

## COMPREHENSIVE MASTER PLAN

# East Greenwich Township Gloucester County, NJ



*Historic Death of the Fox Inn*

Adopted by the East Greenwich Township  
Planning Board on March 25, 2004

Prepared by RAGAN DESIGN GROUP  
In cooperation with the East Greenwich Township Planning  
Board



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# *I. Overview*

## *A. Community Vision Statement*

The *Vision Statement* is a broad statement of how the community envisions itself as it moves on into the future. A vision is grounded in the community's values; it embodies the community's ideals and captures its unique qualities; it guides the town's development by proactively asserting the town's desires to ensure appropriate development. A vision for the future of East Greenwich is essential for effective comprehensive planning and implementation of the plan. In order to create a shared vision of the future, the plan development process involved community leaders and citizens in identifying issues, determining the community's assets as well as the challenges it faces, and preparing goals and objectives that will shape and define the future of East Greenwich Township.



### *The Vision*

The vision is of a community that provides a desirable place to live, work and play. It is a place with neighborhoods offering cultural and economic diversity and a variety of housing opportunities from single-family on a range of lot sizes to independent senior units. In this environment, a continuum of residents with a range of occupations and incomes, young and old, interact on a daily basis. Individuals and the community as a whole will be enriched by this interaction.

Neighborhoods linked to business centers create a balance between housing and employment that provides choices for people who want to work near home and shorten commuting times. A commuting system is established that permits workers to car pool, take a bus, walk or bike to work along tree-lined pathways without conflict or danger from automobile traffic.

Modern infrastructure and services in the form of roads, schools, recreation areas and public utilities are available to serve all the needs of the population. The school system grows stronger every year, helping students to achieve academic excellence, exceptional athletic ability and cultural awareness. Energy efficient homes and businesses are encouraged as well as diversification of energy sources through the exploration of alternative fuels. Design and performance standards will ensure that the character of East Greenwich will be maintained and enhanced by development of buildings that are appropriately scaled and designed to reflect the historic character and history of the area. East Greenwich will maintain minimal commercial services along Kings Highway to maintain and enhance the historic residential character of Mickleton, Clarksboro and Mount Royal. Further, new homes along Kings Highway must meet the architectural standards set forth by the community.

Farmland is preserved as frequently as possible to protect our rural heritage, especially on prime agricultural soils. Development outside of the sewer service area occurs at a pace that can be assimilated by the Township and is at a low density to preserve the pastoral character of the area. Senior citizens who wish to remain in East Greenwich are afforded ample housing options from independent single family units to assisted living care.

Sidewalks and bicycle paths connect all areas of the Township. Additional parkland and athletic facilities are made available to promote healthy activities for children and teens. The vision for East Greenwich is that of a balanced community rooted firmly in the past, but looking ahead to the future.



*Kings Highway*

## *B. Introduction*

A community comprehensive Master Plan is a guide for public and private development decisions. It is a flexible tool that addresses land use, transportation and streets, economic development, recreation, community facilities, housing, and natural features. The plan is crafted with the general purpose of guiding and accomplishing the coordinated development of the community in accordance with existing and future needs. The general purpose of the plan is to guide the community's development so that it occurs in a coordinated, efficient, and effective manner. The plan and planning process are intended to determine community needs and preferences, anticipated problems and propose solutions, balance competing interests, and define and defend common goals. The underlying theme of the plan is the promotion of the general health, safety and welfare of East Greenwich Township and her citizenry. It is based on a desired future condition of the community, and directed by analysis of existing conditions, use of available information, and prediction of future events based on educated assumptions.

The qualities that make a community a desirable place to live, work and play are as varied as the individuals who choose to inhabit it. Some individuals are in search of good schools, safe neighborhoods, cultural variety or abundant shopping. Others look for proximity to work, public transport opportunities or affordable housing. Still others search for a peaceful environment away from the bustling congestion of densely developed areas. It is a unique and rare environment that offers all of these attributes. East Greenwich Township has the potential to exemplify this ideal.

East Greenwich Township continues to be a developing community. It is also a community that is realizing the pressures of predominantly residential development. A number of development proposals have been advanced which, if constructed, could change forever the character of the community. In contrast to severe residential development pressures, East Greenwich continues to see herself as a rural community intent on the preservation of agricultural and environmentally sensitive lands. East Greenwich must balance growth opportunities with preservation goals in order to maintain a "quality of life" that residents in the community have come to appreciate. These goals are consistent with those advanced by the New Jersey State Development and Redevelopment Plan.

## *C. Planning Board Mission Statement*

The East Greenwich Township Planning Board seeks to enhance the quality of life in East Greenwich Township, to implement the goals and recommendations of the Master Plan through its review of development applications, and to recommend the adoption of ordinances to further these goals. The Planning Board aims to encourage and to promote citizen, business and Township cooperation in the development and planning process with attention to present detail and an eye to the future.

As East Greenwich works on planning its neighborhoods, complex development issues emerge. They range from concerns over balancing development with environmental integrity, smart growth management, providing affordable housing opportunities, encouraging uses that will allow East Greenwich to stay competitive in the marketplace, and maintaining the unique physical attributes that contribute to the quality of life and a sense of place in the Township.

In order to achieve this mission, the East Greenwich Planning Board identifies the following responsibilities:

- ◆ Judge land use applications in accordance with state and local regulations and strive to ensure that all permitted development is designed to make the most of the land's attributes and to enhance surrounding land uses in conformance with the zone plan.
- ◆ Make recommendations to the Township Committee regarding revisions to land use ordinances in response to new demands for housing, commercial, and industrial uses as well as demands for open land and farm preservation while adhering to the goals and objectives of the Master Plan.
- ◆ Promote discussion with the citizens regarding the needs and concerns of individual neighborhoods and the community at large.
- ◆ Engage in ongoing dialogue with the Zoning Board of Adjustment to monitor the number of zoning requests that may indicate a need for a change in zoning or a land use regulation.
- ◆ Engage in ongoing dialogue with adjacent municipalities, as well as county and state government on issues that affect the wellbeing of East Greenwich Township.

## *D. The Master Plan Process*

The development of the Plan was a collaborative process involving the master plan consultant, Township departments, Planning Board members, and the public. In order to address all issues within the community equitably, the Planning Board held a series of public meetings to discuss each element of the plan and to identify assets, issues, and opportunities, and to formulate a vision for the future of the Township. Participants worked together to identify necessary pedestrian and roadway improvements, community facilities, appropriate types and locations of land uses, and how residential and commercial areas can be designed to improve the overall function and appearance of the community.

The Master Plan outlines a strategy that responds to the challenging issues now facing the Township. It is a guide that re-establishes and refines planning and developmental policies set in motion by previous plans. This plan relates to the development and interrelationship of future land uses, housing, circulation, recreation, open space, community facilities and services. It consists of a narrative document and a series of photographs, tables and maps. The narrative document addresses the history and character of the community as they pertain to land use, zoning, circulation, open space and recreation, farmland preservation, recycling and utilities, community facilities, economic development and community design.

The plan must be periodically re-examined to address changes in the conditions affecting its basic underlying assumptions. Its strength, however, is predicated on the interaction of all components. The acceptance of each element must include the consideration of its impact on the other elements. Only in this manner can modifications be made without undermining the integrity of the plan as a whole.

The plan is a guide for the future development and redevelopment of East Greenwich Township. This plan can serve as a reference document to which regional, state, county, and other public or private agencies can relate their respective planning and development discussions. The master plan reflects the Planning Board's forethought regarding each of the master plan elements.

## *E. The Master Plan Defined*

The Municipal Land Use Law (Chapter 291, Laws of N.J. 1975, amended; N.J.S.A. 40:55D-1 et. seq.) provides for the adoption of a master plan by the Planning Board. The master plan is comprised of a statement of land use, maps and various elements. The East Greenwich Master Plan is a comprehensive plan that includes all the elements as defined in the Municipal Land Use Law. The plan presents East Greenwich's planning principles, objectives, and policies for the physical, social, and economic development of the community. The master plan contains the following elements: goals and objectives, land use, circulation, recreation, open space and conservation, farmland preservation, housing and population, community facilities, utilities, recycling, economic, and historic preservation.

The first master plan for East Greenwich Township was prepared in 1980, with a new Land Use Element adopted in 1990 and a reexamination report completed in 1999. The 1990 Land Use Element plan was heavily focused on land use and the implications of proposed re-zonings. A Housing Element and Fair Share Plan was drafted and certified by the New Jersey Council on affordable Housing in 1991. Also in 1991, the Township adopted ordinances to implement the 1990 Master Plan including the affordable housing regulations.

In 1997, the Planning Board prepared a new Housing Element in accordance with the Fair Housing Act and submitted this plan element to the Council on Affordable Housing for certification. That same year a lawsuit was filed involving exclusionary zoning and the housing plan was remanded to superior court. The lawsuit has been resolved and the Township has been working with the court appointed housing master to complete and submit a revised Housing Element for certification. It is anticipated that East Greenwich will have its housing plan approved by the end of 2004. The last Master Plan re-examination occurred in 1999. That document stated the major problems and objectives relating to land development in the municipality. The re-examination report recommended that a new master plan be prepared to address the increased residential development pressures and the need to firmly establish the Interstate Route 295 corridor as an area of economic development opportunity.

## *F. Goals, Objectives, Principles, Policies and Standards*

The Municipal Land Use Law requires that the master plan provide a statement of goals, objectives, assumptions, policies and standards upon which the constituent proposals for the physical, economic, and social development of the municipality are based. (NJSA 40:55D-28). The goal-setting phase of the master plan process is the foundation upon which the remainder of the master plan is based. In establishing goals and objectives, we are laying the foundation for the future of East Greenwich Township. The overall vision is reflected in each of the elements of the master plan. As part of this process, ten public meetings were held to solicit input from the community. In addition to these meetings, interviews were conducted with directors and staff of all departments within the Township. The goals are general and are intended to provide a framework for directing development and preservation, while the objectives provide a more specific way to implement the stated goals.

In order to guide the development strategy for East Greenwich Township, specific goals have been recommended by the Planning Board. They are based upon the various master plan proposals for the physical, economic and social development of the Township. These goals have been organized into broad categories that correspond to the major elements of the master plan.

### *Goals and Objectives*



The primary goal of East Greenwich Township is to maintain a well-balanced community in which to live, work and recreate in a clean and safe environment. This includes housing, business, industrial, recreation, and open space opportunities to meet the diverse needs of the citizenry's dissimilar ages, ethnic groups, and income levels. In addition, the Planning Board and the governing body

seek to enhance the historical, environmental, and cultural resources of the community. Preservation of these resources is integral to maintaining the character and quality of life that is identified with the community.

Objectives provide specific means to ensure that future development will be compatible with the Township's planning goals. In order to achieve the stated goals, objectives need to address several conditions including community highways, facilities and services, natural features, existing development characteristics and available land. By organizing these objectives into the

various plan elements, a clear understanding of the many considerations addressed within the master plan is presented.

The objectives found in each of the elements that comprise the master plan are summarized below.

### Land Use

**Goals: Preserve and protect the character of established residential neighborhoods as well as agricultural uses ensuring that future growth compliments and enhances the character of the overall community. Encourage economic and employment growth in designated areas of the community thereby balancing new development and ratables with the needs of the community.**

#### **Objective 1:**

Maintain a balance of land uses within the Township that encourages living, working, and recreation within the community.

- Revise the land use ordinances to insure compatibility with new growth demands for housing, commercial and industrial uses within the community and reduce the stress on environmentally sensitive lands.
- Rezone areas of the community where appropriate, to reflect current uses or uses deemed to be in the long-term best interest of the community.

#### **Objective 2:**

Preserve and protect the character of established neighborhoods.

- Continue to protect and ensure the preservation of the historic character and “small town feeling” that currently exists in East Greenwich’s three villages of Mickleton, Clarksboro, and Mount Royal.
- Establish a design criterion and performance standards that minimize the negative impact of new land uses and/or development.
- Ensure new development maintains a high standard of aesthetic quality, open space and community amenities.
- Continue to maintain an open dialogue with and involve residents regarding land use issues in their neighborhoods.
- Utilize planning techniques to provide energy efficient land use development.
- Continue to improve buffers for new development or redevelopment adjacent to established residential and agricultural areas.

#### **Objective 3:**

Provide land use opportunities that encourage the connection of living and working within the Township.

- Continue the dialogue among the citizens and businesses regarding the needs and concerns of neighborhoods and the business community.
- Encourage redevelopment along the Interstate Route 295 corridor.

- Establish design criteria for all commercial and industrial properties in order to minimize the impact of parking, traffic, noise, illumination, signage, smoke, odors, pollution, etc.
- Encourage the use of current technologies for businesses and energy conservation.
- Establish limited opportunities for office and community service uses along Kings Highway in the existing commercial zone.

### Circulation

**Goal: Facilitate the safe and efficient movement of people, goods, and services throughout the Township and the region with minimal conflict.**

**Objective 1:**

Maintain and improve the existing roadway network to ease traffic congestion for all road users.

- Work with the New Jersey Department of Transportation, the Delaware Valley Regional Planning Commission, and the Gloucester County Planning and Highway Departments to prioritize areas in need of improvements.
- Balance land uses with the capacity of the circulation system to ensure that new and redeveloped land uses do not create an over capacity of the transportation system.
- Analyze traffic impacts of proposed developments and work with developers to address such impacts.

**Objective 2:**

Encourage the use of “alternative” forms of transportation to improve the air quality and health of residents.

- Promote a pedestrian and bike friendly environment that provides for ease of movement from place to place.
- Develop a comprehensive bicycle and integrated jogging trail and sidewalk system throughout the community.
- Encourage enforcement of pedestrian safety in signed and marked pedestrian zones and crosswalks.
- Encourage the growth and expansion of specialized transit services to meet the needs of the elderly, disabled, schoolchildren, and other transportation dependent groups with Gloucester County.
- Coordinate with NJ Transit for improved service to the community.

**Objective 3:**

Promote transportation management strategies to balance land use and capacity of existing roadways encouraging inter-Township travel.

- Require that traffic-calming techniques be implemented where needed to create a pedestrian friendly street environment, control vehicle speed and reduce the number vehicles cutting through residential neighborhoods.
- Require vehicular and pedestrian interconnection between neighborhoods and minimize the number of cul-de-sacs.
- Use contrasting material and texture for sidewalks and crosswalks to create a pedestrian friendly environment.

- Work toward a solution to the on-going problems associated with Borelli Boulevard including physical improvements.

### Parks and Recreation

**Goal: To promote participation by all East Greenwich citizens in diverse, interesting, and high quality recreational and leisure opportunities in safe, modern, and well-maintained parks and facilities.**

#### **Objective 1:**

Promote further development and expansion of parks and recreational facilities to meet neighborhood and community needs.

- Encourage the location of new recreational facilities within effective service areas for future population centers.
- Improve and expand the cultural, non-athletic, and recreational opportunities for citizens of all ages within the community.
- Develop additional soccer fields on the recently acquired parcel on Wolfert Station Road and provide additional softball and baseball fields at other locations for youth and adult recreation within the Township.
- Relate recreation facilities and recreation activities in the Township to the growing interest in overall wellness and public health.
- Provide lighting at selected fields to extend play and practice time.
- Consider initiating the development a plan for a senior recreation center and involve the community in the planning process.

#### **Objective 2:**

Create linkages between existing parks and open space areas where possible, to form a network of open spaces.

- Develop a trail system that connects residential neighborhoods to parks, open space areas, and commercial centers.
- Obtain easements through private land, where necessary, to augment public access to open space areas.
- Apply for federal and state grants to fund the establishment of new trail sections.

#### **Objective 3:**

Advance public awareness of recreation needs and solicit the support of public agencies to meet this need.

- Secure funding to acquire sites for public gathering and recreation in and around the existing neighborhoods of Mickleton, Clarksboro, and Mount Royal.
- Promote cross utilization of existing recreation facilities between the Township, School Board and all other Township recreation affiliates. A plan of action should be implemented with contributions from all parties.

## Open Space and Conservation

**Goal: Preserve environmentally sensitive land along rivers and streams and other areas characterized by the presence of natural features such as wetlands, steep slopes, stream corridors, unique ecology, and prime wildlife habitats.**

### **Objective 1:**

Preserve and protect open space areas having scenic views and/or important historical, cultural significance and exceptional ecological value.

- Preserve important visual amenities, placing special emphasis on the preservation of river and stream views, wetland marshes, and woodlands vistas.
- Prohibit development in critical environmental areas such as flood plains, wetlands and mature forests.
- Preserve and enhance the tree-lined character of residential streets.
- Preserve and expand open space systems through acquisitions and easements.

### **Objective 2:**

Prioritize the preservation of open space and farmland in a manner consistent with the Open Space and Recreation Plan (OSRP) and as recommended in the Master Plan.

- Adopt an Official Map in accordance with Municipal Land Use Law to prioritize and maintain the Township's ability to acquire properties for public use for up to one year after development applications have been made and approved.
- Recommend the purchase of lands to complement the open space and recreation plans.
- Obtain parcels adjacent to the Mantua Creek to provide public access for canoeing and viewing wildlife while preserving the stream corridor.
- Investigate the purchase of properties that have been developed in low lying areas and consider converting these lands back into open naturalized areas.

### **Objective 3:**

Advance public access to open space areas for passive or unprogrammed recreation activity.

- Obtain easements through private lands when necessary to provide public access to open space and connections between open space areas and Township parks and other public lands.
- Provide a continuous network of open space areas along streams, scenic areas, and environmental areas wherever possible.
- Stream corridors should be linked via a path system. Investigate the purchase of parcels adjacent to stream corridors.

### **Objective 4:**

Promote environmentally sensitive design solutions of all development particularly along stream corridors and wetland areas.

- Review site plans to minimize environmental disturbance and encourage development of landscapes and streetscapes and encourage planting of native species.

- Maintain the rural ambiance of East Greenwich.
- Require that a maintenance agreement be instituted for all recreation and open space areas that are created as part of development approvals.
- Require developers to utilize low impact development techniques to minimize impacts to and destruction of the natural environment and natural drainage systems.

### Housing

**Goal: Provide a variety of housing types that meet the housing needs and desires of the community.**

**Objective 1:**

Preserve and enhance the existing housing stock.

- Preserve and enhance existing neighborhoods through the use of a revolving loan fund for rehabilitation of any substandard housing unit.
- Encourage appropriate infill development where permitted by zoning.
- Establish design criteria for residential redevelopment within existing neighborhoods.

**Objective 2:**

Continue to provide East Greenwich's regional fair share of affordable housing for low and moderate-income families in concert with our COAH Fair Share Plan.

- Maintain the proper balance of units with our COAH obligations.
- Ensure the even distribution of new affordable housing units.
- Encourage the development of age restricted affordable housing.

### Community Facilities

**Goal: Provide community facilities that meet the needs of all Township residents and businesses as well as enhancing the overall community.**

**Objective 1:**

Maintain and improve existing facilities to meet the growth demands and changes occurring in the community.

- Replace facilities that are obsolete or unable to meet the needs of the Township.
- Provide ample facilities to meet the needs of all East Greenwich residents regardless of age.
- Assist the fire companies in establishing and providing service that will best serve the needs of East Greenwich Township.
- Maintain appropriate emergency services for Township residents.

**Objective 2:**

Use community facilities to create and maintain a sense of place by enhancing public areas with quality designs and pedestrian friendly landscapes that link to commercial, cultural, and educational resources.

- Review all Township facilities for compliance with the requirements of the Americans with Disabilities Act (ADA).
- Designate an area for a new public works yard, acquire property and construct the facility at the appropriate time.
- Attract and train volunteers to support and provide additional EMTs to East Greenwich Township.

### Utility Facilities

**Goal: Provide adequate infrastructure to service the needs of all Township residents and businesses without adverse impact upon the environment.**

#### **Objective 1:**

Maintain and improve existing utilities so that growth and redevelopment within East Greenwich Township is supported with adequate public facilities and infrastructures, including extensions and replacements of existing utility systems where required.

- Provide an adequate level of service to meet the present and future needs of the Township.
- Employ regional strategies to facilitate redevelopment, particularly with large-scale public infrastructure such as water quality and waste management issues.
- Address new and redevelopment project needs, as well as mitigating existing flooding and water quality issues within the Township.
- Require new developments to locate all utilities underground.
- Maintain criteria for zero increase in water runoff from new developments.
- Promote groundwater recharge where favorable geological conditions exist.
- Encourage the reduction of non-point source pollution, to the greatest extent possible.
- Promote the preservation and protection of water supply facilities and water resources by controlling flood discharges, stream erosion, and runoff pollution.

#### **Objective 2:**

Strive to provide the most comprehensive and fully utilized solid waste-recycling program in the County.

- Standardize a mandatory commercial and institutional Township recycling program and work with firms that will provide recycling services in a cost effective manner.
- Work with local schools to educate students at a young age the importance of reuse and recycling.
- Mandate the use of recycled products for all Township entities, as well as in new private development establishing a demand for recycled products.
- Educate residents about the importance of reducing the volume of municipal waste.

## Economic

**Goal: Expand and diversify the economic profile of the Township, establishing East Greenwich as an important economic player in the region while ensuring that the growth is consistent with the natural capacity of the land and infrastructure.**

### **Objective 1:**

Retain and promote existing businesses.

- Provide a business friendly environment for existing businesses, which have invested in the Township and provide a supportive environment for those wishing to upgrade or renovate.
- Coordinate with cable companies to offer high-speed telecommunications to all township businesses where feasible.

### **Objective 2:**

Promote nonresidential development that is consistent with the natural capacity of the land and availability of infrastructure to support the economic success of the business community.

- Encourage redevelopment and full occupancy in existing commercial locations.
- Encourage dialogue with developers regarding opportunities within the community.
- Continue to work with the Gloucester County Office of Economic Development in pursuit of establishing a Redevelopment District along the Interstate Route 295 corridor.
- Promote redevelopment and offer business incentives.
- Consider the establishment of an Economic Development Coordinator to attract developers and businesses interested in becoming active in the East Greenwich and regional markets.

## Historic Preservation

**Goal: Preserve and enhance the cultural, historical, and archeological resources that reflect the historic significance of East Greenwich Township.**

### **Objective 1:**

Preserve, protect and enhance areas of special interest or value that represent or reflect significant elements of East Greenwich's cultural, social, economic, and architectural history and prehistory.

- Prevent neglect of historic archaeological and cultural sites by recognizing and promoting the sites.
- Promote understanding and appreciation of the Township's history and historic resources.
- Discourage the unnecessary demolition or significant alteration of historic structures.
- Promote consistency between the East Greenwich Land Use Ordinance and the goals of historic preservation as expressed in the Historic Preservation Plan element.
- Investigate the adoption of an ordinance establishing a Township Historic Preservation Commission that complies with the requirements of the New Jersey Municipal Land Use Law.

