industrial and commercial sites should be encouraged and large lawns discouraged and should be reflected in site plans. Consideration should be given to limiting the area that may be serviced by an automatic sprinkler system as a means to limiting lawn size. (The limiting of sprinkler systems would also be important for the conservation of water resources.)

6.1.2.2 Automotive Pollutants

Sites that have the potential for introducing automotive pollutants should be required to have the ground water tested periodically to ensure that the aquifer is not being contaminated by hydrocarbons in excess of drinking water standards.

The requirement for impermeable parking surfaces with collection devices that are properly serviced should be considered to permit diffusion and evaporation of such leakage.

6.1.2.3 Additional Groundwater Pollutants

Specific sources for ground water pollution, including point and non-point sources, should be identified and mitigated.

Businesses that use a large volume of ground water as part of their business, as opposed to sanitary and drinking usage, must return the water to the same aquifer from which it was extracted and with the same chemical composition. No chemicals should be added and the pH should not be altered.

Businesses that use chemicals that could be introduced into the aquifer should be required to periodically test the groundwater for the presence of those chemicals. In the event that the business cannot

by the Pineland's Nitrate Dilution Model¹⁹ The New Jersey Office of State Planning²⁰ recommends standards of between 3 and 5 mg. per liter, depending upon density of septic systems, soil conditions and potential for polluting nearby surface waters. Other townships have adopted such standards. (Bedminster Township, for example, has adopted a standard of 3mg. per liter of nitrate concentration.)²¹ Southampton Township needs to adopt similar standards.

The NJ Office of State Planning (OSP) recommends the use of a nitrate dilution model in planning and evaluating development and uses.²⁰ The ground water nitrate concentrations for all subdivisions outside the Pinelands should be constrained by the potential for nitrate pollution of the aquifer as quantified by the nitrate dilution model. Further, the concentration level should be no more than the 5mg per liter maximum recommended by the NJ OSP. However, 3 mg per liter is recommended by the OSP for preservation of high quality ground water. The more conservative level of 3 mg. per liter should be, most definitely, adopted for the most ecologically sensitive areas such as near streams, lakes and wetlands, and particularly for areas immediately adjacent to the Pinelands.

One of the factors in the Nitrate Dilution Model is an estimate of the nitrate concentration of the waste water immediately at the source (the onsite disposal system) as well as the volume of waste water. The consideration of what source waste water nitrate concentration and waste water volume is acceptable should be based partly on the use of a specific property. For residential properties the use factors are adequately addressed within the State Model. For highway commercial and industrial usage, realistic estimates of nitrate pollution should be required. Employees should be counted as if they were residents of the facility. Estimates of customer use of the on-site disposal system for the facility should be made and supported by empirical data, when possible. Worst case estimates should be used.

When reviewing subdivision applications, the planning board should consider soil conditions in the surrounding area in addition to the conditions on any one lot. Nitrates are not confined by lot boundaries. Nitrate pollution is a cumulative problem wherein adjacent lots all contribute to the sum total of the nitrate problem. Therefore the board should note what the soil type is for the area to be developed and should require that it be so noted on any application. Where the soils map indicates "severe" septic suitability then the board should give this fact more weight than measured seasonal high water table and percolation rates.

- Removal of topsoil from the Township (A practice forbidden by Township Ordinance)

6.1.2 Protection and Preservation of High Quality Ground Water

Major subdivisions as well as commercial and industrial facilities should be designed to maintain the quality and quantity of ground water resources and maintain or decrease the ratio of runoff to infiltration. Natural drainage patterns should be maintained wherever possible, and surface water runoff should be directed in such a manner as to travel over stabilized, vegetated areas as opposed to potentially contaminated surfaces, such as parking lots. The goal should be to reduce the level of pollutants in stormwater and to allow vegetative and soils filtration of stormwater contaminants.

A major objective in Southampton Township should be the maintenance of high quality ground water. Southampton Township has a high water table. Wells, including shallow wells, provide the main source of drinking water. Further, most of the surface water is of ground water origin. Therefore, clean ground water is essential to the health of the community as well as the maintenance of the ecology of the Township. Any development or use that contaminates the ground water must be avoided. Nitrate is a major ground water pollutant that is both a health hazard and an indicator of the presence of other ground water pollutants. Pollution from vehicle fluids is also a concern.