**Objective 2:**

Promote the understanding and appreciation of the Township's heritage and historic value.

- Encourage development patterns adjacent to existing historic structures that complement the character of said structures.
- Establish priorities for renovation of existing structures.
- Require preservation and rehabilitation of any historic structure on properties to be developed.
- Preserve and protect the natural heritage, both environmental and cultural.



*Home on Kings Highway*

## *II. Master Plan*

### *A. Land Use Element*

The intent of the Land Use Element of the Comprehensive Master Plan is to guide all new development and redevelopment within the Township in order to assure that development meets high quality standards, is environmentally sensitive, is compatible with and complementary to existing development, and is based on East Greenwich Township's community vision, goals, and objectives. The Land Use Element provides the guiding principles that will steer growth consistent with the community's vision. This element also defines and designates the land use categories throughout the Township.

East Greenwich Township is dedicated to providing superior educational facilities, opportunities for business growth, a functional transportation network, adequate community facilities, safe communities, the preservation of natural resources, and an array of recreational opportunities. This element identifies goals, objectives, and policies that create a foundation upon which good land use decisions can be made. These will influence the pattern of development and redevelopment in the community while recognizing environmental constraints and preservation goals. These policies and objectives are designed to result in balanced and harmonious neighborhoods where a high quality of life can be sustained into the future.

#### *Specific Goals and Objectives*

The purpose of the Comprehensive Plan is to translate community values and goals into a framework for decision making on land use, farmland preservation, the natural environment, traffic circulation, and community resources. It expresses a long-range vision of how a community is to look and function. Land use ordinances, land development proposals, and a capital improvement plan for public spending on facilities and services will provide the tools to implement the plan. The Land Use Element is advancing the following goals and objectives:

- Maintain the rural character of East Greenwich by retaining, as much as possible, the present distribution of land uses.
- Maintain the quaint residential villages of Mickleton, Clarksboro and Mount Royal and ensure that future land uses in and around these villages enhance and support these existing villages.
- Encourage the design of open landscape and public spaces.
- Carefully manage and guide growth in a manner that is sensitive to the natural environment and promotes economic development and redevelopment along the 295 corridor, and is sensitive to the rural character and natural environment of East Greenwich.
- Establish design criteria for all commercial and industrial properties that will minimize the impact of parking, traffic, noise, illumination, signage, and odors on the community.

- Improve buffers between new development and redevelopment and adjacent to established residential and farmland areas.
- Encourage preservation of historic structures.

### *Survey Method & Existing Land Use Classification*

The focus of the land use element is to describe existing land use and to present proposals for future land use in the Township. A key component of this process is a current inventory of existing land use. This land use inventory was taken in the spring of 2003.

Field observations which note current conditions, such as low performance intersections, area development characteristics, and land use conflicts are analyzed and presented as background for impacts on future land use and development. The identification and location of existing land use in East Greenwich was accomplished with the use of aerial photographs and windshield surveys. Windshield surveys were conducted in April through June of 2003 and included traveling the majority of the streets in the Township. Land uses were recorded for each street traveled and compared to the data from the aerial photographs. A field survey is the most accurate method for recording current land use. Additionally, the survey can reveal trends, incompatible uses, new construction, building conditions and age, and traffic conditions. These observations of the dynamics of the Township's development are not evident on a land use map but provide an added dimension to the inventory. Ten land use classifications were used to portray the data recorded in the windshield survey and aerial photographs.

### *Existing Land Use*

The existing land use classifications are represented by a color-coded legend on a map of the Township (**Map A1**). Following are the ten land use categories:

Commercial	Township Active
Office	Township Vacant
Institutional	Private Active
Industrial	Private Vacant
Residential	

East Greenwich Township consists of 14.9 square miles in Gloucester County. Gloucester County is comprised of 24 municipalities totaling 329 square miles.

East Greenwich makes up 4.53% of the total land area of Gloucester County. The total land area of the State of New Jersey is 7,405 square miles, with a total population of 8,414,350 persons as of the 2000 census. The population density of New Jersey is 1,136 persons per square mile. The population density of Gloucester County is 774 persons per square mile and the population density in East Greenwich is 364 persons per square mile. Clearly, East Greenwich is well below the state's average population density, which is a major factor contributing to the Township's unique character.

The dominant existing land use in East Greenwich is agriculture and privately held vacant land, which accounts for approximately 44% of the land area. Seventeen percent (17%) of the surface area is wetlands and open water. Residential areas total 18% and are scattered throughout the Township with existing development fanning out from the three historic villages of Mickleton, Clarksboro, and Mount Royal. Commercial use, including offices and retail stores occupy less than one percent of the total land area of East Greenwich Township. Two percent (2%) of the developed land is used for industrial purposes, such as manufacturing and warehousing. Institutional, recreation and public open space areas including farmland preservation areas comprise 8% the total land area. State, County and Municipal roads account for 10% of the land area. **Table A1** illustrates the amount of land occupied by each land use category.

Table A1 2003 Township Existing Land Use		
CLASSIFICATION	ACREAGE	PERCENT
Residential (includes approved subdivisions)	1,723	18.06
Commercial	41	.44
Office	9	.09
Industrial	227	2.40
Institutional	307	3.22
Township Active	101	1.06
Township Vacant	39	.41
Agriculture/Private Vacant	4,150	43.52
Farmland Preservation	285	2.98
Private Active	20	.21
Water/ Flood Plain/Wetlands	1,639	17.18
Roads	995	10.43
<b>TOTAL</b>	<b>9,536</b>	<b>100</b>

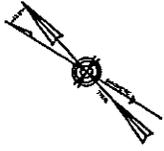
The development of East Greenwich Township has followed the traditional patterns of suburban development moving west to east along the major road corridors. Single-family developments are served by strip commercial centers located along the Interstate Route 295 corridor in neighboring Gibbstown and in adjacent Mantua Township. The existing land use map illustrates the locations of all land uses within East Greenwich Township (**Map A-1**)

## *Neighborhood Planning Program*

Since citizens know the needs of their neighborhood best, an objective of neighborhood-based planning is to encourage citizens to take an active role in the planning process, and for the Township to provide assistance to ensure the plans success. This type of neighborhood planning process also addresses issues and opportunities at a level that is responsive to specific neighborhood needs. Through the public meetings and activities, the following Township wide land use issues were identified:

- Protect the natural environment, including wildlife and stream corridors, natural and cultural resources, and open space.
- Maintain the visual quality of the natural environment when designing new developments.
- Encourage the linkage of stream corridors via a path system.
- Promote high quality design and construction of all new development.
- Encourage pedestrian linkages throughout the Township. These linkages should consist of sidewalks, bike paths, and in certain areas, the painting of bike lanes on designated streets.
- Discourage non-residential uses in existing residential areas.
- Limit non-residential development on Kings Highway and encourage any new non-residential development to conform to the predominant features of the surrounding neighborhood as defined by building orientation, building setbacks, building heights, and general building style and type.

Protecting and enhancing the character of existing neighborhoods, providing community facilities, ensuring pedestrian connections within and between developments, and providing transitions between neighborhoods and buffers from heavily traveled roads are also concerns to Township residents. To achieve a quality living environment, there must be a commitment to identifying and protecting existing neighborhoods and to allocating funds for public facilities concurrent with community need. These recommendations will provide for a stable population base within new and established neighborhoods and will encourage commitment and involvement by residents in their neighborhoods.



- Legend**
- Commercial
  - Office
  - Institutional
  - Industrial
  - Residential
  - Multi-Family
  - Private Active
  - Private Vacant
  - Township Active
  - Township Vacant
  - Projects Under Construction
  - Approved Subdivision
  - Pending Subdivisions
  - State Proposed Development
  - Preserved Farmland
  - Reference



Approved by the Planning Board  
 on 11/15/2007

## *Proposed Land Use*

One purpose of the Land Use Element is to outline future land use patterns as identified in the goals, objectives, and policies of the Township's comprehensive plan elements. Another purpose is to determine the potential land development and redevelopment within the Township and to adopt a growth management strategy. Lastly, this Land Use Element advances a series of performance standards.

Viable neighborhoods are the foundation upon which a superior quality of life is established in East Greenwich Township. The Township is committed to establishing land uses, policies, and infrastructure that will protect the vitality of its neighborhoods. This can be achieved by crafting design standards that are people-oriented and creating an environment rich in housing and transportation choices, adequate public parks, and protected natural areas. Proposed land use recommendations are focused on maintaining East Greenwich's three village centers.

The Land Use Element is the culmination of other elements; it brings together the community's many layers to formulate the policies for the next six to ten years. The proposed land use map is the basis for the zoning. This plan identifies land uses in current zones and further makes recommendations for changes where the existing land use is inconsistent with the zoning.

The residential areas of the Township should remain consistent with the existing land use patterns. Land outside the sewer service area will remain at lower densities. However, one use that currently is not addressed is senior citizen or age-restricted housing. The senior housing component is the one deficient housing type in East Greenwich. It is recommended that this housing type be accommodated as delineated on the proposed zoning map.

The commercial sectors of land use include Highway Business uses B-1, B-2, and Industrial I that is located along the Interstate Route 295 corridor. The remaining commercial 'C' activity consists of existing commercial uses scattered along Kings Highway primarily within the villages of Mickleton, Clarksboro, and Mount Royal. Although not a separate zoning designation, office uses are permitted within the B-1, B-2, and C zoning districts.

Following are specific land use and zoning proposals. These recommendations are proposed to provide a balance of land use throughout the town.

### **Rural Residential -RR**

The goal of the Rural Residential District is to encourage development on lot sizes that conserve farmland and preserve the rural and scenic quality of the landscape, while creating attractive rural residential developments and allowing for greater flexibility and creativity in the design of residential developments. The Rural Residential District is comprised mainly of large tracts of farmland and open space areas generally located to the east of Kings Highway and to the south of Still Run Creek. Single-family detached residences along with agriculture, recreation, churches, and municipal facilities are permitted within the district.

The lack of public sewer and presence of environmental concerns such as wetlands, very high water tables and marginal soils require that the location of septic systems in future developments be responsive to the environment. There are also areas of mature woodlands, prime agricultural

soils and important habitats that should be considered. East Greenwich has an interest in limiting development within the Rural Residential area on lands that will create groundwater contaminants that may exceed an applicable remediation standard for septic suitability as defined by the New Jersey Department of Environmental Protection. The following development standards are being established based on environmental factors and the ability of lands within this district to support development:

**Minimum lot size:** The minimum lot size requirement will be two (2) acres.

As per N.J.A.C. 7:9A entitled "Standards for Individual Subsurface Disposal Systems" all areas or lots with an estimated seasonal high water table of less than two feet (< 2') or a permeability rate (zone of disposal) of less than two inches (< .2") per hour will be determined unsuitable. Therefore, septic systems should not be permitted on any lot where the seasonal high water table is determined to be at an elevation of 24" or less from the surface of the natural grade. All lots must conform to the criteria established in the New Jersey Geological Survey's recharge based nitrate dilution model. Additionally, the grading plan for the building lot should not exceed a height of fill of 54 inches above natural grade. It is recommended that community septic systems be prohibited. Three tests will be required when determining septic suitability for each lot. Two test pits will be excavated at the proposed septic location and one additional test pit at an alternate location on the lot. It is recommended that the alternate opportunity be located in an area free of permanent structures such as pools, patios and decks.

- **Minimum frontage:** 210 feet. The lot depth may not exceed three times the lot frontage. On cul-de-sac lots, the lot depth may not exceed four times the lot frontage.
- **Minimum front yard:** 150 feet.
- **Minimum side yard:** 50 feet.
- **Minimum rear yard:** 50 feet.
- **Impervious coverage ratio (ICR):** The maximum ICR permitted on any residential lot may not exceed 30%.
- **Open space:** The minimum upland area required must be consistent with the requirements set forth in the recreation ordinance.
- **Crawl space/basement limitations:** It is recommended that the crawl space or basement finish floor elevation be set a minimum of two (2) feet above the seasonal high water table. To determine the seasonal high water table for each dwelling or building a soil boring to be witnessed by the Township designee should be conducted.

Conservation and open space alternative plans are encouraged provided that the density does not exceed one dwelling unit per two acres or the density coinciding with the minimum lot sizes permitted under 16.60.40.B, whichever yields the fewer number of lots. The minimum lot size

under a conservation open space plan should not be less than one acre. The proposal must accomplish the goals of the Rural Residential District. Any development must be able to meet the criteria for an individual subsurface disposal system as defined above. Residential enhanced conservation plans should minimize potential adverse impacts on existing farm operations; form connections between preservation parcels; create preservation parcels that are suitable for agriculture, open space or protect sensitive environmental features. Where sensitive woodlands, steep slopes, waterways, ponds, etc. are present, they should be preserved through an enhanced conservation plan. Any conservation plan must be accompanied by a conventional plan per the ordinance. The conventional plan should include all proposed grading and on-site detention basin grading and calculations to support the size of the basin.

### **Rural Residential Cluster-RRC**

The Rural Residential Cluster District provides the means for development to create desirable open space, farmland, or conservation areas. This district is located north and west of the Rural Residential District and surrounds the villages of Mickleton, Clarksboro, and Mount Royal. Single-family detached residences along with agriculture, recreation, churches, and municipal facilities are permitted uses within the district. Open space or agricultural lands created as a result of clustering should be contiguous and located adjacent to existing farmland or open space parcels wherever possible and/or fronting on municipal and county roads in order to place continuous open space in the view of the public and create the desired sense of openness. Residential lots in the RRC district will be a minimum of 22,500 square feet, with 50% of the gross land area set aside as open space. Of the set aside open space area, the land required for recreation as set forth in the recreation element and the land development ordinance must be usable upland. The remaining open space may be wetlands or otherwise environmentally sensitive lands. It is recommended that for any parcel ten acres or less, the lot size is a minimum of 32,000 square feet. The minimum open space requirement for all parcels of ten acres or less is fifteen percent (15%). The area of open space for parcels ten acres in size or less must be exclusive of storm water management (detention/retention) basins but may include the wetlands buffer area.

### **Residential R-10, R-15, & R-20**

The R-10 district located along Mantua-Paulsboro Road between Edwards Run and the Mantua Creek promotes a concentrated residential pattern that permits a mix of housing opportunities to satisfy the community's affordable housing requirements. The R-20 district is located in two areas of the Township, between Harmony and Democrat Road and along Cohawkin Road. The R-15 district is situated to the north and south of Kings Highway between the Still Run and Mantua Creeks. It is recommended that the R-15 district be limited to those areas of existing development. The remaining vacant land that currently is zoned R-15 should be converted to the Rural Residential Cluster District classification. The residential districts of R-10, R-20 will remain unchanged.

### **Historic District HD & Rural Kings Highway District RKD**

The Kings Highway Historic District continues to cultivate and enhance the historic image of Mickleton, Clarksboro, and Mount Royal. Several residential homes along Kings Highway date back to the mid 1700's. The intent of the Historic District is to enhance the historic character of

the district by requiring design standards that are consistent with these structures. It is recommended that a buffer of 100 feet be required when any new development is proposed adjacent to any historically significant structure as listed in the Historic Preservation Element (table K1). The buffer may be reduced at the discretion of the reviewing board if the size of the lot is prohibitive and the historic site is sufficiently buffered and protected. The Rural Kings Highway district is located west of the Still Run Creek. The area along Kings Highway is predominately open farmland however over the past few years this area has been developed residentially. The intent of the Rural Kings Highway District is to extend the historic character of Kings Highway west to the Township boundary. It is recommended that the architectural standards as established within the Historic District be incorporated into the design standards of the Rural Kings Highway District.

### **Senior Citizen District-SCD**

In response to the requests from residents of the community, it is recommended that a Senior Citizen District be established. This district is being proposed along Friendship Road between Cohawkin and Timberlane Roads. This zone is proposed to encourage a flexibility of housing density, design and type not otherwise allowable in a residential district, to provide greater convenience and efficiency in meeting the needs of the population, conserve the value of land, lessen traffic burdens, and further protect environmental and natural resources.

It is recommended that all senior citizen districts meet the following conditions:

- Preserve "sensitive open space" defined as floodplains and wetlands.
- Demonstrate a comprehensively planned community providing architectural consistency and well designed recreation for the future residents of the development.
- Provide internal traffic circulation and access to major roadways which will be safe and adequate.
- Provide a public transit shelter to serve the needs of the residents.
- Provide provisions for low and moderate income housing which is indistinguishable from market-rate units, both architectural style and materials, and integrated into the residential design.

Permitted uses in the SCD will include single-family detached homes. At the discretion of the reviewing board, the affordable housing component may be met through the construction of single-family attached units. Any senior citizen housing development must be designed to be compatible with the surrounding neighborhood. In order to assure compatibility the following development standards are being advanced:

- The minimum gross area for development will be at least thirty (30) contiguous acres.
- The maximum density in any such development may not exceed 3 dwellings units per total acre.
- All units within the development will be age restricted to at least one resident meeting the allowable minimum age restriction as permitted by federal law at the time of occupancy. The current standard is 55 years of age.

- At least 10% of all units should be set aside for low and moderate-income residents, 5% for low-income housing and 5% for moderate income housing pursuant to the Council of Affordable Housing rules.
- A minimum of 30% of the gross acreage of any senior citizen development must be devoted to open space purposes exclusively. At least 9 acres of land exclusive of floodplains, wetlands, wetland buffers, or storm-water detention/retention is required to be set aside for active open space. Not less than three acres of the required active open space should be reserved for development of clubhouse facilities, swimming pools, tennis courts, jogging areas, etc. to meet the specific needs of residents of the community.
- Public water and sewer facilities should be provided for every building erected or used in whole or in part as a dwelling.
- An irrigated landscape buffer 100 feet in width should be provided to all county and municipal roads. A landscape buffer of 50 feet in width should be provided adjacent to any rail line.
- Where lands or improvements are owned in common, a homeowners association should be created to hold title to and maintain such common lands or improvements.
- Where single-family detached homes are proposed, dimensional and other requirements are recommended as follows:

- [1] Lot size: The minimum lot size for any single-family detached building must be 8,000 square feet.
- [2] Frontage: 65'
- [3] Front yard: 30'
- [4] Side yard: 10 feet minimum, 20 feet aggregate
- [5] Rear yard: 25 feet
- [6] Impervious coverage limit: 55%



*Brook Hollow- Active Adult Community*



### **Commercial District-C**

The Commercial District consists of those areas along Kings Highway that have historically serviced the surrounding villages of Mount Royal, Clarksboro, and Mickleton. These uses include convenience stores, pizza shops, filling stations, auto repair shops, real estate offices and similar uses. Large commercial centers especially within the

Historic and Rural Kings Highway Districts are prohibited. Commercial activity within the district that includes small shops where local daily services are supplied is encouraged.

Permitted uses include professional offices, bakeries, stationery, hardware, paint, barber and beauty salons, shoe repair, florists, and similar uses. It is recommended that the boundaries and development standards of this district remain unchanged. A maximum size of building is limited to 10,000 sq. ft. to conform to the existing character of the community.

### **Interstate Business B-1**

The Interstate Business B-1 District consists of those areas along US Interstate Route 295 that provide service and facilities specifically related to interstate travelers and automobile and truck related businesses. Land uses are largely automobile and truck related and include truck and automobile repair facilities, gasoline and diesel fuel stations, warehousing, truck refrigeration and repair, car and truck wash, transportation terminal facilities offices and similar uses. It is recommended that the boundaries and development standards of this district remain unchanged.

### **Interstate Business B-2**

The Interstate Business B-2 District also encompasses areas along Interstate Route 295 and in addition includes areas east of the interstate. The uses within this district have been designated to provide low emission industrial, office and office warehouse opportunities. Permitted uses include banks or fiduciary institutions, indoor theatres, warehousing, office, light fabrication, contractor services, electronics and parts assembly, and similar uses. It is recommended that the boundaries of the B2 district uses be extended northeast to the colonial pipeline easement.

### **Industrial I**

The Industrial District permits the greatest flexibility of non-residential uses in East Greenwich Township. This district exists exclusively to provide opportunity for non-noxious industries that conform to the Township design standards and environmental regulations as required by various state and federal agencies. Permitted uses include manufacturing, food processing including bakeries, bottling, and food and sundry manufacturing, farming, photo-fishing and processing, wood product fabrication, metal fabrication, offices, research and design facilities, and warehousing. It is recommended that the boundaries and development standards of this district remain unchanged.

### **Redevelopment Plan**

East Greenwich Township is seeking to establish a Redevelopment Plan for specific areas of the community in accordance with the New Jersey Redevelopment and Housing Law. The intent of this act is to codify, simplify, and concentrate prior enactments related to redevelopment and housing, to promote the advancement of community interest, and to promote physical development that will be most conducive to the social and economic improvement of the municipality. Currently the Gloucester County Office of Economic Development is preparing the Redevelopment Plan. When it is completed, it will be adopted and inserted as an addendum to the master plan.

The creation of a Redevelopment Plan for East Greenwich Township represents a broad growth management guide for a specific area of our community. This plan is being drafted in concert with this Master Plan and will be consistent with all County planning goals and the State

Redevelopment Plan. The Redevelopment plan will be used as an additional component of the Township's arsenal to encourage redevelopment and discourage blight, vacancies and further deterioration of the lands within the Route 295 corridor. With the creation of the Redevelopment Plan and through hard work and determination, the goals as illustrated in this Master Plan will come to fruition.

The redevelopment area along the Route 295 corridor extends in an east-west direction and includes all lands bordering Greenwich Township. The redevelopment area extends southward to the Colonial Pipeline easement (**Map A-2**). Lands that are vacant, dormant, undeveloped, and unimproved may be considered for redevelopment as defined by the Redevelopment Act.

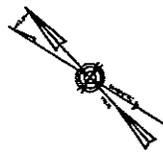
The Township Committee and the Planning Board recognize that in order for East Greenwich Township to distinguish itself as an economically viable community, it must establish a series of long-range and short-range plans within the context of the Redevelopment Plan. Therefore, it is anticipated that the Township Committee will act as the redevelopment agency that will focus its attention on the Redevelopment Plan. Assistance will be provided from the Gloucester County Office of Economic Development, the Planning Board, and the planning consultant.

### **Environmental Overlay District ED**

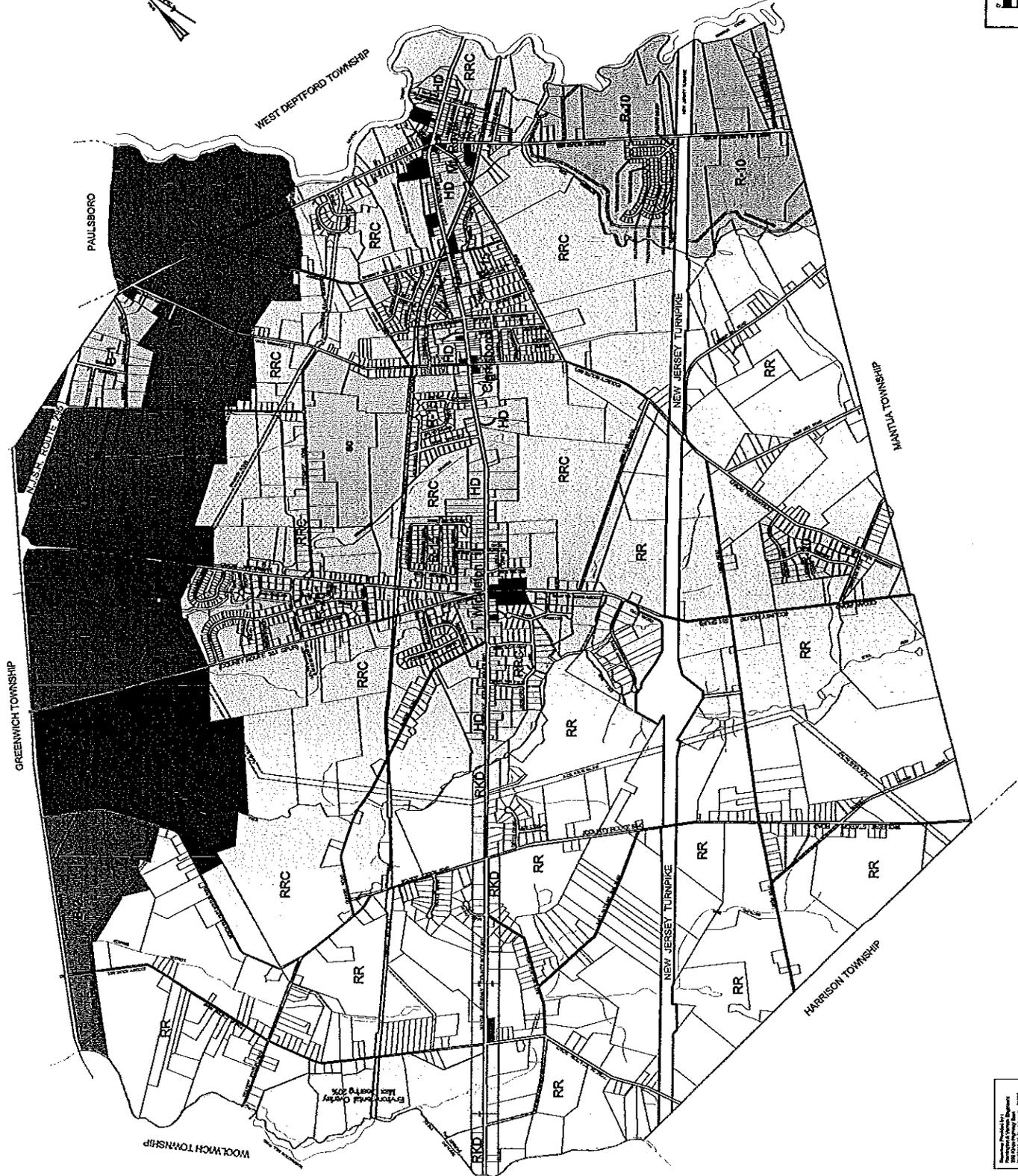
The purpose of the Environmental Overlay District is to protect and conserve environmentally sensitive areas from inappropriate development. This district includes flood plains and wetlands as mapped by the U.S. Department of the Interior and the U.S. Department of Housing and Urban Development. Also included are those lands that have been identified as a National Heritage Priority Site and has presence of endangered plant species as identified by the National Land Management Plan (1999; Natural Features Map) and lands identified as Regional Freshwater Wetland Habitat (Natural Resource Inventory 1998; Priorities Map). Detailed Environmental Impact Statements including a Phase I and Phase II Environmental Assessment will be required for any development proposals within the areas as delineated on the Land Use and Zoning Maps. Threatened and endangered species studies may also be required subject to N.J.D.E.P. requirements. Permitted uses should include those that are listed within the base zoning identified in the development ordinance however; the clearing limit and impervious coverage limit should not exceed 20% of any site.

### **Future Transfer of Development Rights Program**

It is recommended that East Greenwich expeditiously embark on the creation of a Transfer of Development Rights (TDR) program. The Township has been interested in pursuing such a program for a number of years, and the New Jersey Legislature has just recently granted municipalities the authority to adopt such a program. The TDR program makes it possible to distinguish between a piece of land and the development value associated with it. The development value of properties in a designated sending area can be transferred to land in the receiving area. The planning board supports the establishment of the TDR program as a means to achieving an equitable balance between growth and conservation. The steps required to initiate the TDR program are detailed in the legislation.



- Legend**
- RR Rural Residential
  - RRC Rural Residential Cluster
  - R-20 Residential
  - R-15 Residential
  - R-10 Residential
  - HD Historic District
  - RKD Rural Single Family District
  - SC Single Cottage
  - C Commercial
  - VC Village Center
  - B-1 Intermediate Business
  - B-2 Business
  - I Industrial
  - Environmental Zoning Overlay



Revised: 10/11/11  
 Prepared by: R. Ragan  
 Checked by: R. Ragan  
 Approved by: R. Ragan

## *PERFORMANCE STANDARDS*

The recommendations of this Master Plan will entail changes in the way development is planned and built in East Greenwich. Design guidelines can be set in place to encourage a positive relationship between new buildings and their surroundings and thereby work to enhance the overall aesthetic quality of the community. This Land Use Element contains goals and policies to guide site development and design approaches for private projects on private property. The Element also identifies public improvements such as landscaped roadway medians, street trees, and directional and district signage that will help define the Township.

Performance standards are planning amenities that can be incorporated into a community by establishing criteria for design. They address the relationships between varying districts and land uses and mitigate potential adverse conditions that may result. Buffers, parking setbacks, open space networks, view corridors and solar orientation are examples of planning amenities. The following standards are suggested criteria to be followed within the designated districts in East Greenwich Township:

### *Commercial Guidelines and Standards*

Standards for non-residential development encompass four distinct land use categories as designated on the Master Plan maps. Lands designated for Interstate Business and Industrial uses are scaled in favor of automobile travelers and will follow traditional planning design criteria. Lands designated commercial, historic and senior citizen incorporate pedestrian-oriented and mixed-use standards to ensure that it is easy and enjoyable to walk within various areas consisting of shops and offices. To realize the character envisioned for the plan, it is essential that no single building or user dominate the others. There should be a variety of types and sizes of retail and other commercial establishments. The uses should be joined by pedestrian connections and parking lots should be configured and designed in such a manner that they do not visually overwhelm the landscape.

a. *Climate Response.*

Building exteriors should provide shelter from the summer sun and winter winds and snow. Porticos, arcades, and overhanging eaves are particularly appropriate at pedestrian pathways. Entryways should be designed to encourage solar access or alternative methods to melt snow and ice, especially on north facing entrances. The orientation of entryways should also consider localized wind conditions. Building locations should consider the safety concerns raised by shadows on parking, streets, sidewalks, and other pedestrian areas.

b. *Principal Orientation.*

The primary facade of all buildings in commercial, historic, or senior citizen development areas should face a public street. The primary facade must front onto a publicly accessible walkway that leads directly from the street to the establishment's front door.

c. *Street Hierarchy.*

All streets should be sized to accommodate projected traffic flow and parking requirements, and should be pedestrian friendly. At a minimum, all streets should conform to the New Jersey Residential Site Improvement Standards and the Gloucester County recommended R.O.W.

standards, with the exception of Kings Highway. Kings Highway is proposed as a two-lane road with ample green space on both sides of the cartway. There will be ten feet of grass with a street tree, a six-foot sidewalk and another ten feet of grass area with another street tree.

d. *Street-Facing Facades.*

It is encouraged that street facing facades be lined with windows or other architecturally interesting and varied treatments. The primary entry(s) in commercial or historic development areas should be encouraged, wherever possible to be visible and accessible directly from a public street. All buildings including residential along Kings Highway should conform to the architectural standards of the Historic District.

e. *Walkway-Facing Facades.*

The main entrance of all buildings without street edge facades should open directly onto a publicly accessible walkway. This walkway must directly connect to an adjacent street's sidewalk.

f. *Parking.*

Parking should be located on the side or the rear of the building and designed in such a manner that it provides a positive street edge and a desirable pedestrian environment. It should be designed such that the street edge is composed of building walls, landscaping, berming, knee walls or other edging techniques and materials. The following features are encouraged:

- Landscaping. Parking areas should contain landscaping and pedestrian features that visually break up the parking lots.
- Screening. The perimeter of parking areas adjacent to streets and sidewalks should be screened with a low berm, wall, fence or similar feature a minimum of 30" in height.
- Lighting. Sufficient and safe lighting should be provided using cut-off luminaries. Lighting poles along pedestrian walkways should have a maximum height of 16 feet. Ornamental light fixtures are proposed along Kings Highway.

g. *Front Setbacks.*

Buildings may be permitted at reduced setbacks to encourage pedestrian activity for retail and office uses with appropriate architectural design especially as it concerns entryways, materials, and massing, as a means to provide a positive pedestrian environment. Shading and other safety issues should be considered in the building location.

h. *Height.*

Variation in building height is encouraged. Commercial, mixed-use and civic buildings should not exceed the height limitation of the zone. Age Qualified Residences should not exceed a height of 35 feet measured to the mean roof height. Shading and other safety issues should be considered in building height.

i. *Facades and Roof Form.*

1. Articulation. No wall should have a blank, uninterrupted length exceeding 30 feet without including one of the following: a revealed pilaster, change in texture, color or material, change in plane, window, lattice, or equivalent element.

2. Base and Top Architectural Treatments. It is encouraged that all facades be organized into two sections having the following features:
  - A recognizable “base” consisting of (but not limited to): (a) thicker walls, (b) richly textured materials (e.g. tile or masonry treatments), (c) special materials such as ceramic tile, or similar materials, (d) darker colored materials, mullion, and/or panels and/or (e) enriched landscaping.
  - A recognizable “top” consisting of (but not limited to): (a) cornice treatments, (b) roof overhangs with brackets, (c) stepped parapets, (d) richly textured materials (e.g. tile or masonry treatments), and/or (e) differently colored materials.
3. Storefronts. It is encouraged that primary facades be lined with windows or other architecturally interesting and varied treatments.
4. Entries. Primary pedestrian entries should be clearly expressed with architectural and site planning features. Where possible, entryways should be sheltered from the elements.
5. Roof Form. Mechanical equipment should be integrated into the overall mass of a building by screening it on all sides behind parapets or by recessing equipment into hips, gables, parapets or similar features.
6. Service Areas. Architectural or landscaping features will be used to screen service areas from adjacent properties and streets. Screening features should be integrated into the overall design of the development.

j. *Materials.*

Buildings in commercial, historic, senior citizen or commercial village development areas should include compatible and locally prominent building materials used in a manner to create quality detailing and architectural interest.

1. Windows. Windows should be architecturally compatible with design, materials, colors and details of the building. Facades facing a street or common open space should receive special emphasis with regard to placement and the number of windows provided. Mirror glass may be used only in limited applications.
2. Simulated Materials. Materials that are poorly simulated should be discouraged. Material changes should not occur at external corners, but may occur at “reverse” or interior corners or as a “return” at least two feet from external corners. Scored plywood (such as “T-111”) is not permitted.
3. Proper Application and Detailing. Materials should be properly applied and correctly detailed, especially at the base of buildings, along cornices, eaves, parapets or ridge tops, and around entries and windows.
4. Durability. Materials should be demonstrated to be of a high quality and durability.

k. *Connecting Walkways.*

Walkways should link street sidewalks with building entries through the parking lots. They should meet the following minimum requirements:

- Grading and width. Connecting walkways should be either grade separated from the parking lot, or delineated by a change in materials with a minimum width of five feet.
- Landscaping. Connecting walkways should be landscaped.
- Lighting. Connecting walkways should be equipped with lighting. Standards spaced a maximum of 30 feet apart, and a maximum of 12 feet high are recommended. Bollard style lighting is also acceptable. Lighting design should provide sufficient lighting to assure the safety of pedestrian walks and vehicular crosswalks.
- Screening. Any service areas (loading docks/storage areas) adjacent to connecting walkways or residential areas should be fully screened from view.

l. *Landscaping, Screening and Street Furnishings.*

1. **Parking Lot Frontage.** Where existing parking lots occur along streets, a landscaped area should be provided to minimize views of parked cars from the street.
2. **Broadleaf trees** should predominate in parking areas and public plazas to provide shade in the summer.
3. **Screening Devices.** Shrubs and conifers should be used with architectural features to screen mechanical equipment, loading areas, etc.
4. **Screening Loading Areas and Ground-Mounted Equipment.** Loading areas, transformers, heating units and other ground-mounted equipment should be adequately screened with walls, fences or landscaping.
5. **Accents.** Flowering annuals, perennials, shrubs and trees are encouraged to accent entrances, walkways, plazas and parks.
6. **Fountains and Artwork.** Fountains and artwork are encouraged in courtyards, parks and plazas.
7. **Benches, Trash Receptacles and Transit Shelters.** These items should be made of durable, high quality materials that complement nearby buildings.
8. The streetscape along Kings Highway is planned to include two rows of street trees along each side of the roadway separated by a sidewalk.
9. All landscaping along State, county, or municipal roads should have an irrigation system.
10. All non-residential major site plans should provide irrigation for proposed landscaping.

m. *Fences and Walls.*

1. **Pedestrian Access.** Openings should be provided in fences, walls for walkways connecting directly to the street, and avoid circuitous routes for pedestrians.

2. **Materials and Detailing.** Walls visible from public streets, residential areas and walkways should be constructed of durable materials that complement nearby buildings.

### ***Residential Guidelines and Standards***

It is recommended that new residences and those undergoing massive renovations incorporate the following:

a. ***Orientation.***

Primary facades should contain the primary entry and should be street facing. All primary facades should have windows covering at least 25% of the facade area except garages. Rear yards should be avoided along all collector roads.

b. ***Front Door.***

With the exception of apartments, and accessory dwelling units, every home should have an entry facing a public street. Side entries may be allowed if an entry statement (i.e. patios, arbor, fence, gate, etc.) is provided on the building side facing the street.

c. ***Garages.***

Garages should not dominate residential streetscape. In locating garages, strategies should include:

- Varying the building and garage setbacks from the street and the public right-of-way.
- Minimizing the extent to which garages protrude from the main plane of the house, including recessing garages on a portion of the homes along the street behind the main plane of the house.
- Varying the style of garage door and panel design.

d. ***Front Porch.***

Dwelling units should provide a variety of functional entry features. Front porches should have a minimum depth of eight feet.

e. ***Facade Articulation.***

All residential buildings should be articulated with varied architectural features such as bays, balconies, decks or porches that face the adjacent street, park or open space area.

f. ***Street Facing Fences.***

Fences adjacent to streets and within the front yard setback should have a maximum height of 36 inches. Side yard fencing behind the front setback may have a maximum height of six feet. Landscaping should be considered on the street-facing side of all fencing six feet in height.

g. ***Trash and Service Equipment.***

Trash and service equipment, including satellite-receiving dishes, should be located in the rear or side yard areas and enclosed or screened from view by landscaping or fencing.

### ***Detention Basins***

Detention basins in residential subdivisions should be designed in such a manner that they become visual amenities to the project. In order to accomplish this, the plan recommends the following:

- Side slope of any basin are encouraged to be five to one whenever possible and have adequate slope protection.
- Depths from the bottom of any basin to the seasonal high water table (SHWT) are encouraged to be not be less than two (2) feet.
- The maximum overall depth of any basin should not exceed six (6) feet from the top of the berm to the bottom of the basin (i.e.: Invert elevation of the outfall structure).
- Any developer proposing to dedicate storm water basins or other similar facilities to the Township should fund the required maintenance. The township engineer or staff will provide the Township Committee with an estimate of the maintenance costs.
- If a homeowners' association is formed, the developer should fund the maintenance of the basin with a capital contribution to a trust fund, the interest of which will be available for the maintenance of the basin. In the event, the homeowners' association ceases to exist or defaults on the maintenance obligation, the trust fund will accrue to the Township, which will use the interest of such funds to maintain the basin.
- All basins should be placed on a separate conforming lot.

### ***General Standards***

- Architectural elevations will be required to be submitted at the time of final site plan and/or subdivision approval. The plans will be reviewed and approved by the planning board and will be made part of the approved set of documents. Any revisions require planning board approval.

### ***Buffer Strips***

- A buffer is an area of land that serves as a vegetated shield between uses that is separate and distinct from any other required setbacks.
- Buffering must be provided between residential uses of different density and between residential and nonresidential uses.
- Where a nonresidential use abuts a residential use, the nonresidential user should provide a buffer consisting of a minimum width of 100 feet.

- Buffers should be designed and installed to minimize noise; to provide relief from views of loading areas, trash enclosures, parking areas and the like, and to provide a horizontal and vertical separation between different land uses.
- Existing vegetation, particularly hedgerows, should be incorporated into buffers wherever possible.
- Existing woods within the required buffer area should not be cleared.
- All buffers will be a mixture of trees and shrubs which are predominantly evergreen, as approved by the planning board and will provide the equivalent of two staggered rows of evergreen trees; each planted 10 to 12 feet apart. Evergreen trees must be six to eight feet tall at planting, balled and burlapped, and sheared. Shrubs must be a minimum of three feet tall.
- Detention basins may not be included within required buffer areas.
- Where multi-residential or townhouse structures adjoin a single-family area, a buffer 50 feet in width (may be reduced to 25 feet at the discretion of the reviewing board) should be provided within the multi-residential or townhouse area unless specified at a greater dimension by use. Where single-family residential is adjacent to a non-residential use or zone, a buffer 50 feet in width should be provided.
- Where any residential development abuts an active farm use or cultivated field a minimum buffer of one hundred (100) feet or a minimum of fifty (50) feet with an opaque fence a minimum of six (6) feet in height should be provided. This planted buffer area should be exclusive of fencing and individual property lot areas except as permitted by the board.
- A buffer one hundred feet (100') in width should be provided between any new development and any historically significant structure identified in the Historic Preservation Element.
- If a road separates two districts, a minimum buffer of 25 feet in width should be provided within both districts, except for single-family residential development.
- Landscaped buffers should be irrigated to insure the long-term viability of the vegetation.

### ***Energy Conservation***

Site plans and subdivision layouts, which use natural factors to their advantage, can reduce energy demand by approximately 20 percent. These benefits accrue both to the homeowner by reducing operating expenses and to all regional energy users by reducing aggregate energy demand. The following techniques are recommended for all new land development.

- Structures should be oriented toward the southern exposure where possible.
- Window openings on northern exposures should be limited in size and number.

- Windbreaks of evergreen material are recommended both on northern exposures of residential structures and on the northern property exposure.
- Deciduous trees are recommended on western exposures to intercept summer's setting sun and to allow the energy of the winter sun to pass through.

### *Open Space*

- Lands that are dedicated to the Township, as open space should not be accepted unless they are of a size suitable for a needed public purpose and have adequate provisions for their protection and maintenance.
- The establishment of a legal entity should provide for the preservation and maintenance of private open space. The operating monies for this entity should be derived from a principal amount sufficiently large to generate interest revenues to adequately maintain the land.

### *Vegetation Management and Tree Removal*

- Development should be designed to encourage the retention of existing vegetation within the development.
- Trees greater than or equal to 8" diameter at breast height (dbh) should be maintained and incorporated into the final design of all subdivisions and site plans. Unique native evergreens, including American Holly and Mountain Laurel, greater than or equal to 1" dbh and 30" height respectively, should also be maintained or transplanted and incorporated into the final design of all subdivisions and site plans.
- Trees greater than or equal to 4" dbh are not permitted to be cut without a site plan approval. Every effort should be made to transplant existing vegetation.
- All clearing should be centered around structures and driveways.
- Hedgerows should be preserved by incorporation into buffers and street plantings where possible.
- The requirement for street trees may be waived if, after construction, existing woods remain along a majority of the road frontage.

### *Lot Grading*

- Prior to an issuance of a building permit, an individual lot grading plan must be submitted for review and approval by the township engineer.
- Each residential lot approved for development will include an "as built" grading plan, which must be approved by the Planning Board engineer prior to the issuance of a Certificate of Occupancy.

***Lighting in the B-1, B-2, I Districts***

All exterior lighting fixtures should be equipped with cut-off luminaries. In addition, light fixtures adjacent to residential districts will be required to be shielded to prevent glare. The mounting height of exterior lighting should conform to the following schedule:

<u>Building Height</u>	<u>Fixture Mounting Height</u>
up to 24 feet	16 feet
25 to 34 feet	18 feet
35 feet or greater	25 feet

The lighting intensity should not exceed 6 foot candles. The lighting intensity at a property line adjacent to a residential zone should not exceed 0.25-foot candles.

***Contiguous Lots***

When two or more contiguous lots are under the same ownership and one or more of those lots are undersized in area or dimension, the land holdings will be considered as one lot.

***Change of Use, Zoning Approval for Occupancy***

Any change of use or occupancy within East Greenwich Township will void the previously issued Zoning Approval for Occupancy and require the issuance of a new one. In addition, board approval must be obtained before the conversion of any use to any other use even though no new construction is planned when the conversion of use occurs. The purpose of board review is to determine whether the new use will conform to all appropriate township regulations and to ensure that the existing facilities will be adequate for the proposed use.

***Roof-mounted Equipment***

Mechanical equipment located on the roof should be shielded from view.

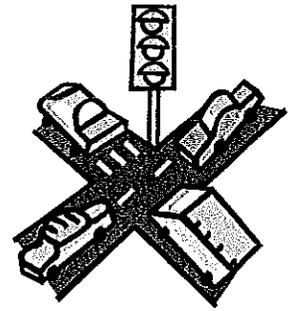
**Noise Control**

Permitted noise levels should be in accordance with the following criteria and those rules established by the New Jersey Department of Environmental Protection, as they may be adopted and amended.