6.1.2.1 Nitrates

Currently, in Southampton Township, evaluating the suitability of a site for onsite waste water disposal from conventional septic systems focuses on the ability of the surface soils and underlying geologic formations to absorb and transmit septic effluent. These evaluations (e.g., percolation tests and seasonal high water table tests) determine the ability of the lot to support individual septic systems with respect to the filtering and drainage ability of surface and subsurface soils. However, such tests do nothing to evaluate the ability of the environment to dilute and transport septic system contaminants (especially nitrates) safely out of the watershed. Thus, ground water degradation may occur in areas having approved, properly functioning, septic tank systems.

The US EPA recommends that no more than 10 milligrams per liter of nitrates is acceptable for drinking water.¹⁸ In order to assure that the 10-milligram per liter level is not reached, regulation of the allowable nitrate infusion by septic systems must be regulated. The only regulation in New Jersey by a State agency is that imposed by the Pinelands Commission. The Commission permits no more than 2 milligrams per liter of ground water nitrate concentration as calculated

- * Walking trails
- * Driving range or golf course
- * Multi-sport complex

6.0 RECOMMENDATIONS

Some of the background and reasoning behind the Goals and Objectives of Section 3 SUMMARY and the NEEDS of Section 5 are presented in the following paragraphs. Also included are recommended actions and standards to achieve the goals and objectives.

6.1 Protection and Preservation of Natural Resources

Protection and preservation of all natural resources can be accomplished through general and specific measures. Some general measures are as follows:

- Encourage development to locate in a pattern of compact nodes within the Township.
- Ensure that the investment in infrastructure supports a sustainable pattern of land use that builds upon past public investment in roads, schools, utilities and public open spaces.
- Provide a balance between growth and conservation as recommended by the SDRP.¹
- Assure that the density and intensity of development is in keeping with the inherent capabilities and limitations of the physical characteristics of the land.

6.1.1 Protection and Preservation of Soils

The Planning Board should assure that all applications for development are scrutinized, as appropriate, by the Burlington County Soils Conservation District. Local ordinances should be in-place and enforced to be certain that excavation and redistribution of soils prior to application for development are not taking place. Some particular areas of concern are:

- Soil erosion through indiscriminate or improper clearing of lands by individuals (such as "Gentlemen Farmers") or organizations that are not familiar with the soil conservation practices promulgated by various Government agencies. The use of "Best Management Practices" should be encouraged.
- Removal and/or redistribution of surface soils over large areas should be discouraged.
- Importation and distribution of soils that are not compatible with the areas in which they are placed should not be permitted.
- Controls should be implemented to prevent the importation and distribution of soils that contain dangerous or undesirable contaminants.

Neighborhood parks/playgrounds are areas devoted to more intense recreation facilities such as playing fields and playgrounds. Each neighborhood park/playground is typically 15 acres or more in size and provides a recreational and social focus for a moderately dense residential community. Leisuretown and Hampton Lakes provide neighborhood parks/playgrounds that serve a specific residential neighborhood.

Community parks are the largest of the three types and usually exceed 25 acres. They serve a broader focus than neighborhood parks and are created to meet recreation and social needs of large sections of the community. The NRPA guideline recommends 5-8 acres per 1,000 population. The 2000 census recorded a population of approximately 12,000 requiring a community park ranging in size from 60-100 acres. The existing Municipal Complex is approximately 40 acres and provides areas for active recreation. The Township recently acquired a tract of land (approximately 100 acres in size) adjacent to Vincentown, a designated center, which will provide an opportunity for additional recreation and social activities in the future.

The Township provides facilities for many passive and active recreational activities. As part of the public outreach, an unofficial survey was created and distributed randomly to a small portion of Township residents to gain an understanding of the importance of recreation in the community and gain an understanding of future needs. The survey was also forwarded to the Southampton Township Recreation Association for comment. In addition, the Southampton Township Recreation Association provided data on the use of existing facilities.

Although the distributed survey did not provide a professionally accepted result, the survey did provide guidance in the following need statement.

The Township appears to meet the national standard for neighborhood and community parks. However, the condition, quantity and array of existing facilities need improvement including but not limited to:

- * Provision of lighting
- * Provision of concession stands
- * Better access and maintenance of fields
- * Restroom facilities
- * Increased parking facilities
- * Indoor facilities
- * Social gathering space
- * Skate park

EXHIBIT A

LAND PRESERVATION PLAN