<b>Table A6 Acceptable Noise Levels</b>			
<b>Octave Bank (cycles/sec.)</b>	<b>Along Residence District Boundaries</b>		<b>Along Business District Boundaries (dBA)</b>
	<b>7 a.m. -10 p.m. (dBA)</b>	<b>10 p.m. -7 a.m. (dBA)</b>	
<b>0 - 124</b>	<b>65</b>	<b>50</b>	<b>65</b>
<b>125 - 249</b>	<b>58</b>	<b>44</b>	<b>62</b>
<b>250 - 499</b>	<b>53</b>	<b>39</b>	<b>52</b>
<b>500 - 999</b>	<b>46</b>	<b>35</b>	<b>53</b>
<b>1,000 - 2,400</b>	<b>40</b>	<b>30</b>	<b>47</b>
<b>2,400 - 4,800</b>	<b>34</b>	<b>26</b>	<b>41</b>
<b>Above 4,800</b>	<b>32</b>	<b>24</b>	<b>39</b>

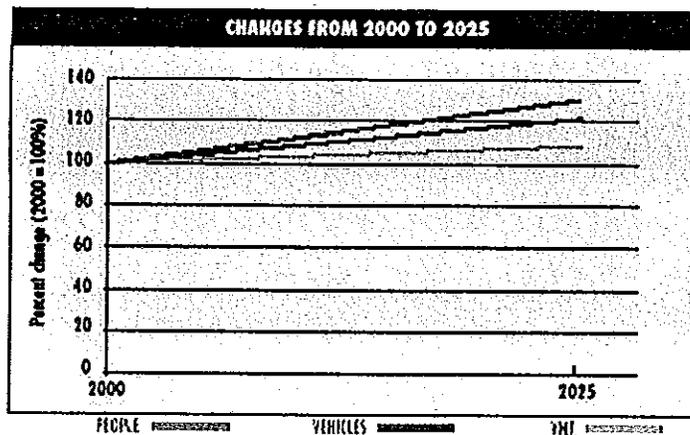
## B. CIRCULATION ELEMENT

Current national transportation policies are not producing the desired outcomes for our communities. Therefore, it is essential that transportation reform be implemented at the local level to address community efficiency and livability. Traffic engineers have discovered that regions cannot build their way out of congestion and that increasing road capacity typically leads to additional traffic. Americans want transportation solutions that lead to greater social equity, a stronger sense of community, better air quality, a healthier population, improved public safety, and a more robust economy. The ability to move people and goods throughout the region while mitigating the traditional transportation conflicts that plague the nation's largest communities will be the result of a well designed and efficient transportation system.



Avoiding and mitigating traffic congestion has become a policy priority in most New Jersey communities where the existing infrastructure is heavily taxed by burgeoning residential and commercial development. An interconnected street system where there are multiple pathways throughout the community will allow residents, employees and visitors to choose the shortest and most direct route to their destination, while assuring that no single street becomes overburdened by excessive traffic.

### <sup>1</sup> *Expected Delaware Valley Travel Demand*



According to the Delaware Valley Regional Planning Commission's (DVRPC) Preliminary Transportation Plan for the region's nine-county area, growth in the number of vehicles and the amount of travel will outpace the rise in people and jobs. Based on year 2000 population, it is estimated that the number of residents will rise by about 9 percent by 2025. Vehicle ownership will increase by about 21 percent in the period from 2000 to 2025. At the end of this period there will be 62 cars for every

100 persons. Further, residents of the region will be driving more. Vehicle miles of travel (vmt) per capita will rise by 21 percent to 24 miles a day. With more people, a larger percentage of people owning vehicles and each driver going farther each day, the total miles driven on the region's highways will likely increase by more than 30 percent.

East Greenwich Township has a network of local roads that impact the Township in a number of ways. In an attempt to provide homebuyers with a living arrangement developers believe is preferable, they have constructed and wish to continue constructing an abundance of cul-de-sacs. This orientation produces an inefficient road network that excludes the construction of thru-streets to adjacent developments and lots that may be developed in the future. Whereas collector

<sup>1</sup> Taken from *Horizons: The Year 2025 Plan for the Delaware Valley*, DVRPC

roads and arterial roadways are intended to gather traffic for regional movement, interconnected local streets create more “livable” neighborhoods and encourage pedestrian and bicycle travel. When roads and paths physically connect a community, it naturally becomes connected in other ways as well.

The design of streets plays a role in keeping communities “livable.” If neighborhood traffic is slow pedestrians, bicyclists, and children are more likely to be safe. An interconnected street system where there are multiple pathways throughout the community will allow residents, employees, and visitors to choose the shortest and most direct route to their destination. In addition, a unified network of streets ensures that no single street will be burdened by excessive traffic.

Two interstate highways pass through the Township, I-295 and the New Jersey Turnpike (I-95). Route 295 runs through the northern portion of the township for nearly  $\frac{3}{4}$  of a mile, there is an interchange and a truck stop in town. Four interchanges on I-295 directly impact traffic conditions in East Greenwich: one is approximately  $\frac{1}{2}$  mile west of the Township line on Democrat Road, two are located along the Township border at Harmony Road and at Berkley/Cohawkin Roads and one on-ramp only exists at Timberlane Road. The NJ Turnpike stretches in a northeast-southwest direction for five (5) miles through the township, and the nearest interchange is exit 2 in Woolwich Township. Seven county roads run through East Greenwich. Kings Highway is most prominent from both an historical and practical standpoint and runs northeast-southwest (referred to by the police department as north-south). The other six county roads generally run perpendicular to Kings Highway. Local roads through the Township are less heavily traveled and provide access to farms and residences. **Map B1** shows the existing transportation infrastructure in East Greenwich.

**Goal: Facilitate the safe and efficient movement of people, goods, and services throughout the Township and the region with minimal conflict and maximum opportunities to use various modes of transportation.**

**Objective 1:**

Maintain and improve the existing roadway network to ease traffic congestion for all road users.

- Work with the New Jersey Department of Transportation, the Delaware Valley Regional Planning Commission, and the Gloucester County Planning and Highway Departments to prioritize areas in need of improvements.
- Balance land uses with the capacity of the circulation system to ensure that new and redeveloped land uses do not create an overload on the transportation system.
- Analyze traffic impacts of proposed developments and work with developers to address such impacts.
- Encourage and support the widening of Berkley Road to four lanes and the reconfiguration of the Mount Royal intersection.

**Objective 2:**

Encourage the use of “alternative” forms of transportation to improve the air quality and health of residents.

- Promote a pedestrian and bike friendly environment that provides for ease of movement from place to place.
- Develop a comprehensive bicycle and integrated jogging trail and sidewalk system throughout the community. Install signage to delineate paths and raise motorist awareness.
- Encourage enforcement of pedestrian safety in signed and marked pedestrian zones and crosswalks.
- Encourage the growth and expansion of specialized transit services to meet the needs of the elderly, disabled, schoolchildren, and other transportation dependent groups.
- Coordinate with NJ Transit for improved service to the community.
- Encourage less use of the automobile for intra-township travel and encourage residents to combine trips.



*The Township wishes to resolve problems with Borelli Blvd.*

### **Objective 3:**

Promote transportation management strategies to balance land use and capacity of existing roadways encouraging inter-Township travel.

- Require that traffic-calming techniques be implemented where needed to create a pedestrian friendly street environment, control vehicle speed and reduce the number of vehicles cutting through residential neighborhoods.

- Require vehicular and pedestrian interconnection between neighborhoods and minimize the number of cul-de-sacs.
- Use contrasting material and texture for sidewalks and crosswalks to create a pedestrian friendly environment.
- Develop a plan for a future right of way for north-south travel between Wolfert Station Road and Democrat Road.
- Work toward a solution to the on-going problems associated with Borelli Boulevard including physical improvements.

### **County Roads**

The Gloucester County Official Map was updated in September 2002 and shows the proposed roadway (cart way) and right of way widths for all county roads. **Table B1** summarizes this information for the county roads in East Greenwich Township.

<b>Table B1 Gloucester County Roads in East Greenwich</b>			
<b>Route # and Road Name</b>	<b>Classification</b>	<b>Proposed Right of Way Width (in accordance with Gloucester County official map)</b>	<b>Gloucester County's Proposed Roadway Width</b>
607, Tomlin Station Road	Collector	76 feet	56 feet
664, Wolfert Station Road	Local	64 feet	44 feet
673 (551 spur), Cedar Road/ Democrat Road	Collector	76 feet	56 feet
680, Harmony Road	Collector	76 feet	56 feet
667, Cohawkin Road	Collector	76 feet	56 feet
678, Berkley Road/ Mantua Road	Arterial	88 feet	68
551, Kings Highway	Arterial	88 feet	68 feet*

\* East Greenwich has opposed and continues to oppose making Kings Highway a four-lane roadway because of the historic nature of the street and the three towns it traverses: Mount Royal, Mickleton and Clarksboro.

### **Livable Neighborhood Streets**

Neighborhood streets should be safe for children, comfortable for bicycling, and provide a pleasing environment for walking. Narrow, tree-lined streets should incorporate living spaces so residents can know and identify their neighborhoods thereby creating a safer environment. Traffic calming is an essential ingredient for creating an effective network of streets. Speeding in residential areas is the top citizen complaint in many municipalities. However, traffic experts say that tougher law enforcement is not the only answer. Public education and changes in traffic patterns are equally important.

According to the National Highway Traffic Safety Administration, speeding was a contributing factor in 29 percent of the nation's fatal accidents. More than 20 percent of those accidents occurred where posted speed limits were 35 mph or less. Speeding happens throughout East Greenwich Township and it compromises neighborhood livability and safety. It makes playing outdoors hazardous to children, increases background noise, and makes walking, bicycling, and driving dangerous for all citizens.

Traffic conditions near schools can seriously compromise the safety of school children. Although school zones have a 25 mph speed limit when children are present, these limits alone do not ensure the safety of children crossing the streets within the school zone. The most common problems in school zones are excessive vehicle speed and traffic volume in areas where students must cross streets and where they are picked up and dropped off.

## Traffic Planning

Future transportation needs are determined by analyzing the existing transportation infrastructure and existing and proposed land use patterns. Recommendations take into account the land use and zoning characteristics, infrastructure and travel demand. In this fashion, transportation and land use are linked in providing appropriate recommendations for roadway improvements. The Circulation Map (**Map B2**) shows the Annual Average Daily Trips (AADT) on various road segments throughout the Township. When usage is predicted to exceed a roadway's capacity, actions must be taken to relieve the burden or to expand the road's carrying capacity. As is often the case, plans must be made to add lanes and improve intersections with phased signals and synchronization with other signals. Alternately, it may be possible to divert traffic to other roadways or to prevent congestion by encouraging motorists to carpool, bicycle or use public transportation.

The New Jersey Turnpike is one of the most heavily traveled highways in the northeast. While the southern segment is not as congested as the central and northern portion of the highway, the daily traffic is significant. A new Exit 1 interchange is scheduled to open in Carney's Point Township in the spring of 2004. Once the new toll plaza is open, the Turnpike Authority will revisit the possibility of widening the Turnpike to three lanes in each direction between exit 2 in Woolwich and exit 3 in Bellmawr, which would include the segment running through East Greenwich. If capacity needs warrant, new lanes may be planned within the next eight to ten years. This may necessitate additional right of way acquisition from some property owners adjacent to the Turnpike and reconstruction of existing bridges over the Turnpike. The Township will be notified if this process is undertaken.

The Delaware Valley Regional Planning Commission's (DVRPC) transportation improvement plan (TIP) for the New Jersey sub-region for FY 2003 to FY 2005 includes nearly 200 projects, totaling 936 million dollars, an average of 312 million per year. The budget includes 506 million dollars for projects primarily addressing the highway system and 430 million dollars for transit projects. The highway program in Gloucester County is \$17,365,000 for FY 2003, \$29,125,000 for FY 2004 and \$3,565,000 for FY 2005 for a total of \$50,055,000 over the three-year horizon.





## **Planned Road and Intersection Improvements**

The following roadway improvements are already scheduled and budgeted for. The location of planned and proposed improvements to the circulation system is shown on **map B2**.

- Gloucester County will resurface Wolfert Station Road from Kings Highway to Tomlin Station Road this year. The county resurfaced Tomlin Station Road in 2000/2001.
- As a result of the approved Summer Meadows development, improvements have been made to the intersection of Barney Hawkin Road and Wolfert Station Road to improve the turning radii and sight lines.
- The DVRPC's TIP for FY 2003 includes \$50,000 for final scope and development for intersection improvements at the Kings Highway-Berkley Road-County House Road intersection in Mt. Royal. The project will then move to the final design and construction phases.
- The DVRPC's TIP for FY 2003 and FY 2004 includes \$1.5 million for feasibility assessment and final scope design for rehabilitation and reconstruction of I-295 in the vicinity of Tomlin Station Road to Haddonfield-Berlin Road in Camden County.

## **Proposed Road and Intersection Improvements**

Improvements of any existing roadway or intersection require cooperation and funding at various governmental levels. As a basic premise, existing roadways should be utilized and upgraded to the greatest extent possible. Where new roadways are necessary or desirable to create the most efficient circulation pattern, input and assistance should be requested from all of those who will benefit.

In a properly designed circulation system, each roadway should be designed in accordance with its function; i.e. the service that it will be expected to perform. Generally roads can be classified into four functional categories: principal arterial, minor arterial, collectors (minor and major) and local. Principal arterials are usually the highest traffic volume corridors with the longest trip desires. They commonly carry traffic across counties or states and serve major centers of activity. Minor arterials interconnect and augment the principal arterial system. They connect cities, large towns and other traffic generating centers. Collectors provide land access service by collecting traffic from local streets and channeling the traffic into the arterial system. Lastly, local systems consist of all roads not included in the higher classifications. They provide direct access to abutting lands, offering the lowest level of mobility.

## **Accident Data**

From 1999 through the first half of 2003 there were an average 173 traffic accidents per year in East Greenwich. In the first half of 2003 there were 108 accidents. If the pace remains steady, the Township could be facing a significant increase over the last several years (see **table B2**). Approximately fifteen percent of traffic accidents involve deer, with most conflicts between motor vehicles and deer occurring between September and January. Recently there have been an increased number of accidents at the intersection of Kings Highway and Tomlin Station Road. Installation of a phased traffic signal may remedy this

escalating problem. A disproportionate number of accidents have also occurred along Berkley Road and at the T/A Travel Center. Improvements to existing roads and intersections, as well as implementation of traffic calming and speed control measures will aid in the prevention of traffic accidents. Sight triangles at intersections and driveways must be kept clear as not to impede visibility. During the site plan review process, the Township will ensure that easements are acquired for sight triangles. Code enforcement and the Police Department must make sure that sight lines stay clear. Many non-residents drive through East Greenwich each day from their homes at points east to the employment centers to the west along the Delaware River.

<b>Year</b>	<b>Number of Accidents</b>
2003 (through June)	108
2002	150
2001	189
2000	168
1999	165
Average	173

### **Recommendations**

The following improvements are recommended as a result of the master plan research and public discussion. In cooperation with the County and the DVRPC, Township officials will need to prioritize and plan for improvements. The pavement along several county roads throughout the Township is only wide enough for one lane in each direction with nominal shoulder lanes and in some cases no shoulder at all. While two lanes may be sufficient to carry the current traffic, and expected future traffic along these roads is difficult to predict, adequate shoulders, bicycle lanes and turning lanes should be incorporated where needed and appropriate. The northern section of Harmony Road for example is one lane in each direction with steep drainage ditches on both sides of the street. Increased traffic volumes are putting a strain on the road and in inclement weather conditions cars commonly careen into the ditches. A shoulder would increase safety.

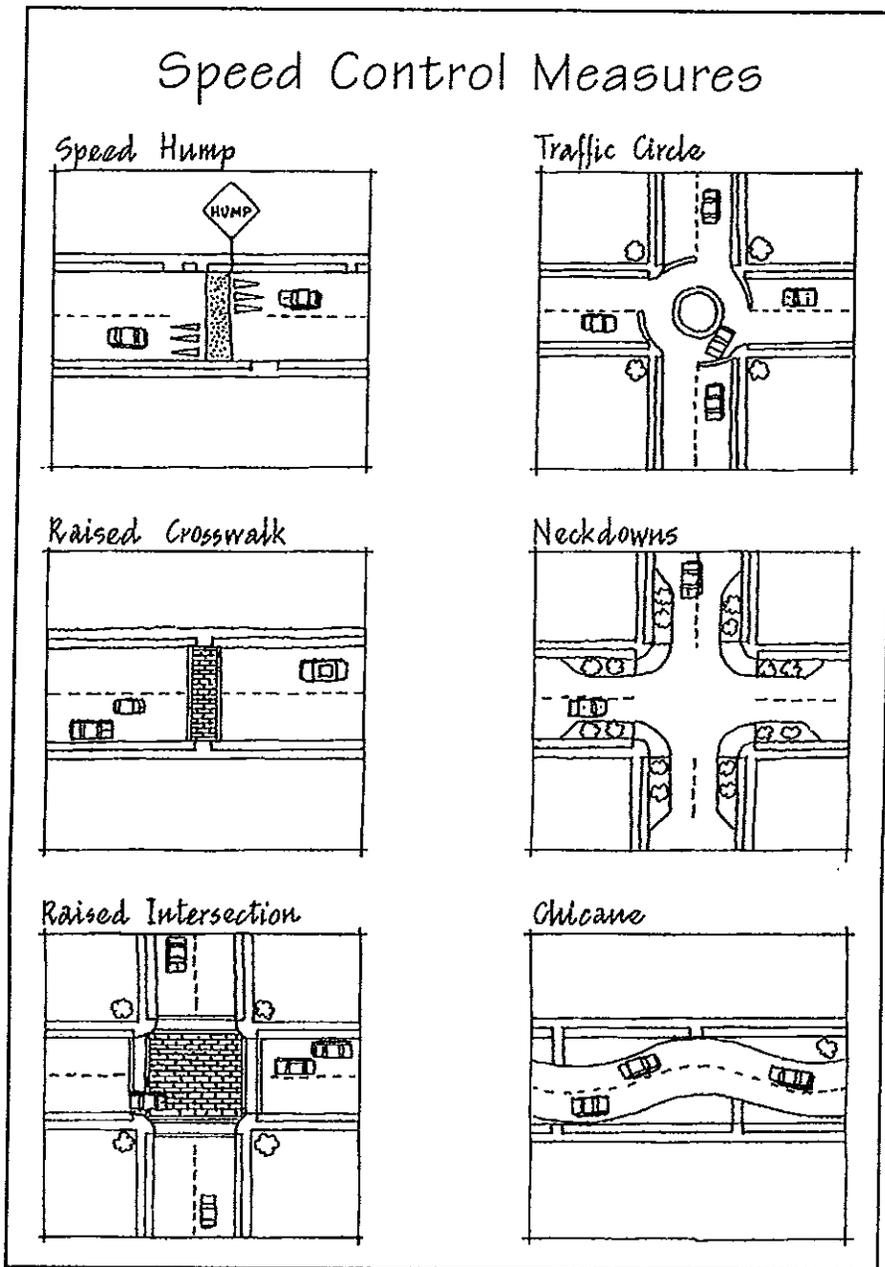
- The Mt. Royal intersection of Kings Highway-Berkley Road-County House Road needs to be improved. This intersection has been the subject of discussion for several years and is now on the DVRPC's project schedule. The Township should follow the project's progress and advocate for expeditious implementation.
- A traffic signal should be installed at Kings Highway and Tomlin Station Road. New developments around this intersection, which will increase traffic volume, should contribute to a fund for the installation of a signal.
- A traffic signal should be designed and installed at the intersection of Democrat and Swedesboro Avenue in cooperation with Gloucester County and Greenwich Township. At present a blinking light may be sufficient, but it is anticipated that a phased signal will be warranted as development continues.

- The “V” intersection at Harmony and Democrat Roads should be realigned to make Harmony Road intersect Democrat Road at a right angle.
- Install traffic calming devices like speed humps or neckdowns at strategic locations as defined in the traffic calming section of the plan.
- Additional turning lanes should be installed at Cohawkin Road and Kings Highway.
- Harmony Road should be widened to allow motorists to pull over onto a shoulder and to allow passing on the right when other motorists are waiting to turn left at an intersection. Drainage facilities will also need to be improved on Harmony Road in conformance with the DEP’s new storm water rules.
- Mantua Road should also be widened to accommodate a shoulder between Kings Highway and the township border with Mantua.
- The blinking yellow light at Wolfert Station Road and Union Road may need to be replaced with a three-phased traffic signal.
- Install sidewalks within a two-mile radius of the public schools and in commercial areas along Kings Highway.
- Establish crosswalks at Somers Avenue and Weatherby Avenue and Kings Highway.



*Berkley Road Traffic*

## Exhibit B1



Source: Adapted from City of Boulder, Colo., *Neighborhood Traffic Mitigation Program—Tool Kit*, undated.

## Traffic Calming

Traffic Calming is defined as measures implemented to reduce speeding, discourage cut-through traffic and increase motorist awareness. Traffic calming keeps traffic moving, but moving at moderate speeds. Speed control and traffic calming measures may be planned and implemented to retrofit existing streets as a part of the Capital Improvement Program or the measures may be worked into plans for new streets. The following are some initiatives that will encourage traffic calming and potentially reduce motorist frustration:

- *Education* alerts people to ways they can help to ease traffic problems. For example, by reducing vehicle speed, traveling by bus or riding a

bicycle, traffic will be calmed and personal stress will be reduced. Driver training and anti-road rage campaigns raise driver awareness.

- *Engineering* tools include a variety of traffic calming devices that can reduce speed, decrease volumes and improve safety. **Exhibit B1** shows various traffic calming measures.
- *Enforcement* enlists the help of the police department to focus attention and enforcement efforts on designated streets to increase community awareness of speeding problems. Speed display signage, banners and photo radar programs are all options.

Citizen involvement is an important part of all traffic calming projects. The people who live and work in the identified area should have an opportunity to become actively involved in the planning and decision-making process. During the Master Plan process, several streets were identified as areas of excessive speeding. The following presents street segments that require attention. These segments are designated on the Traffic Map.

- Howard Avenue between Harmony and Democrat Roads
- Birch Drive between Harmony and Democrat Roads
- Meadow Ridge and Stone Ridge Drive between Democrat Road and Quaker Road
- Sunset Drive between Rainbow Drive and Weathervane Drive
- Still Run Drive, Herford Lane & Millwood Drive between Cedar Road and Kings Highway

### Connecting the Community

East Greenwich residents and public officials wish to plan for efficient and comfortable internal traffic flow. Interconnection between housing developments will help to erase the artificial boundaries created by subdivisions designed by developers with tunnel vision. Cul-de-sac street designs create difficulties for the public works department employees and waste management contractors. Snow removal is labor intensive in any neighborhood, but the turn radii of cul-de-sacs exacerbate the difficulties. Where a proposed subdivision adjoins a vacant or agricultural property that has not been permanently preserved, all proposed cul-de-sacs and stub streets with close proximity to the property boundary should have 50 feet of right-of-way frontage bordering the adjacent lots. Interconnection will then be required if and when the adjacent property is developed. A point of sale disclosure identifying the potential future connection will be required for each lot fronting on the cul-de-sac.



*Kings Highway streetscape*

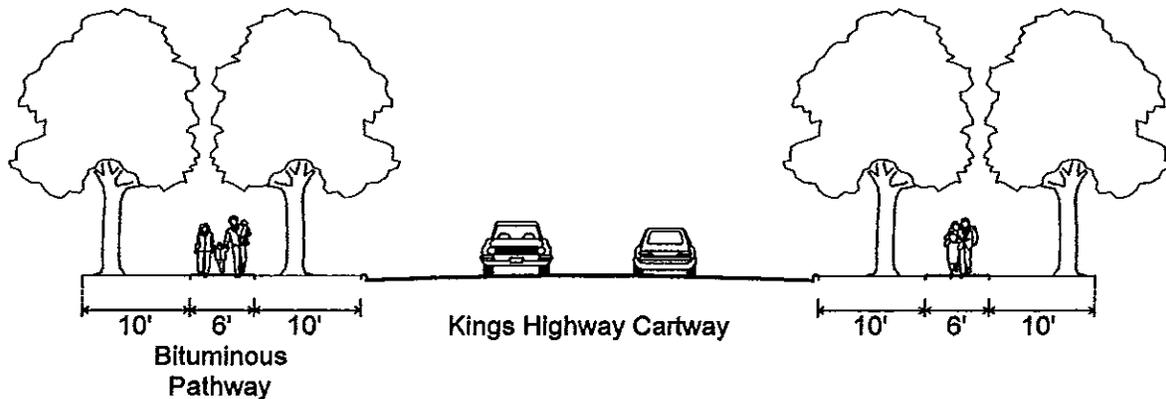
### **Street and Pathway Plans**

The lively intersections, architecture and vegetation along Kings Highway make it an ideal road for bicycle improvements. The historic roadway's scale and character make it pleasant to see from a bicycle or pedestrian perspective rather than from behind a steering wheel. There may not be enough human activity and commercial destinations to invite large numbers of

walkers, but sidewalks should be available for utilitarian walkers (those walking to school or

work), exercise walkers/joggers, and casual strolls. **Exhibit B2** shows a proposed road section for Kings Highway (street, trees, bike path, more trees). As the township and county acquire open space throughout the town and county, pedestrian and bicycle trails should be designed, mindful of the potential for connecting one to the next. The Circulation Map (**map B2**) identifies preferred connections along county and municipal roads.

### Exhibit B2



### Truck Traffic

One of the major contributors to traffic congestion in East Greenwich is truck traffic. The absence of an east-west highway from the Delaware River to the shore compels truckers to seek out the most expeditious and unencumbered routes to reach their destinations. Unfortunately for the residents of East Greenwich, these routes often traverse the Township. The transport of fuel from Westville and West Deptford eastward through East Greenwich contributes to noise and air pollution as well as traffic. Consideration has been given to creating a truck route, but has proven infeasible because no single road is better equipped to handle such traffic or more deserving of the increased nuisance than any other.

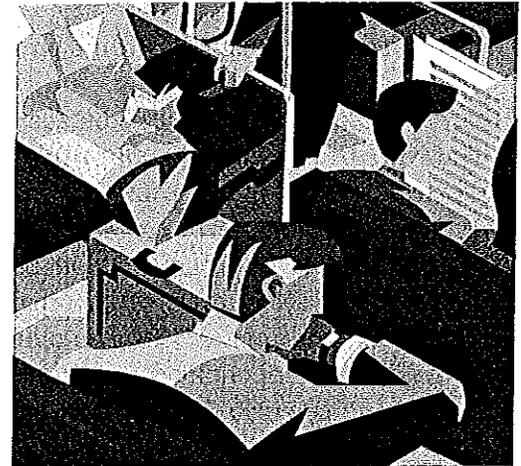


However, there is some good news. As part of a recent (Sept 2003) settlement with the New Jersey Department of Environmental Protection and U.S. Environmental Protection Agency, in addition to 2.5 million dollars in fines and agreeing to upgrade environmental controls at their plant, the Sunoco Eagle Point Oil Refinery will spend one million dollars to partially fund an environmentally beneficial project designed to eliminate diesel emissions from

idling trucks at the Paulsboro Travel Center, which is located in East Greenwich and Paulsboro (exit 18A off I-295). The settlement is a result of repeated violations of the New Jersey Air Pollution Control Act and the Federal Clean Air Act. The project will install electrical technology called IdleAire to approximately 175 parking spaces at the travel center. The electrical hookups will significantly reduce the emission of ozone causing pollutants such as nitrogen oxides, particulate matter and hydrocarbons by allowing trucks to plug in for utility services rather than idle their diesel engines overnight to generate power.

### **Commuting and Public Transportation**

According to a study released in September 2003 by the Texas Transportation Institute, the average driver in the United States spends 51 hours per year stuck in traffic. This is in addition to the actual time it takes to drive from one destination to another. Of the 1,901 occupied housing units in 2000, 3.3% did not have a car available to them, 25% had one (1) car available, 48.2% had two (2) cars available and 23.5% had three (3) or more cars available! Of the 2,536 employed persons in East Greenwich reported in the 2000 census, 2,207 or 87% drove alone to work, 181 or 7.1% carpooled, 11 or .4% used public transportation, 12 or .5% walked, 22 traveled by other means and 103 worked at home. The mean commuting time was 26.3 minutes.



The 2002 Transportation Plan for Gloucester County addresses the relatively poor level of bus service in the county by recommending that a transit terminal be constructed in Woodbury or Westville. This would allow for more efficient service throughout the county.

North-south bus routes in Gloucester County are generally considered to be satisfactory, but service in the east-west direction is infrequent and transfers are inconvenient. The transit terminal will allow NJ Transit to realize economies of scale in Gloucester County. There are few bus shelters, few bus stop signs, no park and ride and no passenger rail service in East Greenwich. While this may be expected in a rural community, East Greenwich is increasingly suburban and the various planning units in the region should coordinate planning for the provision of transportation options.

The Gloucester County Transportation Plan also concluded that areas in Gloucester County with high population density, unemployment, senior populations and lowest income also exhibited the highest need for transportation. East Greenwich was an area shown to have a medium level of need for public transportation in certain areas. Consideration should be given to enhancing reliable and efficient options for public transportation in the developed areas of town. Fifteen municipalities in Gloucester County provide a modified form of fixed rate transportation service, mostly oriented to senior citizens and the disabled. None of these fifteen (15) municipalities have coordinated their services. If East Greenwich decides to initiate a similar service it may be worthwhile to coordinate and share resources with neighboring municipalities. The DVRPC's TIP includes \$386,554,000 in spending on New Jersey transit projects, the funding is not broken down by county, but anyone using public transportation stands to benefit from improvements to facilities and services. This relatively large allocation of money to public transportation is demonstrative of recent policy trends aimed at curbing congestion and sprawl.

## **Consistency with New Jersey Traffic Laws**

In accordance with Title 39 of the New Jersey Revised Statutes, Motor Vehicle and Traffic Law, a road must be 31 feet wide in order to permit parking on both sides of a residential street. Residential Site Improvement Standards (RSIS) require that neighborhood roads be at least 28 feet wide for two lanes of traffic and one parking lane. If the applicant chooses to comply with RSIS, but not Title 39, the applicant will be responsible for obtaining Department of Transportation approvals and for installing "No Parking" signs on one side of the street prior to receiving the first Certificate of Occupancy. It is recommended that all new residential streets comply with the Title 39 standard (31 feet) in order to avoid parking problems in residential neighborhoods.

## **Fair Share Requirements for Off Tract Improvements**

Fair share cost allocations for off-tract circulation system improvements are based on the circulation plan element of the Master Plan. The Municipal Land Use Law (N.J.S.A. 40:55D-42) states that the governing body may, by ordinance, adopt regulations requiring that a developer, as a condition of approval for a subdivision or site plan, pay the pro-rata share of the cost of providing reasonable and necessary street improvements (as well as for water, sewerage, drainage and easements therefore) located off-tract but necessitated or required by construction or improvements within such subdivision or development. The pro rata share must be based on fair and reasonable standards to determine proportionate or pro rata amount of the cost of such facilities to be borne by each developer within a related and common area. The assessment will defray the costs of roadway improvements that are located outside the property limits of the subdivision or development but are required due to the intensity of the development or subdivision.

When additional development is proposed on an overburdened road, the reviewing board may request a pro-rata contribution for off-tract improvements. These improvements may not be required to be installed until the need is warranted. The mechanism for fair share contributions should be in place as part of the approval process. It is recommended that the East Greenwich Land Development Ordinances include provisions for requiring off-tract circulation improvements and calculating the costs for such improvements. The ordinance would provide a formula for the calculation of the pro rata share required of a developer, applicant or owner based on the recommendations contained within the Circulation Element.

## **Recent Case Law Regarding Pro Rata Share**

N.J.S.A. 40:55D-42 sets forth the requirements for imposing developer fee contributions for off-tract improvements and provides:

"The governing body may by ordinance adopt regulations requiring a developer, as a condition of approval of a subdivision or site plan, to pay its pro-rata share of the cost of providing only reasonable and necessary street improvements and water and sewerage and drainage facilities, and easements therefore, located outside the property limits of the subdivision or development but necessitated or

required by construction of improvements within such subdivision or development.”

In *F & W Assocs. v. County of Somerset* 276 N.J. Super. 519, 528 (App. Div. 1994), Judge Havey comprehensively interpreted Section 42 of the MLUL. Judge Havey noted that Section 42 of the MLUL is a codification of the pre-MLUL decisional law, including the decision of *Divan v. Planning Bd. Of Wayne*. 66 N.J. 582 (1975), where the New Jersey Supreme Court upheld off-tract improvement ordinance standards based upon the number of trips a project will generate.

In his decision, Judge Havey stressed the two requirements for implementing off-tract improvement ordinance standards:

- 1) A "rational nexus"; i.e. a municipality's authority to charge developers is limited to improvements for which the need arose as a direct consequence of the particular subdivision or development under review; and
- 2) "Equality of treatment", i.e. a developer may only be apportioned his pro rata share of the cost of the improvement.

Judge Havey concluded that the "rational nexus" requirement does not require "mathematical exactitude" on the part of the Township in devising an ordinance to collect pro-rata share contributions and that a developer may only challenge an assessment if a disproportionate share is imposed upon his property, which benefits other persons. Recommended ordinances will incorporate a trip generation methodology applicable to a discrete area of the Township, providing a rational nexus for the pro-rata share contributions allocated to each developer.

### **Traffic Impact Studies**

It is recommended that a traffic study be required for all developments within East Greenwich Township that will generate 25 or more PM peak hour trips. If a traffic study is required of an applicant, it will be necessary to provide the various data as outlined below.

The traffic study should address the various traffic generating characteristics of the proposed use and the interface of traffic from the proposed use and the existing uses in the area to assure that there will not be a degradation in the level of service in the area and so that there will not be any traffic hazards created in the area as a result of the traffic that is generated by the development. The traffic study should address the various concerns noted below using the standards outlined.

### Level of Service

In order to maintain an efficient transportation network that allows traffic to flow without unacceptable delays or safety hazards, it is necessary for a developer or applicant to demonstrate that the existing public traffic arteries have adequate capacities to accommodate the traffic that will be generated by a proposed project. Levels of service A through F (los) are defined in the most recent Institute of Traffic Engineers Handbook. New developments must assure a level of service D or better. Every attempt should be made to maintain or improve the existing level of

service. Additionally, safe convenient and adequate circulation and parking must be provided for on the site of the proposed development.

### Traffic Volumes

It is recommended that existing 24-hour traffic counts for a minimum of three different days (excluding Sundays and holidays) summarized by hour and by direction and peak hour trips by movement be taken on all critical arterials and intersections affected by the proposed development. Traffic volumes utilized in the traffic report will be taken within twelve (12) months prior the date that the application is filed with the reviewing board. The counts should be taken during the period of September 1 through June 15, excluding days when inclement weather would make such counts atypical. .

### Future Background Traffic Volumes

Future traffic volumes will be achieved by multiplying the peak hour traffic volumes by the NJDOT Access Permit Annual Background Growth Rate Table. These factored traffic volumes will be surcharged with traffic volumes expected to be generated by impending development. Impending development would include traffic from developments that are expected to be completed in the immediate vicinity. This would include projects presently approved by the Township, projects in adjacent municipalities and projects that are presently in the planning process that are expected to be approved in the near future.

### Traffic Generation

Future traffic expected to be generated by the proposed development will be calculated by utilizing the latest copy of the Institute of Transportation Engineers (ITE) text Trip Generation. The values developed by using the Trip Generation method will be verified by typical counts when requested by the Township to verify the Trip Generation methodology results. If the Township requires trip generation data because the Trip Generation data methodology is not accurate due to local conditions or inadequate database in the Trip Generation text, then the traffic data counts required verifying trip generation data will be provided in the ITE format. Traffic generation will include the amount of traffic to be generated for the projected 24-hour period and during the peak hour trip generation by the proposed project.

### Future Build Traffic Volumes

Future background traffic volumes will be surcharged by adding the traffic volumes that are anticipated to be generated by the proposed development to the future background traffic volumes.

### Traffic Analyses

- Capacity Analyses. Roadways and intersections will be analyzed using a capacity analysis. The capacity analyses will be determined by using the latest NJDOT approved Highway Capacity Program. Traffic will be analyzed for the existing traffic conditions, future background traffic, and future build traffic conditions. Traffic analyses will optimize traffic

signals. Thus, the existing traffic conditions will show traffic conditions as they exist and with optimization of traffic signal timing. The future background traffic conditions will require the optimization of the traffic signal timings before the addition of the proposed traffic from the proposed development. After the addition of the future background traffic and the optimization of the traffic on the roadways, future traffic will be added and the traffic signal timings will be optimized for a final product.

- Accident Analyses. Accident data of critical intersections and roadways affected will be analyzed.
- Speed and Delay Analyses. Speed and delay analyses of critical roadways will be provided.
- Gap Analyses. Gap studies of critical intersections will be provided.
- Safety Analyses. Analyses will be made of all entrances and exits to determine if left turn lanes are warranted in accordance with Highway Research Record 211. In addition, deceleration and acceleration lanes will be analyzed to determine if they are needed.

Off-Tract Contributions. The applicant's traffic consultant will provide a trip distribution that will distribute traffic to the surrounding roadway system. All intersections that have over 25 pm peak hour trips will be tabulated and listed with the amount of traffic from the proposed development and the total build traffic at that location. The applicant's engineer should provide the percent of the PM traffic that will be generated as a result of the ultimate build-out of the property for each intersection approach. If improvements are required as a result of development the need for the proposed improvement will be based on maintaining an acceptable level of service. The applicant's pro-rata share of the intersection improvement will be calculated by using the cost of the improvement multiplied by a factor consisting of the applicant traffic volume for that leg of the intersection alone, divided by the total traffic volume at build out for that leg of the intersection alone.

## **Bicycle Transportation Network**

Bikeways bring community benefits to both the cycling and non-cycling public. They attract more cyclists thereby reducing noise and air pollution and provide water quality benefits. They increase the carrying capacity of the transportation system and reduce road maintenance costs. Bikeways also help motorists to be more aware thus reducing vehicle speed and creating a safer environment for pedestrians. Bicycles also offer low-cost mobility to the non-driving public, including the young. The plan provides guidance for improvements that will encourage more bicycle trips on a daily basis.

The planning and execution of a bikeway system can be relatively simple and inexpensive such as the re-stripping of a roadway as part of a resurfacing project or complicated and expensive as with the widening of streets or the construction of a separate bikeway. The selection of bikeway locations should be determined based on their connection to land uses, ease and cost of implementation, need for safety improvements and continuity.

## Goals and Objectives

The goal of the bicycle transportation system is to make bicycling an integral part of daily life in the community, particularly for trips of less than two miles. This can be achieved by implementing a bikeway network, improving bicycle/transit integration, encouraging bicycle use, and making bicycling safer. The objectives of developing a bikeway program in East Greenwich include:

- Complete a network of bikeways that serves bicyclists needs, especially for travel to and within employment centers and commercial districts.
- Provide bikeway facilities that are appropriate to the street classifications, traffic volume, and speed on all rights-of-ways.
- Maintain and improve quality, operation, and integrity of bikeway facilities.
- Provide bicycling parking in employment centers, at schools, industrial and recreation centers.
- Promote bicycling as transportation to and from school.

There are a limited number of bikeways within the Township. They exist on a street system that includes county and municipally owned roadways. In addition, their locations serve only a small segment of the community. Future Township bikeways should be planned to establish direct and convenient bicycle access to significant destinations such as the neighborhoods and along Kings Highway. In addition, the Township should develop a partnership with Cross County Connection for coordination and funding opportunities. Cross County Connection is an organization that works to improve the quality of life in southern New Jersey through transportation solutions involving commuters, employers and governments.

While all streets should be accessible by bicycle, and the appropriate facilities phased in as streets are either constructed or reconstructed, the reality is that relying on street reconstruction for bikeway improvements will leave cyclists with few improvements in the near future. To provide a bikeway system that attracts cyclists and realizes the objective of integrating bicycling for recreation and as an alternative transportation alternative, the Township must pursue a system of selected streets on which bikeway facilities will be implemented. The bikeway network is to provide a higher level of service for cyclists and encourage bicycle use. The streets proposed in the bikeway network were selected because they connect cyclists to desired destinations, such as employment centers, commercial centers, and recreational destinations, provide continuity with the existing sidewalks, and provide the most direct and convenient routes possible. The network is proposed on the Circulation Map (**Map B2**).

## Implementation

The following techniques are being advanced as a means of implementing a bicycle network in East Greenwich:

- Implement bikeway facilities as part of all transportation improvements including road construction and reconstruction and other transportation projects such as intersection improvements.
- Allocate funding for individual bikeway projects.
- Develop and implement a destination-based signage system for the bikeway network.

- Consider innovative design treatments where appropriate, such as different colored and/or textured bicycle lanes and advance bicycle stop lines at intersections.

Street vacations create opportunities for the interconnection of bikeways. It is recommended that the Township evaluate opportunities and the need for a bikeway, walkway, or other transportation use when considering the vacation of a street. Where pedestrian and bicycle facilities are needed, the first preference is to retain the right-of-way for these uses. If retaining the right-of-way is not feasible a public easement can be obtained along with public improvements where they preserve or enhance circulation needs.

Bicycling produces no air pollution, decreases traffic congestion, helps alleviate parking demand, saves energy, uses land and road space efficiently, provides mobility, improves health and fitness, and is fun! The success of the bicycle plan will only be assured by the continued support of the cycling community in East Greenwich and other residents recognizing the benefits bicycling brings to all residents.

### **Sidewalks and Pedestrian Pathways**

Sidewalks are also an important linkage that can be used in combination with bikeways. Many sidewalks are discontinuous throughout the community. This plan recommends the elimination of sidewalk gaps by installing new sidewalks each year until the gaps are eliminated. The safety of all pedestrians is of utmost concern. In particular sidewalks should be available for children walking to school or to other community destinations. The importance of pedestrian oriented development and walkability are underscored throughout this plan. A sidewalk construction plan should be incorporated into the Townships Capital Improvements Program.

### **Looking to the Future**

In his address to the New Jersey Conference of Mayors in April of 2003, Governor McGreevy called for amendments to the existing Municipal Land Use Law, including the establishment of impact fees and transfer of development rights. The governor wishes to give municipalities the power to impose impact fees on development so that developers, not property taxpayers, bear the true cost of added roads, sewer systems and new schools that result from new development. Looking to the future, East Greenwich may strengthen its impact fee requirements when enabled by state legislation.

## C. RECREATION ELEMENT



The Recreation Element of the Master Plan analyzes existing recreation facilities and makes recommendations intended to create a comprehensive system of public recreation spaces. In planning the community, we must be assured that provisions are made for adequate recreation facilities and parks for the enjoyment of current and future residents. Despite the diverse recreation opportunities currently available, the demand for both passive and active recreation continues to increase. Recreation planning and development must keep pace with projected population growth. Also, even if the population did not increase at all, the recreational needs of a community are not static.

At the time of the 1984 Master Plan, the Planning Board asserted that the recreation available in the Township was adequate. The Master Plan boasted the diversity of active and passive recreation opportunities available to residents. When the Master Plan was re-examined in 1990, the single goal related to recreation was to acquire additional fields to accommodate new residents. By the next examination in 1999 a developer had agreed to dedicate a 17 acre parcel to the Township for recreational uses (the Mickleton Tot lot). No further goals were set forth related to recreation. Township officials have recently secured a large tract of land to accommodate a soccer complex on Wolfert Station Road.

By embracing the view that the entire community is a park, not in the traditional playground sense of the word, but in a manner that ensures harmony between land uses and day to day activities, the community's goals can be advanced by nurturing an environment in which parkland and recreation compliment every other aspect of life. The National Parks and Recreation Association notes that with today's fiscal and environmental constraints, the most viable park, recreation, open space and pathway systems are fully integrated into the most current practice of growth management, land use controls and land-conserving development tools (Mertes and Hall 1996). As a result, the recreation development process blends the formula-driven approach with a systems approach that responds to changing conditions.

The systems planning approach focuses on creating a comprehensive and interrelated system of parks, recreation, open spaces and pathways that responds to the community's specific needs, values and conditions, provides an appealing and harmonious environment and protects the integrity and quality of the surrounding natural systems. This approach requires that we assess the park, recreation and open space needs of East Greenwich and translate that information into a framework for meeting the physical, spatial and facility requirements of the community. This method will promote incremental and orderly, yet flexible improvements to the park and recreation system and will focus activities on the provision of services that will benefit the public.

A needs assessment analysis of the community will permit us to determine whether the facilities presently available are meeting the recreational needs of the Township and to project what will be needed in the near future. The Recreation Element, along with the Open Space and Conservation Element will identify the existing and proposed location and classification of all parks, open spaces and pathways within the jurisdiction.

**Goal: To promote participation by all East Greenwich citizens in diverse, interesting, and high quality recreational and leisure opportunities in safe, modern, and well-maintained parks and facilities.**

**Objective 1:**

Promote further development and expansion of parks and recreational facilities to meet neighborhood and community needs.

- Encourage the location of new recreational facilities within effective service areas for future population centers.
- Improve and expand the cultural, non-athletic, and recreational opportunities for citizens of all ages within the community.
- Provide additional recreation fields (softball and soccer) to be available for youth and adult recreation within the Township.
- Proceed with the construction of soccer fields to meet existing and future demands on the recently acquired recreation site on Wolfert Station Road.
- Relate recreation facilities and recreation activities in the Township to the growing interest in overall wellness and public health.
- Consider initiating the development of a plan for a senior recreation center and involve the community in the planning process.

**Objective 2:**

Create linkages between existing parks and open space areas where possible, to form a network of open spaces.

- Develop a trail system that connects residential neighborhoods to parks, open space areas, and commercial centers.
- Obtain easements through private land, where necessary, to augment public access to open space areas.
- Apply for federal and state grants to supplement funding for the establishment of new trail sections.
- In addition to trails, construct a fixed distance track or loop for exercisers.

**Objective 3:**

Advance public awareness of recreation needs and solicit the support of public agencies to meet this need.

- Secure funding to acquire sites for public gathering and recreation in the existing neighborhoods of Mickleton, Clarksboro, and Mount Royal.
- Promote cross utilization of existing recreation facilities between the Township, School Board and all other Township recreation affiliates. A plan of action should be implemented with contributions from both parties.
- Support legislation that will amend the Municipal Land Use Law to solidify support for municipal impact fee assessment for recreation and other community needs that are incurred as a result of development.

These goals and objectives will be met through the coordinated efforts of the Township, the school board and associated recreational groups.

In January of 2003 an Open Space and Recreation Plan (OSRP) was developed for East Greenwich Township.<sup>2</sup> This plan was prepared in accordance with the guidelines and requirements of the New Jersey Green Acres program and consists of an evaluation of community resources, an explanation of the goals of the open space program, an inventory of outdoor resources, an assessment of the outdoor needs in the Township and an action program with recommendations. In deference to the unique characteristics of the East Greenwich community, due to the geographical, cultural, social, economic and environmental distinctiveness, the community must set guidelines that will allow community leaders to measure the Township's progress in meeting recreation needs and encouraging community involvement. It is critical that parkland and recreation opportunities be created not only for residents of new developments, but also within walking distance of the residents in the existing communities who wish to preserve neighborhood charm.

### Recreation Contributions

Though East Greenwich residents wish to protect and preserve land for open space, conservation and active farm use, some additional residential development must be expected and considered in the planning process. The facility and space standards in the Recreation Element should be used to calculate a developer's fair recreation contribution. The developer may provide land for and construct recreation facilities at an on-site location agreed to by the reviewing board, the Township's planner and the applicant or the Township may determine that the recreation facilities would be better situated off-site. In which case, the per unit cost allocation will be calculated and paid to the Township for the exclusive purpose of providing recreation facilities or recreation programs for residents. The developer's contribution is arrived at by aggregating a pro rata share of the various facilities listed in **table C1** based on the number of proposed units. Section 16.19.70 of the Land Development Ordinance provides the methodology for calculating the developer's recreation contribution (including costs). The per dwelling unit cost is arrived at by considering the total number of proposed units and the unit type to estimate the total population of the new development. The facility standards and land and construction cost estimates are used to determine a pro rata share of each facility type and then summed to get a per person total, which is then extrapolated into a per-dwelling unit total. It will be up to the Township Committee, the Planning Board and the Recreation Committee to determine which particular facilities are prioritized at any given time.

### Recreation Facility Definitions

**Level of Service Guideline (LOS):** An expression of land, facilities and programs needed to meet the real time recreation demand for quality park and recreation opportunities desired by the citizens. This is expressed as a ratio expressed as acres/1,000 population which represents the minimum amount of ground space needed for the desired facilities and recreation activities.

**Park Recreation, Open Space and Greenway Classification Guidelines:** An expression of the amount of land a community determines should constitute the minimum acreage and development criteria for different classifications of parks, open space and pathways.

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<sup>2</sup> Morris Land Conservancy

**Facility Space Guidelines:** An expression of the amount of space required for a specific recreation facility.

**Public Park:** A public park is one that is owned by the municipality, county or state and is open to the public.

**Quasi-public Park:** Parks of this nature are generally located on land associated with schools, churches and other institutions. They are open to the public however, availability is often limited.

**Private Park:** A private park is on private land such as a swim club or common area owned by a homeowner or condominium association.

### Classification Systems

The list below consists of classifications that will allow for the development of a comprehensive recreation system. The inclusion of pathway facilities reflects the desirability of connecting otherwise disparate open spaces and will lay the foundations for the emergence of a light traffic system to encourage pedestrian and other alternative forms of travel within the community. These alternative modes of transportation have recreation benefits, support health and fitness and have the potential to reduce traffic.

#### *For Parks and Open Space:*

**Mini-Park:** Used to address limited, isolated or unique recreational needs. Service areas vary, may be for an isolated residential area, a public space in an industrial park or a play area in a downtown shopping district. Mini-parks are usually about 1 acre in size, and a general standard of ½ acre per 1,000 residents may be applied.

**Neighborhood Park:** The neighborhood park remains the basic unit of the system and serves as the recreational and social focus of the neighborhood. The size of a neighborhood park varies by location, but a general standard of 2 acres per 1,000 residents may be applied.

**School-Park:** Depending on the circumstances, combining parks with school sites can fulfill the space requirements for other classes of parks such as neighborhood, community, sports complex and special use.

**Community Park:** Serves a broader purpose than the neighborhood park. Focus is on meeting community-based recreation needs, as well as preserving unique landscapes and open spaces. Community parks are usually larger complexes and are needed at a ratio of 5 to 8 acres per 1,000 residents.

**Large Urban Park:** Large urban parks serve a broader purpose than community parks and are used when community and neighborhood parks are not adequate to serve the needs of the

community. Focus is on meeting community based recreational needs as well as preserving unique landscapes and open spaces.

**Athletic/Sports complex:** Consolidates heavily programmed athletic fields and associated facilities to larger and fewer sites strategically located throughout the community. The sports complex may be associated with a community park.

**Special Use:** Covers a broad range of parks and recreation facilities oriented toward single-purpose use. Special use parks may include some historic, cultural or educational opportunity, such as an arboretum, historic site or performing arts venue.

**Private Park/Recreation Facility:** Parks and recreation facilities that are privately owned yet contribute to the public park and recreation system.

**Natural Resource Area/Preserve:** Lands set aside for preservation of significant natural resources, remnant landscapes, open space, and visual/aesthetics buffering.

**Greenways:** Effectively tie park system components together to form a continuous park environment.

*For Pathway Facilities:*

**Park Trail:** Multi-Purpose trails located within greenways, parks and natural resource areas. Focus is on recreational value and harmony with natural environment.

**Connector Trail:** Multi-purpose trails that emphasize safe travel for pedestrians to and from parks and around the community. Focus is as much on transportation as on recreation.

**On-Street Bikeway:** Paved segments of roadways that serve as a means to safely separate bicyclists from vehicular traffic.

**All Terrain Bike Trail:** Off road trail for all terrain (mountain) bikes.

**Jogging/ Walking Trail:** Trails for fitness, may have options for various distances.

**Equestrian Trail:** Trails developed for horseback riding.

### **Facility and Space Standards**

The facility space guideline is the amount of space required for a specific recreation facility such as a tennis court or a playground. The per-person standard sets forth a ratio of facilities to residents to use as a guide in accommodating the recreational needs of a healthy community. The number of facilities at a particular location will be determined by the land and resources available and the needs and demands of the community. A benchmark standard is set forth to use as a starting point for determining community need. Some facilities or amenities are not associated with a specific quantity, but will be based on the community's priorities, current trends and the interests of the residents. The development of a park is guided by the park

classification (i.e. what grouping of facilities is appropriate). Space must also be allowed for off street parking, spectator space, landscaping, restrooms and storage, if desired. Therefore the Level of Service Guideline must identify the minimum amount of parkland needed to accommodate not only specific facilities, but also the space needed for unprogrammed recreation activities. The table that follows can be used as a guide. The right column demonstrates that demand for recreation facilities in East Greenwich is sure to increase over the six year horizon.

**TABLE C1  
EAST GREENWICH TOWNSHIP RECREATION**  
Population: 5,430 (2000 Census)

Projected Population Based on Approved Residential Subdivisions (as of December 2003): 9,973 (based on additional 1,298 units with 3.5 persons per unit)

Activity	Recommended Size and Dimensions	Recommended Space Requirements	Recommended Orientation	Service Radius and Location Notes	Current Inventory	Current Need/ Projected additional need
<b>Baseball (Official)</b>  <i>1 per 3,000 persons</i>	Baselines- 90' Pitching distance- 60.5' Foul lines- min 320' Center Field- 400'+	3 to 3.85 acres minimum	Locate home plate so pitcher is not throwing across sun and batter not facing it. Line from home plate through pitchers mound to run east-northeast.	¼ to ½ mile, part of neighborhood complex. Lighten fields should be part of neighborhood complex.	2	2 +1 (3 total)
<b>Baseball (Little League)</b>  <i>1 per 3,000 persons</i>	Baselines- 60' Pitching distance- 46' Foul lines- 200' Center field- 200' to 250'	1.2 acre minimum			2	2 +1 (3 total)
<b>Softball</b>  <i>1 per 3,000 residents</i>	Baselines- 60' Pitching distance-45' men, 40' women Fast pitch field radius from plate 225', Slow pitch- 275' men, 250' women	1.5 to 2.0 acres	Same as baseball.	¼ to ½ mile, may also be used for youth baseball.	1	2 (current deficiency - 1) need +2 (3 total)
<b>Tennis</b>  <i>1 per 1,500 persons</i>	36' by 78', 12' clearance on both ends.	Minimum of 7,200 sq. ft. single court area (2 acres per complex)	Long axis north-south	½ to 1 mile	2	3 (current deficiency - 1) need +4 (6 total)

Activity	Recommended Size and Dimensions	Recommended Space Requirements	Recommended Orientation	Service Radius and Location Notes	Current Inventory	Current Need/ Projected additional need
<b>Basketball (youth)</b>  <i>1 per 2,000 persons (combined with high school)</i>	46'- 50' by 84'	2400 to 3036 sq. ft.	Long axis north- south	¼ to ½ mile. Outdoor courts in neighborhood/comm unity parks, plus active recreation areas in other park settings.	2 outdoor 1 indoor (for school)	3 +1.5 (4.5 total)
<b>Basketball (high school)</b>	50' by 84'	5040 to 7280 square feet	Long axis north-south. Front wall at north end.	Same as above		
<b>Volley Ball</b>  <i>1 per 4,000 persons</i>	30' by 60' Minimum of 6' clearance on all sides	Minimum of 4,000 sq. ft.	Long axis north-south	½ to 1 mile	0	1 (current deficiency - 1) +2 (2 total)
<b>Handball</b>	20' by 40' with a minimum of 10' to rear of 3-wall court. Minimum 20' overhead clearance.	800 sq. ft. for 4-wall, 1,000 sq. ft. for 3-wall	Long axis north-south. Front wall at north end	15 to 30 minute travel time. Climate important consideration affecting the no. of units. Best part of multi-purpose facility.	0	
<b>Field Hockey/ Lacrosse</b>  <i>1 per 4,000</i>	180' by 300' with a minimum of 10' clearance on all sides	Minimum of 1.5 acres	Fall season, long axis northwest or south east. For longer periods of play, north/south.	15 to 30 minute travel time. Usually part of baseball, football, soccer complex in community park or adjacent to high school.	0	1 (current deficiency - 1) need +2
<b>Football</b>  <i>1 per 10,000</i>	160' by 360' with a minimum of 6' clearance on all sides.	Minimum of 1.5 acres	Same as field hockey	15 to 30 minutes travel time. Usually part of complex (same as field hockey)	1	1
<b>Soccer</b>  <i>1 per 3,000</i>	195' to 225' by 330' to 360' with 10' clearance on all sides	1.7 to 2.1 acres	Same as field hockey	1 to 2 miles. Number of units depends on popularity. Youth soccer may be on smaller fields adjacent to fields or neighborhood parks.	5	2 currently needed according to standard. Actual need is 3 or 4

Activity	Recommended Size and Dimensions	Recommended Space Requirements	Recommended Orientation	Service Radius and Location Notes	Current Inventory	Current Need/ Projected additional need
<b>Ice skating/ Ice hockey</b>  <i>1 rink per 25,000</i>	Rink 85' by 200'. Additional 5,000 square feet for support	22,000 sq. ft. including support area	Long axis north-south if outdoors.	½ to 1 hour travel time. Climate important consideration. Best as part of multi-purpose facility.	0	1
<b>Golf driving range</b>	900' by 690' wide. Add 12' width for each additional tee.	13.5 acres for a minimum of 25 tees	Long axis southwest-northeast with golfer driving northeast	30 minute travel time. Part of golf course complex or may be operated privately.	0	1 private
<b>Golf Course</b>  <b>9 Hole</b>  <b>18 Hole</b>	Average length 2250 yards  Average length 6500 yards	Minimum of 50 acres  Minimum of 110 acres	Majority of holes on north south axis	½ to 1 hour travel time  9 hole course can accommodate 350 people per day 18 hole can accommodate 500 to 550 people per day	0	
<b>Swimming Pools</b> <i>1 per 25,000 persons (teaching)</i>  <i>(competitive)</i>	Teaching, minimum 75' by 45', even depth of 3' to 4'	Varies, but usually 1 to 2 acre sites	Take care in siting life stations in relation to afternoon sun	15 to 30 minutes travel time. Pools for general community use should be designed with recreation and diving boards in mind.	0	
<b>¼ Mile running track</b> <i>1 per 10,000 persons</i>	Overall width-276', length-600'. Track width for eight 4' lanes is 32'	4.3 acres	Long axis in sector from north to south to northwest-southeast with finish line at north end.	15 to 30 minute travel time. Usually part of a high school or community park complex in combination with football, soccer, etc.	0	1

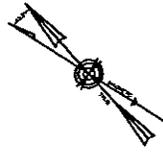
### Facility and Program Assessment

A number of assessment criteria have been used to evaluate the condition of the Township's recreation facilities. The recreation sites have been ranked with a score from one (1) to five (5), with one (1) being the worst with poor conditions, possibly dangerous, in need of major renovation; and five (5) being the best. In communities with older parks, play equipment may fall into disrepair and may become unsafe or unkempt. However, the parks in East Greenwich

are well maintained and most of the tot lot and play equipment is new. The parks are graced with large trees on the perimeter, which add beauty and provide shade. Sidewalks are generally in good condition where they exist, but more paths are needed to connect recreation to residents. All of the parks, with the exception of the school site, have gravel parking surfaces. Some of the fields need turf repairs, they have become bare from use, and some would benefit from being re-graded.

**Table C2  
Existing Recreational Facilities Inventory and Assessment  
by location**

<b>Facility Name and Location</b>	<b>Land Area</b>	<b>Facilities</b>	<b>Existing or Proposed</b>	<b>Facility Ranking 1=worst 5=best</b>	<b>Comments</b>
<b>Hidden Acres Park</b> Jessup Mill Road	78 acres	1 Baseball 1 Softball 1 Little league baseball 1 Tee Ball 1 Football 2 Full Soccer 1 Intermediate Soccer 1 practice baseball 2 batting cages small tot lot 1 wrestling room	Existing	4	Good condition, needs some field repairs.
<b>Mickleton Tot Lot</b> Democrat Road	17 Acres	Play Equipment Open Fields Pond Pavilion with picnic	Existing	5	Good condition, potential for additional facilities (such as a multi-use trail).
<b>Kathy Kuchler Memorial Park</b> Democrat and Harmony Roads	1.185 acres	2 Tennis Courts 1 Asphalt Court (no hoops) Shaded park with benches	Existing	3	Asphalt area for basketball could be refurbished for basketball or a new use.
<b>East Greenwich Schools and Library</b> Kings Highway and Quaker Road	22.4 acres total (approx 7 acres park?)	1 Baseball 2 Soccer 3 Full sets Play Equipment 2 Informal Basketball	Existing	5	3 play sets, fields
<b>Shady Lane</b> County House Road (Gloucester County)	133 acres total (approx 5 acres fields?)	1 Soccer Field 1 open field area 1 informal baseball	Existing	4	Large open areas, adequate for informal play.



### Legend

-  Existing Recreation Site
-  Proposed Recreation Site
-  Private Recreation Site

### Recreation Facilities

1. Wilson Avenue Park 79 Acres
2. Memorial Park 17 Acres
3. Mitty/Kocher Memorial Park 1.58 Acres
4. East Greenwich Ballfields 17.88 Acres
5. Shady Lane
6. Proposed Soccer Complex 88.2 Acres



Prepared by: Ragan Design Group  
Reviewed by: Richard F. Ragan  
Date: 10/15/08

The East Greenwich Recreation Program offers five organized youth sports as follows: baseball/softball, soccer, football, wrestling and basketball. Baseball, softball and soccer are offered for boys and girls from first grade through age 16. Midget football is available from first through ninth grade with the appropriate weight classifications. Wrestling and basketball are available for boys and girls from first grade through middle school. The majority of outdoor games are played at Hidden Acres Park and at the school gymnasiums. In 2003, the participation was estimated as follows: baseball/softball- 300, soccer- 350, wrestling- 75, football- 150, and basketball- 125. The recreation department has a long range plan to move all soccer games to a new soccer complex, which will allow for expansion of the baseball and softball fields at Hidden Acres Park.

The community hosts several annual events, which demonstrate the character of the Township and celebrate resident commitment to their community. East Greenwich Day is held each May, residents celebrate East Greenwich's heritage. Opening day for little league arrives with much fanfare each year with celebratory events. The Fire Department sponsors at least one community event each year, which draws neighbors together in an informal setting.

The information gathering and citizen input process has led us to recognize the perceived deficiency of developed facilities for certain types of recreation. Standards are determined by establishing a community-determined satisfactory mix of uses, this approach is more responsive than the axiomatic set of standards that have been promulgated in the past. There appears to be a need for additional soccer playing surfaces in the Township. East Greenwich does not currently provide any adult recreation programs. Perhaps a senior walking club or bingo nights will be set up as demand increases.

### Implementation

The recreation standards may be implemented through the approval process for new subdivisions by requiring the construction and dedication of recreation facilities at a rate proportionate to need as described. The Planning Board, with advice from the Township Planner and the governing body should decide the particular mix of facilities. The Level of Service Guideline established for the Township should drive the calculation of impact fees. The following monetary values are recommended as a measure to be utilized when calculating a fee in lieu of usable facilities. It should be updated as needed (about every two years).



**Table C3  
Average Costs for Construction of Recreational Facilities**

<b>Facility Type</b>	<b>Cost for Construction (not including land)</b>
Baseball Diamond	\$18,000
Basketball court	\$30,000
Community Pool	\$200,000
Football field	\$15,000
General Use field	\$5,000
Playground with Tot lot	\$25,000
Soccer field	\$15,000
Softball Diamond	\$18,000
Street Hockey	\$35,000
Tennis Court (2 courts)	\$30,000
Trail (4' wide bituminous)	\$12.00 per linear foot
Volleyball Court	\$10,000.

### Maintenance of Recreational Facilities

Open space and parks will be maintained and stewarded in accordance with section 16.18.100 of the land development code. It is recommended that appropriate garbage collection and recycling containers be placed at each park site (Township facilities already do). Parklands and active recreation areas proposed to be dedicated to the Township should have an established maintenance fund for long term care of the facilities. Should the Township not accept the dedication of a piece of land for recreation or open space, adequate financial planning should be considered for maintenance of the recreation facilities through the homeowners' association.

### **Conclusions**

Throughout its history as a Township, East Greenwich has done an excellent job of anticipating the recreational needs of the community and taking the necessary steps to meet those needs. Recent trends have brought strong development pressures and the Township must compete with private interests for available land and balance the community's recreational needs with other pressing needs. With a well planned and flexible recreation strategy, the residents of the future will enjoy the same levels of service that the population has grown accustomed to and the responses will continue to change as the community's preferences change.

## ***D. OPEN SPACE and CONSERVATION ELEMENT***

The 1984 Master Plan relied upon the continuation of agricultural practices as security that the rural character of the Township would be maintained in perpetuity. At that time the land use plan designated the majority of the Township as agricultural. The agricultural land use pattern was assumed to provide for a vast amount of open space and continue to maintain the Township's pastoral setting. However, as recent history has shown, zoning for a particular use does not necessarily ensure the land's protection from other less desirable uses. In addition to farmland, forested areas and wetlands have immense ecological, water supply and recreation value. By 1990 one of the Township's objectives was to maintain the rural ambiance of East Greenwich and the preservation of farmland and open space. In 1998 a Natural Resources Inventory was prepared for the East Greenwich Environmental Commission by Mellon Biological Services. The purpose of the Natural Resources Inventory (NRI) is to identify and map all significant natural resource features within East Greenwich Township, prioritize each area and justify priority classifications to provide a scientific basis for master planning. The NRI is incorporated as **Exhibit D1**. In 2002 the Township contracted with the Morris Land Conservancy to create an Open Space and Recreation Plan, which was subsequently adopted by the Planning Board on February 18, 2003 as an element of the Master Plan. That plan is a separate document but is hereby incorporated as **Exhibit D2** and remains in effect. As part of this master plan, a natural resources study has been conducted so that the community can better understand and respond to the natural features that make up the township.



**Goal:** Preserve environmentally sensitive land along rivers and streams and other areas characterized by the presence of natural features such as wetlands, steep slopes, stream corridors, unique ecology, and prime wildlife habitats.

**Objective 1:**

Preserve and protect open space areas with scenic views and/or important historical, cultural significance, exceptional ecological value.

- Preserve important visual amenities, placing special emphasis on preservation of river and stream views, wetland marshes, and woodlands vistas.
- Prohibit development in critical environmental areas such as flood plains, wetlands and mature forests.
- Preserve and enhance the tree-lined character of residential streets.
- Preserve and expand open space systems through acquisitions and easements.

**Objective 2:**

Prioritize the preservation of open space and farmland in a manner consistent with the Open Space and Recreation Plan (OSRP) and as recommended in the Master Plan.

- Adopt an Official Map in accordance with Municipal Land Use Law to prioritize and maintain the Township's ability to acquire properties for public use for up to one year after development applications have been made and approved.
- Recommend the purchase of lands to complement the open space and recreation plans.
- Obtain parcels adjacent to the Mantua Creek to provide public access for canoeing and viewing wildlife while preserving the stream corridor.
- Investigate the purchase of properties that have been developed in low lying areas that are prone to flooding and converting these lands back into open natural areas.

**Objective 3:**

Advance public access to open space areas for passive or unprogrammed recreation activity.

- Obtain easements through private lands when necessary to provide public access to open space and connections between open spaces areas and Township parks and other public lands.
- Provide a continuous network of open space areas along streams, scenic areas, and environmental areas wherever possible.
- Stream corridors should be linked via a path system. Investigate the purchase of parcels adjacent to stream corridors and solicit the grants from the Department of Environmental Protection, the Association of New Jersey Environmental Commissions (ANJEC) and other funding sources for assistance on this project.

**Objective 4:**

Promote environmentally sensitive design solutions of all development particularly along stream corridors and wetland areas.

- Review site plans to minimize environmental disturbance and encourage development of landscapes and streetscapes and encourage planting of native species.
- Maintain the rural ambiance of East Greenwich.
- Require that a maintenance agreement be instituted for all recreation and open space areas that are created as part of development approval.
- Require developers to utilize low impact development techniques to minimize the impacts to and destruction of the natural environment and natural drainage systems.

Unlike recreation facilities, the overall open space system cannot be equated with a numerical standard, because preservation depends on vegetation, wetlands, wildlife and geology. Open space standards should be applied to major subdivisions and site plans in order to assure a minimum percentage of open land to compliment and serve the community. Such standards make certain that stormwater can be appropriately managed and ensure protection of the Township's aesthetic qualities. The community has, through the strategic planning process, developed open space policies which reflect the unique resources of the community. The Open Space and Recreation Plan (OSRP), prepared for East Greenwich by the Morris Land Conservancy in conjunction with the Open Space Committee, Township Committee and the Planning Board, reflects the open space goals of the community. The OSRP, along with a Planning Incentive Grant application, make East Greenwich eligible for Green Acres funding in each funding cycle. East Greenwich has established an Open Space and Preservation Trust Fund to collect money to support the acquisition of open spaces. The fund is \$.03 per \$100 of assessed property value, about \$105,000 per year.

The Open Space Committee has been diligent in its efforts to plan for acquisition and design of open spaces in the Township. The Committee has been taking a proactive approach by opening dialogue with the owners of potential open space acquisitions and by reviewing development proposals in order to maximize the value of recreation and open space on site. The Conservation Element is the environmental framework of the Master Plan. This element describes the Township's natural resources and their value. The Open Space and Recreation Plan that has been filed with the Green Acres program as well as the Farmland Preservation Element support the community's open space goals. The Open Space Committee may wish to develop a ranking system in order to prioritize parcels for acquisition.

The Natural Resources Inventory developed by Mellon Biological Services identifies eight general considerations for prioritizing habitats (**exhibit D1**). Since the parent materials in East Greenwich Township are relatively homogeneous, the entire Township can be considered one plant community, with a variety of habitats. The NRI considers the six most important characteristics contributing to a habitat's ecological importance in East Greenwich. These characteristics are described as exceptional habitats, rare habitats, size shape and geographic position of habitat, functions and values of the habitat, endangered species habitats and groundwater recharge. The report also considers the regional and local importance of the various habitat types in East Greenwich including the freshwater inter-tidal wetlands, large woodland habitats and stream corridors and farmlands.

Open Space and Farmland preservation priorities are shown on **Map D1** (the official map). The open space map depicts an ideal vision of conservation, preservation and recreation as expressed by the East Greenwich residents. Specifically identifying lands that the Township would like to acquire or preserve for conservation, recreation or open space, leads to a cohesive and defensible plan.

### Conservation Easements

Acquisitions are not the only tool for open space and farmland preservation. Conservation easements placed on open land allow for protection of open space without ownership changing hands. Conservation easements are



enabled by N.J.S.A. 13:8B-1. Owners of significant pieces of property may place a conservation easement on part of their land to protect the natural features or environmental quality of the land and they can still live and conduct activities on the unrestricted portion of the property. In order for a land owner to qualify for a tax deduction for eased land, the deduction must be approved by the local tax assessor. The IRS requires that there be a public purpose for the land donation and it must be consistent with public policy. Eligible categories of land include land that is restricted in perpetuity exclusively for a conservation purpose, land that is accessible to the public for education or recreation, and land that has certified historic value.

There are responsibilities that come with the acceptance of a conservation easement. The land must be monitored in a systematic fashion to protect against environmental degradation, encroachments and potential adverse possession claims to land. The language of a conservation easement must include prohibited uses, the allowable uses, a clear mechanism for enforcement, and it must be properly recorded. Conservation easements may or may not include provisions for public access.

### **Steep Slopes**

Though it is generally assumed that the southern part of New Jersey is flat, there are in fact topographical variations in the landscape that are notable and worthy of preservation. Steep slopes are defined as those slopes greater than 15%. In recognition of their vulnerability to erosion, siltation, flooding and water run-off, the municipality should identify and protect steep slopes. Slopes of 15% or greater present significant problems for septic effluent disposal, house siting, grading, erosion and run-off impacts to adjacent properties and nearby streams. Slopes are important factors in maintaining aquifer recharge and ground water quality. Additionally, slopes that are forested may provide habitat for migratory birds and other animals.

In order to effectuate protection of steep slopes, an ordinance should be developed that will restrict critical slope areas, limit grading, and prohibit development, cutting vegetation and other disturbances where appropriate. Along streams, additional buffer should be added in locations with steep slopes in order to limit pollution and erosion. The controls should be both qualitative and quantitative as to provide protection for the unique land forms and maximize optimal use of the natural terrain. Effective and reasonable application of these regulations will protect health, safety and welfare of the citizens of the Township.



## *Natural Resources Study*

### **Physiography**<sup>3</sup>

East Greenwich gently dips from a high elevation of one hundred and ten feet above sea level at the eastern boundary, which is traversed by the N.J. Turnpike, to a plateau level at elevation seventy feet. This plateau level is the location of the three towns of Mount Royal, Clarksboro and Mickleton. From Kings Highway the land slopes gradually for about 2000 feet where the land becomes very slowly sloping toward the east.

This flat area extends toward Swedesboro Avenue and Rt. 295. Only along Cohawkin Road does the elevation remain above elevation thirty (30) as it reaches the interchange. The local elevations within 1000 feet of Swedesboro Avenue are ten (10) to twenty (20) feet above sea level. The elevations are illustrated on the topography map (**Map D10**). The elevation changes are clearly demarcated at the steep slopes adjacent to the deeply cut ravines along Still Run and Edwards Run. Slopes in excess of fifteen (15%) percent are more prevalent than one might expect. The plateau, which occurs at 40 feet and 50 feet elevation, appears to be the result of the Delaware River expansion over geologic history, which will be discussed further under the Geology Section.

Development limitations appear to occur from two sources based upon the physiography. First, the slopes of less than one half of one percent (>.5%) along Rt. 295 limit the ability to direct stormwater, which can be overcome with fill especially in a commercial or office setting. Secondly, steep slopes along Still Run, Edwards Run and Mantua Creek are not suitable for development due to the likelihood that a high degree of erosion will take place. Steep slopes should be protected. Vegetation in these ravines should also be protected to minimize the disturbance to these steep slopes (those greater than ten percent). This physiography analysis also indicates that all surface water drains toward the Delaware River in East Greenwich, traveling from 7 to 10 miles to reach the Delaware.

### **Bedrock Geology**<sup>4</sup>

New Jersey Geology consists of various layers of materials, which vary from porous sand (aquifers) to silty clay (aquicludes). Historically, the runoff from the piedmont plane deposited vast amounts of eroded material into the coastal plain. As the coastal plain was inundated, the formation of fine silts and clays were formed, serving as the ocean bottom. When the coastal plain was lifted, new material was deposited until again the coastal plain became ocean bottom. This occurred numerous times over the strata's geological history. Although this is a terribly simplistic discussion of Southern New Jersey geology, it illustrates the formations that resulted from geologic movement over time and serves as a general overview of base geologic materials that slope from the Delaware River southeastwardly. These formations dip downward as they approach the Atlantic Ocean.

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<sup>3</sup> U.S. Geologic Survey contours of East Greenwich Township

<sup>4</sup> USGS in cooperation with the New Jersey Geological Survey 1998

### **Discussion of Formations** (See Primary Geology, Map D9)

The Merchantville Clay is an aquiclude, approximately 15 meters thick in the East Greenwich area (technical specification for each formation follows). The Merchantville clay is overlaid by the Woodbury clay, which is another dense clay aquiclude 15 meters thick in the East Greenwich area. The Woodbury clay forms the large flat plateau between contours 10 and 20 feet above sea level. These lands in general are very wet and slow to drain. Over the Woodbury clay are the English Town sands, which form the beginning of the first plateau. Over geologic time, the Delaware River basin extended to this escarpment, edged by the Englishtown sands. Even though this formation is primarily sand, there are inter-bedded layers of thick, dark clay. Again, this layer is approximately 15 meters thick in the area. Water that drains to the northwest into the Woodbury Formation continues on to the Delaware River. Water that penetrates into the Englishtown formation will slowly drain toward the Atlantic Ocean, since this formation is an aquifer which dips slowly toward the Atlantic Ocean.

Above the Englishtown Sands is another aquiclude, the Marshalltown Formation. Marshalltown is another former ocean bottom consisting of very glauconitic, green chlorite material.

Above the Marshalltown formation is Wenonah/Mt. Laurel Sands, known as the Wenonah formation. The thickness is approximately 7.5 meters and intermixes with the Marshalltown formation. The Mount Laurel formation consists of white or light yellow stained sands. The Mt. Laurel formation is 10 meters thick and serves as an aquifer for much of the lands to the east.

And lastly, above the Mt. Laurel sands is yet another aquiclude, even though it is located in an area of the highest elevation, which is unusual. The Hornerstown formation is dark green-gray silting clay from 1.5 meters to 7 meters thick. Ironically, lands at the highest vertical elevations will not transfer water directly into the aquifer.

The implications for development are clear. Any groundwater discharge must be directed to sand strata of Englishtown sands or Wenonah/Mt. Laurel sands. Stormwater or water from septic systems, which reaches these aquifer recharge areas, will recharge the aquifers in a positive way. Where water is collected over aquicludes, there may be poor drainage and stagnant conditions.

### **Surficial Geology** (Map D8)

During the raising and lowering of the coastal plain, new materials were deposited over the existing bedrock geological formations. Subsequent erosion of these various layers when they were exposed to the sometimes turbulent weather, created an intervening layer called surficial geology. Geologists have tracked the movements of this eroded material and established the geologic layers that lie above the bedrock layer. Like an uncontained liquid, these materials spread out in thin layers (3 to 5 meters) across a wide area. In some cases the impervious material (clay/silts) overlay sandy aquifers. In some cases, sandy material overlays sandy material, or sandy material may overlay clay. These various combinations illustrate the various conditions directly under the soil.

Qa/Qs	Swamp Deposits of alluvium overlaying historic creek beds Two to six meters thick
Qtcaw	Cape May formation sand, silt, pebble, gravel, clay, boulders
Qcai	from 1.5 to 12 meters thick
TKU	Marshalltown glauconitic clays
Qe	Dunes
TPS	Pennsauken Formation -- course sand; .5 meters to 1.5 meters thick

The significance of this surficial layer is that it indicates additional aquiclude impediments to discharging waters into the aquifer. Some areas may be pervious, but two or three meters below the surface, the apparent recharge can be rendered meaningless if the geology will not let the water infiltrate. On the other hand where impervious materials closer to the surface sit above a pervious layer below, then filtering to the aquifer could occur if the pervious layer can be penetrated.

### Bedrock Geology/Surficial Geology

The fusion of the data from the two previously scientifically analyzed geomorphology allows for the assimilation of the data into quantitative results. The geologic and soils data makes the identification of ideal recharge areas relatively easy. Analysis is required to determine which areas have excellent pervious material over bedrock aquifers; and as the gradient extends out to the least favorable condition for recharge, where we find clay surficial material over a clay bedrock material. The table below describes the aggregate of the bedrock/surficial data analysis. **Map D13** shows the areas of East Greenwich with the following conditions ranging from A (most permeable) to E (least permeable).

Rank	Explanation	Geology
A	Pervious over Pervious	Qcai / Mt. Laurel or Englishtown Tps / Mt. Laurel
B	Impervious over Pervious (not good at surface unless you dig to the bedrock)	Tku / ES or Mt. Laurel Qm / Mt. Laurel Qs / Englishtown
C	Pervious over Impervious (water goes so deep then travels along clay layer to streams)	Qcm / Woodbury Clay Qcm <sub>3</sub> / Merchantville Clay Qtcau / Marshalltown Clay Qm / Mt. Laurel Qtcau / Woodbury Clay Tps / Hornerstown Marsh
D	Impervious over Impervious	Tku / Hornerstown Marsh or Woodbury Clay or Marshalltown clay
E	Marsh/ surface water	Qs / Woodbury Clay

## Soils

The Gloucester County Soil Conservation Services (Series 1959 No. 8, Issued June 1962) prepared a soil analysis for soils throughout the County to assist farmers in the 1950s and 1960s. It is expected that an updated report will be available later this year. The soils profile is essential to explain the composition of the top 1 ½ feet to twelve feet directly below the surface. Some soils are quite shallow, others are much deeper. Soils are the result of the erosion, wind deposits and flooding over the last several thousand years. The Soil Conservation Service evaluated soils on the top six feet of strata and based upon the characteristics of this layer made several findings.

The most important finding and major focus for the soil conservation services, was the identification of the most productive soils for agriculture. Farmers were the primary clients of the soil conservation service at the time. The study concluded that Prime Agricultural Soils should be classified into groups. With Group 1 being the best soil for agricultural crops and Group 6 the least productive soil. The primary agricultural soils are shown on **Map D7**. Prime agricultural soils have an important role for society; to provide a medium to the effective and efficient production of food for human and animal consumption. Therefore significant value is placed on prime agricultural soils and their preservation is paramount. Once they are lost, we cannot recreate them.

During the investigation, the soil scientists also mapped an extensive list of other characteristics, such as the depth to seasonal high water table, propensity for soil to be a good habitat, and the potential septic suitability of the soil. Depth to seasonal high water table is mapped on **Map D5**.

Soil suitability for septic systems has been mapped in accordance to both the Soil Conservation Service recommendations, with the best soils in yellow, moderate soils in orange and the poorest soils in purple. This is demonstrated on **Map D12**. Major portions of soils are found not to be suitable due to poor drainage or excessively slow percolation rates.

### Soil – Depth to Seasonal High Water Table

The depth to seasonal high water table map is another example of surface conditions, which impact drainage (**map D5**).

The map illustrates:

- Water at the surface
- Water less than 1 foot below the surface
- Water 2-3 feet below the surface
- Water 5 feet below the surface
- Water 5 feet to 10 feet below the surface

These parameters give some indication of the ground's ability (at the surface) to absorb water.

## Geology/Soils

Using the Bedrock Geology/Surficial Geology overlay with the Soil Septic Suitability Map, one now has a clear indication of where proper drainage and ground water recharge can occur, and where it has limitations.

Locally, proposed subdivisions on high land have had trouble getting the proper percolation for specific lots. The overlay of septic suitability to the combined land suitability map (**map D14**), for the first time, gives one a true indication of the carrying capacity of the geomorphology/geology/soil horizon to absorb, mitigate and recharge our aquifers.

The resultant light areas represent approximately 35 percent of the area where septic systems are the only means of discharge. Consequently, land use patterns should be cognizant of this carrying capacity and land use decisions should be informed by this knowledge.

## Vegetation

Since the earliest European settlers established communities in what became Mickleton, Clarksboro and Mount Royal, East Greenwich has had agrarian foundations. The entire township has, at one time or another been cleared for farming. The only exception to this pattern is where the ground was so wet or steep that farmers were not interested in investing the time and energy to clear sites that would not be sufficiently productive. The results of these decisions are evident in the pattern of farms and woodlands we see today. Today the woods are clustered into groups along streams, in lowlands and wetlands where they were spared because of their incapacity for agricultural returns.

Today, the Woodlands are considered an asset to the community. The woodland represents the last primary vegetation within the township. The vegetation map identifies all major Woodlands remaining in East Greenwich. Based upon the Woodland study by Mellon Biological Services, there are several priorities:

1. Major Wetland Habitat. One of the last remaining hardwood, wetland habitats in Gloucester County is located along Timberlane Road, extending to Whiskey Mill Road. The site is very wet and to some extent protected by the Freshwater Wetlands Act. But measures should be taken to prevent clearing of these woods and if necessary purchase the property for a habitat preserve.
2. Major Heritage Habitat. The State of New Jersey has identified a site along the Warrington Mill Pond just north/west of Kings Highway, south of Tomlin Station Road, as a major Woodland habitat. There is a proposal to purchase this land with public funding in addition to lands in adjacent Woolwich Township.
3. Edwards Run – has wooded uplands, which extend onto state owned property, township owned property and three farms. These woods represent a major upland habitat and every effort should be made to preserve this woodland.
4. Tidal Marsh. Mantua Creek is a significant and separate eco-system. The creek is preserved through flood plain and wetland controls. However major tree stands above the banks should also be preserved as a continuum of that marshland habitat.
5. Still Run – Eco-Continuum. Still Run stream traverses the entire township. It flows through agricultural fields, through steep slopes areas, through a series of ponds, at various gradients to a slow moving stream as it leaves the township. The stream

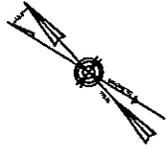
banks are wooded the entire length. This wooded ribbon of land remains as a major natural source of idyllic rural nature of East Greenwich and should be preserved.

## Summary

The ecological features addressed herein explore the differences that exist within the boundaries of this one Township: the diversity of soils, geology, agricultural suitability, seasonal high water table, septic suitability, vegetation, landforms, slopes, and physiography. This natural resource investigation effort needs to be continued to analyze stream quality and air quality. What is clear is that East Greenwich is a not a homogeneous landscape that can receive uniform treatment throughout. Rather, it is a geo-diverse ecosystem that has carrying capacity to assimilate some development, but equilibrium must be established which balances development with saving agricultural areas and preserving major woodlands and stream corridors.

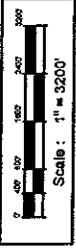
Indeed, we have a duty to protect what cannot be recreated, a duty to maintain the ecosystem that has existed here for hundreds of years, a duty to balance growth with preservation. The land has the answers, if we want too understand all we have to do is listen to its voice.





**Legend**

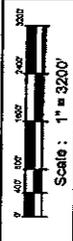
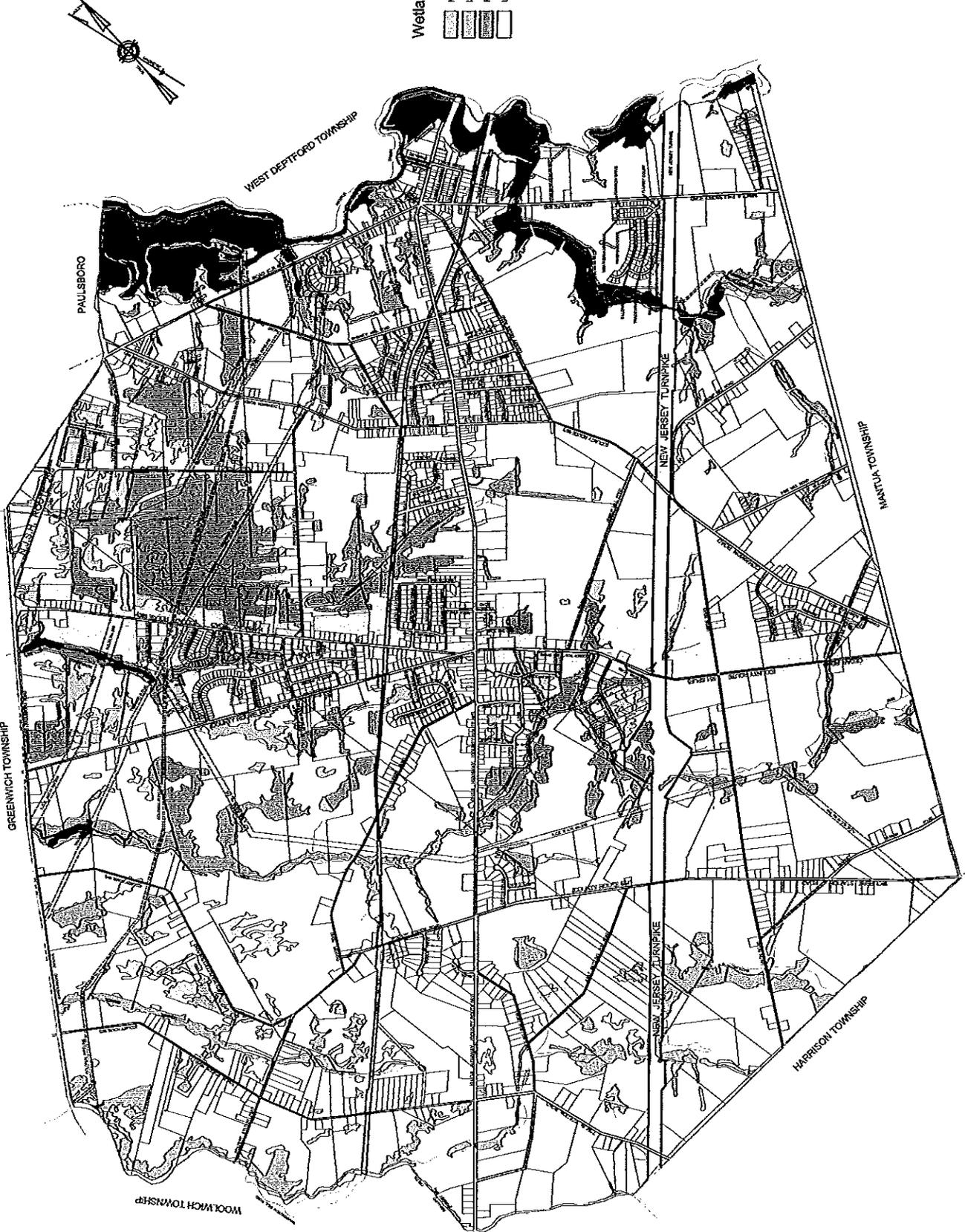
	Waterways
	Water Body
	Wetland
	Flood Prone



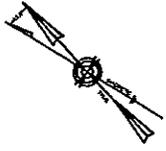
Prepared by: [Name]  
 Date: [Date]  
 Scale: 1" = 3200'  
 Drawing No.: [Number]

Wetlands Legend

	Marine
	Lawndwain
	Palustrine
	Upland



Map prepared by:  
 RAGAN DESIGN GROUP  
 30 Jackson Road  
 Marlton, NJ 08053  
 Phone (609) 554-8808

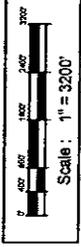


Legend

Flood Prone Area

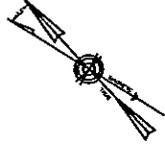


Revised: 10/2011  
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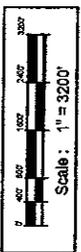
Map prepared by Ragan Design Group, Inc.  
 30 Jackson Place, Medford, NJ 08055  
 Phone: (609) 654-8800 Fax: (609) 654-4524  
 www.ragan.com  
 Date: 08/10/08  
 Project: 08-001  
 Revision: 01



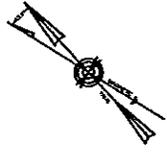


**Soil Suitability Legend**

Group	Color/Pattern	Category
Group 1	Dark Stippled	Good
Group 2	Medium Stippled	Good
Group 3	Light Stippled	Good
Group 4	White	Good
Group 5	Dark Stippled	Good
Group 6	Medium Stippled	Good
Surface Water	Blue	Bad
NA	White	NA

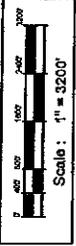


Approved for the Project:  
 Date: 10/15/08  
 Project: Agricultural Soil Suitability Map  
 Location: Westford, NJ  
 Project No.: 08-001  
 Date: 10/15/08

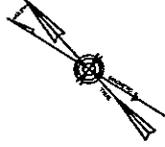


### Surficial Geology

	Alluvial Deposits
	Clay
	Clay with Sand
	Clay with Silt
	Clay with Gravel
	Silt
	Silt with Sand
	Silt with Gravel
	Sand
	Sand with Gravel
	Gravel
	Bedrock
	Trench
	Embankment
	Fill
	Water
	Wetland
	Road
	Railroad
	Utility
	Boundary



Map prepared by:  
 Ragan Design Group  
 634 D-3, 30 Jackson Road  
 Newark, New Jersey 07102  
 Date: 10/15/03  
 Project: [illegible]  
 Scale: 1" = 3200'  
 North Arrow: [illegible]



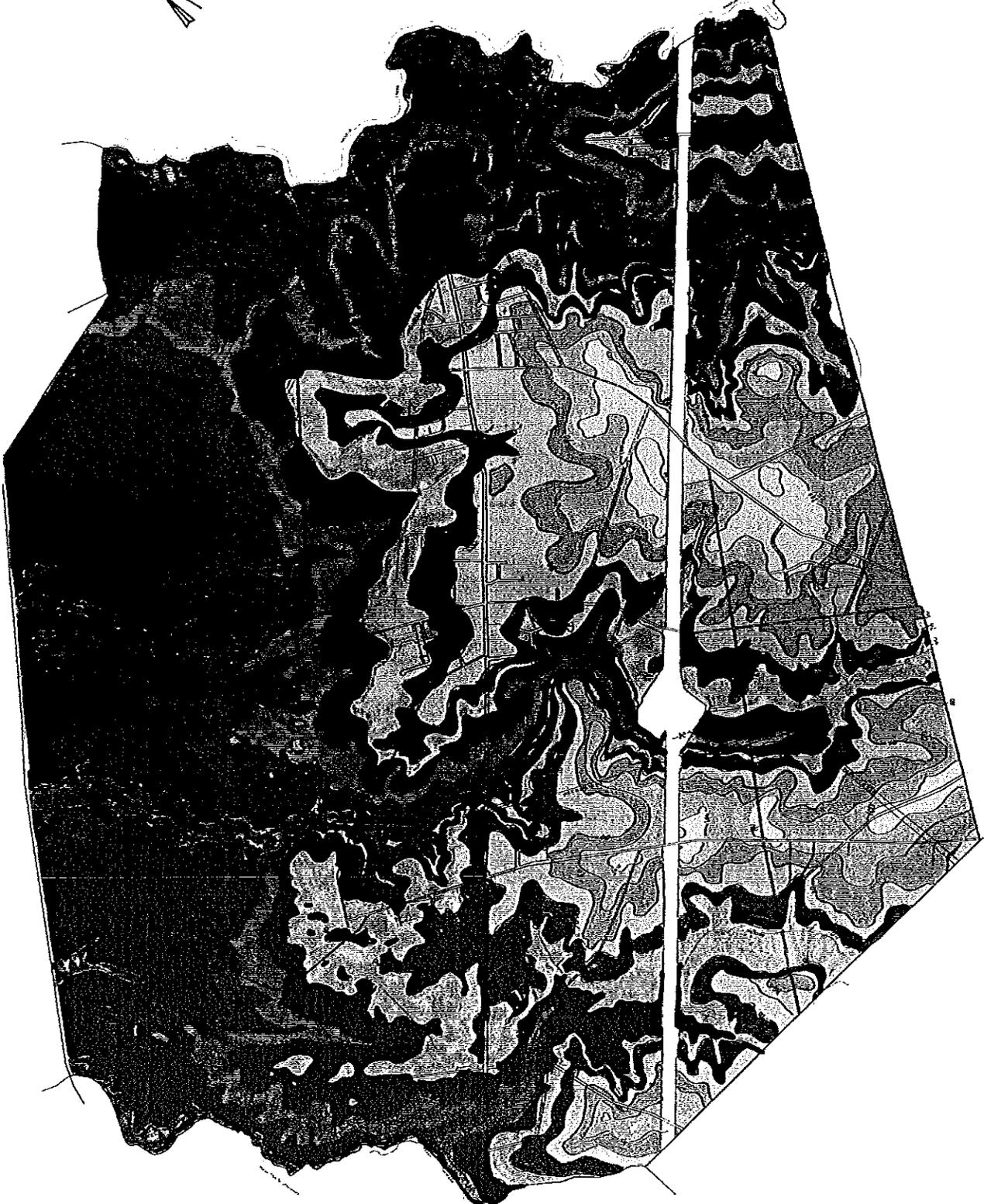
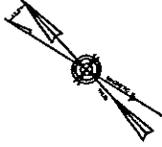
**Bedrock Geology**

KTCT	Bedfordshire Gneiss
PKCR	Highly and Moderately Fractured
AKCT	Amherst Mass. Gneiss
RMVY	Reading Mass. Gneiss
RMVW	Reading Mass. Gneiss (Weathered)
RVVB	Reading Mass. Gneiss (Basal)
TKCT	Trenton Mass. Gneiss
W	Water



Prepared by Ragan Design Group  
 Date: 10/15/03  
 Scale: 1" = 3200'



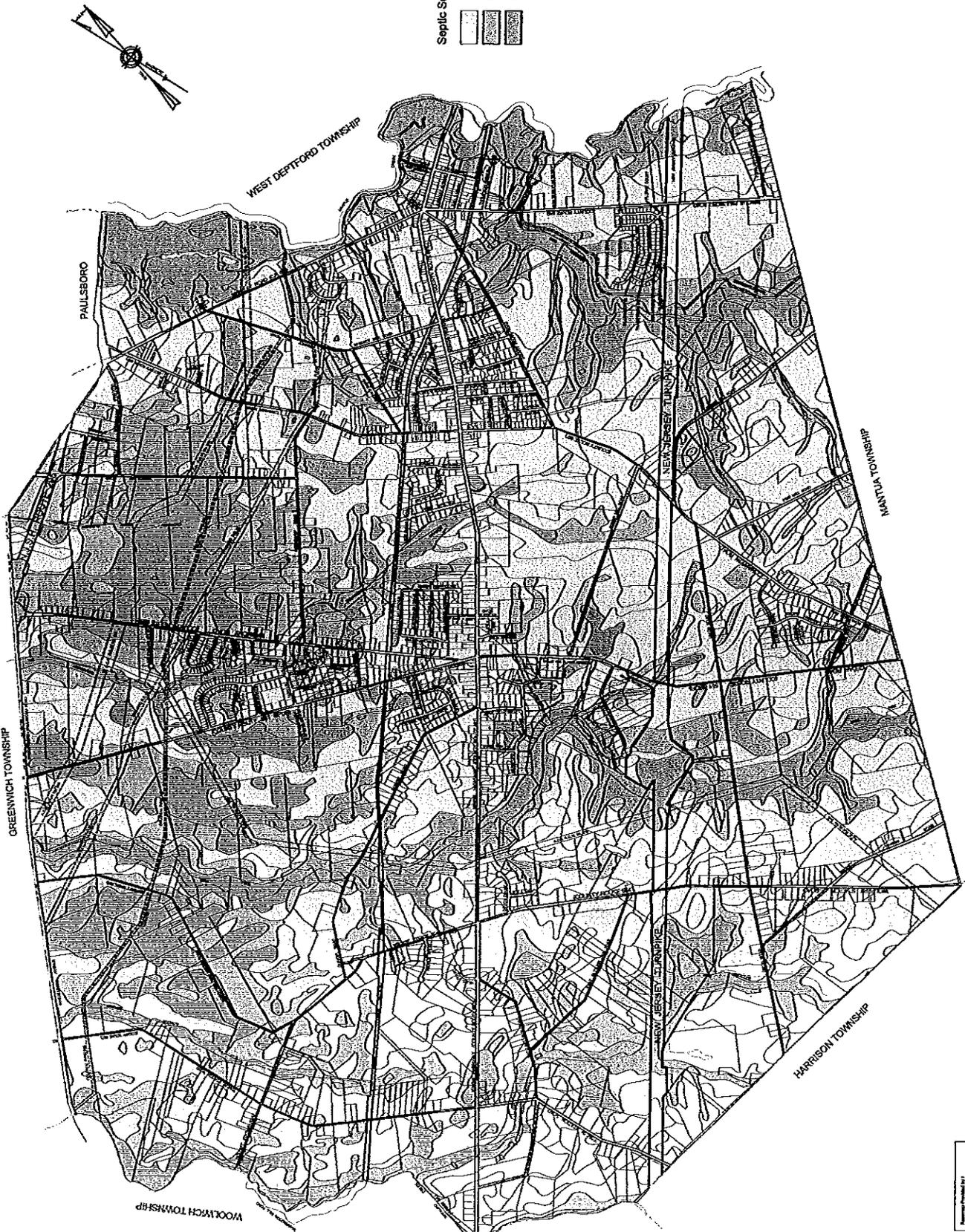


Septic Soil Suitability Map

**RAGAN  
DESIGN  
GROUP**  
 ARCHITECTS,  
 COMMUNITY AND ENVIRONMENTAL PLANNERS  
 544 E.C. 20 Section Road, Westport, N.E. 06897  
 Phone (800) 654-8300 Fax (800) 654-8384  
 Richard R. Ragan  
 rragan@ragandesign.com

Septic Soil Suitability

Good	Fair	Poor



Map prepared by Ragan Design Group  
 Date: 10/15/08  
 Project: [illegible]  
 Location: [illegible]  
 Scale: 1" = 3200'

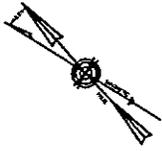


**Septic Suitability Legend**

Class 'A'	Class 'B'	Class 'C'	Class 'D'	Class 'E'
[Pattern]	[Pattern]	[Pattern]	[Pattern]	[Pattern]



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**Legend**

1	Class A @ 5'-10"+
2	Class A @ 2'-3'
3	Class B @ 10'+
4	Class B @ 5'-10'
5	Class C @ 10'+
6	Class C @ 2'-3'
7	Class C @ 5'-10'
8	Class C @ 2'-3'
9	Class D @ 10'+
10	Class D @ 5'-10'
11	Class D @ 2'-3'
12	Class E @ 0'-1'



Information on this map was derived from:  
 1. Aerial Photographs, 1998  
 2. USGS Topographic Maps, 1988  
 3. USGS Digital Elevation Data, 1998  
 4. County Zoning Ordinance, 1998  
 5. County Comprehensive Zoning Ordinance, 1998  
 6. County Comprehensive Zoning Ordinance, 1998  
 7. County Comprehensive Zoning Ordinance, 1998  
 8. County Comprehensive Zoning Ordinance, 1998  
 9. County Comprehensive Zoning Ordinance, 1998  
 10. County Comprehensive Zoning Ordinance, 1998  
 11. County Comprehensive Zoning Ordinance, 1998  
 12. County Comprehensive Zoning Ordinance, 1998

**Exhibit D1**  
**Natural Resources Inventory for East Greenwich Township**  
Prepared by Mellon Biological Services  
July 7, 1998

**INTRODUCTION**

Located less than 30 minutes from Philadelphia's City Hall, East Greenwich Township has the potential for explosive growth in the near future. How that growth takes place will have a major impact on the quality of life in the Township and, in turn, the property values. Maintaining quality open space and scenic features will help to preserve the special aesthetic qualities currently existing in East Greenwich Township. Allowing undirected, haphazard development can lead to suburban sprawl and reduced property values.

Evaluating and prioritizing the natural features in the Township are essential for preserving the best features. Prioritizing features involves ranking different characteristics as to their ecological importance based on the diversity and rarity of species, the degree of disturbance of the habitat, its size and shape, its scenic value, its physical proximity to other important features, and other factors that prove significant.

**OVERVIEW OF THE NATURAL HISTORY**

Providing best management practices of the ecological resources of a Township requires a delineation and understanding of the plants and animal communities within the Township. For a community to be different, it has to have a different suite of plants and animals. Plant communities generally vary based on the parent material on which they grow. Limestone communities are different from sandstone communities. The Bridgeton and Pennsauken formations have different communities than the Cohansey formation. The more similar the two parent material types are the less differentiation between their respective plant communities.

Within a given parent material, there is a matrix of habitats defined by moisture on one axis and successional stage on another, with various tertiary factors influencing the species composition. Thus, a series of ten mature, forested, poorly drained, wetlands will have a composite of possibly 60 species, 20 of which are common to all the wetlands, 30 are in most and 10 only in a few. A similar series of ten mature, forested, poorly drained, wetlands in a differing parent material might also have 60 species, only 15 of which are the same as the first series of wetlands.

Six different geologic formations are defined in East Greenwich Township (see geology map). However, based on a variety of sources, these formations are generally overlain by surficial deposits of "undifferentiated Holocene and Upper Pleistocene alluvial deposits", Pleistocene 'Trenton Gravels' or Spring Lake beds and Van Sciver Lake beds", and "undifferentiated Miocene Pennsauken and Bridgeton Formations"<sup>1</sup>. In short, relatively recent alluvial deposits that are similar in their makeup.

To distinguish potential plant communities, two possible differences were apparent based on the literature. First was the amount of glauconite in the soil and second was the soil texture and pH. Glauconite was classified as none, low, medium and high (see glauconite map). Most of the Township is rated either low or none. Small sections near the southern border of the Township

were rated as medium and a few isolated areas were classified as high. Most of the high glauconitic soils are currently agricultural with very little natural habitat remaining.

The Catenas map separates the soils based on texture and acidity. Extremely acid is defined as pH below 4.5, very strongly acid is pH 4.5 to 5.0 and strongly acid 5.1 to 5.5. A pH range of 1.5 points is not exceptional, and provides little opportunity to segregate different plant communities. As to the soil texture, the three catenas break out as the brown group – Sandy extremely acid; the red group – very strongly acid and the yellow group – strongly acid. The soil texture tended to correlate with soil moisture: Mucky – very wet; clayey – somewhat drier; and sandy – mesic or xeric. Based on the composition of the formations and the field work, no unusual plant communities are expected.

Unlike plant communities, which are based on the composition of the parent material, animal communities are based on habitat structure. Woodpeckers need trees; ducks need water. It generally does not matter on what geologic formation the trees grow nor the soil type in which the pond is located. Birds are primarily dependent on the physical structure of the habitats.

Since the parent materials in East Greenwich Township are relatively homogeneous, the entire Township can be considered one plant community, with a variety of habitats (see habitat map), and these habitats are the same as those defining animal habitats.

## **PRIORITIES**

### Criteria

There are a variety of characteristics that contribute to a habitat's ecological importance. The six most important features in East Greenwich Township are:

### Exceptional Habitats

Exceptional habitats are examples of habitats that might be common in the area, but are exceptional in their biodiversity, structure or maturity. It is analogous to saying oil paintings are common, but a van Gogh painting is an exceptional example.

### Rare Habitats

Just as individual species can be rare or endangered, specific habitats can be rare or endangered globally or regionally. Even though there are thousands of acres of Pine Barrens in New Jersey, the habitat is globally rare, because it is unique to New Jersey. Conversely, a large woodland may be common statewide, but can be locally rare.

### Size, Shape and Geographic Position of the Habitat

Not all woodlands are of equal ecological value. Nor are all wetlands, or stream corridors. Size shape and geographic position play important roles in the significance of individual habitats. Recent studies in island biogeography have shown that there is a direct relationship between the size of an island habitat and the biodiversity living in the island. The bigger the woodland or

marsh of old field, the more species will be found in the habitat. Just as a small town can support fewer occupations than a big city, a small habitat will support fewer species. In addition, small habitats are less stable than larger ones. If a population of rare frogs live in a small, ¼ acre marsh, while a second population lives in a two hundred acre marsh, the small population is more likely to be wiped out by a single hungry Great Blue Heron of a severe drought.

Large habitats have another significant advantage. Many species prefer a large contiguous block of habitat for breeding. When provided with the large habitat, they will produce a surplus of young, whereas individuals breeding in small, marginal habitats may not be successful enough to maintain their population. However, the marginal habitats will continue to be populated as surplus individuals from the large habitat are forced to breed in the marginal habitats, because all the good breeding locations in the big habitat are taken. Thus, the population of Wood Thrushes that sings so beautifully and adds to the aesthetic experience (and property values) of back yards near small woodlots throughout the Township, may be lost if the large reservoir woodlands are lost, and surplus birds will no longer be available to populate the marginal habitats.

In addition to size, shape is important. 100 acres of hedgerows will not maintain the same diversity as 100 acres of forest in a circular block. A number of species of birds like the Scarlet Tanager (*Piranga olivacea*), Wood Thrush (*Hylocichla mustelina*), and Ovenbird (*Seiurus aurocapillus*) will thrive in the block of woodlands, but will be absent from the hedgerows.

Long narrow habitats do provide corridors for wildlife and, therefore, can be very important. Broad stream valleys can provide the necessary avenues for wildlife populations to interbreed of repopulate neighboring habitats. Therefore, geographic position is very important. Isolated habitats will have lower biodiversity than those connected to other similar habitats.

### Functions & Values Of Habitat

Each habitat has certain functions and values that help determine its importance. An old field provides habitat (a function) for quail and pheasants which are valuable to hunters. Wetlands help reduce flooding and clean our waters, both of which are valuable to people. Determining the functions and values for each habitat can assist the evaluation and comparison of dissimilar habitats.

### Endangered Species Habitats

Any habitat that provides a home for a rare or endangered species is critical to maintaining the biodiversity of the region and of the planet, if the species is globally endangered.

### Groundwater Recharge

Maintaining adequate, quality groundwater is a major concern for the Township. However, based on the Hydrology of the Region of Greenwich Township, Gloucester County, New Jersey, East Greenwich appears to have little physical control over its major groundwater aquifer: the Magothy and Raritan Formation (a.k.a. Potomac-Raritan-Magothy aquifer system). The following is from the abstract:

“The U.S. Geological Survey in cooperation with Greenwich Township and the New Jersey Department of Environmental Protection studied the hydrogeology of, and hydrologic conditions in, a 115- square-mile area in and near Greenwich Township in northern Gloucester County, New Jersey.

“In the study area, a veneer of upper Cenozoic alluvium overlies a regional system of aquifers and confining units that consists of a southeastward- dipping (40-60 feet per mile), seaward-thickening wedge of Cretaceous delta-plain deposits. The Merchantville-Woodbury confining unit overlies the Potomac-Raritan-Magothy aquifer system, which consists of three aquifers that together are the source of 99 percent of the region’s groundwater withdrawals.”

Note on the geology map that the Magothy and Raritan Formation outcrops north of East Greenwich Township and is below the confining (impervious) Merchantville Clay and Woodbury Formations. Therefore, rainfall within the Township will either enter the stream systems that drain the Township, or percolate downward no deeper than the Woodbury confining formation. Thus, almost all the rainfall percolating into the soils in the Township is perched on top of the confining layers, rather than entering the Magothy and Raritan Formation, which is the aquifer that supplies most of the groundwater of the region.

The Englishtown Sand and the Mount Laurel formations are minor aquifers, both of which begin in the Township and slope southeastward at 40 – 50 feet pr mile. Thus, the deepest wells into the Englishtown formation are approximately 125 feet deep, while the deepest wells in the Mount Laurel formation are approximately 75 feet deep. Much of the land over the recharge areas for these two formations is farmland, which provides good recharge.

## **REGIONAL IMPORTANCE**

### **Rare and Endangered Species**

One section of the Township is within an area where an Endangered species has been recorded. It lies along Pargey Creek between Kings Highway and Warrington Mill Road. Due to the rarity of endangered species and the need to maintain biodiversity, this area is classified as highest ecological priority.

### **Freshwater Intertidal Wetlands**

New Jersey has 916,000 acres of wetlands -- 9,612 acres of freshwater intertidal wetlands, of which Gloucester County has 4,033 acres. Therefore, about 1% of the wetlands in New Jersey are freshwater intertidal and Gloucester County has about 40 % of those wetlands. Nationwide, freshwater intertidal wetlands are restricted to a very narrow band between brackish, intertidal wetlands and non-tidal wetlands. Due to the constantly fluctuating water levels, a whole community of plants and animals have adapted to intertidal wetlands, many of which are endemic to the habitat. In addition, this habitat provides most of the functions and values associated with other wetlands. Therefore, freshwater intertidal wetlands have the highest ecological priority in East Greenwich Township.

## LOCAL IMPORTANCE

### Large Woodland Habitats

There is one large woodland habitat located in the north central part of the Township (see habitat map.) This area, along with a couple woodland complexes near the Delaware River (see regional overview map), is the only large block of woodlands north of the New Jersey Turnpike in Gloucester County. In East Greenwich Township, this woodlands provides the reservoir for interior forest birds and other animals and plants that breed in marginal habitats along the stream corridors and woodlots throughout the Township. Losing this woodland would have a significant adverse affect the biodiversity of the entire Township. This area is classified as high ecological priority.

### Stream Corridors

Stream valleys or corridors are the ideal natural way of distributing natural areas throughout a township. Due to their inherent flooding characteristics, they should be preserved in a natural state to reduce and delay downstream flow, thereby reducing peak flood levels. Wetlands are relatively common on flood plains, and should be preserved for the functions and values they provide. In addition, stream corridors often have some of the steeper slopes in the Township and are often covered by forest habitat. These forest and wetlands habitats, along with scrub/shrub and old field habitats in these linear stream valleys, provide excellent corridors for wildlife and plants to spread throughout the Township. These areas are classified as high ecological priority.

### Isolated Wetlands

Most of the wetlands in the Township are associated with forested areas or stream corridors or both. Those wetlands that are isolated from other wetlands and other natural areas still maintain certain desirable functions and values (like flood control and groundwater recharge), but overall have less value than other habitats sited above. In East Greenwich Township, agricultural wetlands make up a majority of the isolated wetlands. These habitats are of moderate value.

### Isolated Woodlands

Just as isolated wetlands provide less value than wetlands associated with stream corridors, isolated woodlands provide fewer functions and less value than large blocks of woodlands or corridors of woodlands. In addition, small isolated woodlots are often highly disturbed. This habitat has low ecological value.

### Farm Lands

Agricultural areas are highly manipulated habitats that have high open space aesthetic values, but generally rather low ecological values. Rather than diversity, most farms are managed as near monocultures. While a limited number of species have adapted to these habitats, they do maintain some positive ecological values (e.g. -- groundwater recharge). Ironically, some of the bird species that have populated farm habitats are prairie species that have experienced precipitous population drops over the last 30 years. Just as woodland species require large blocks of woodlands to maintain a viable population, prairie species need large blocks of acceptable farmland habitat to maintain viable populations. Large blocks for most prairie bird species mean over 500 acres

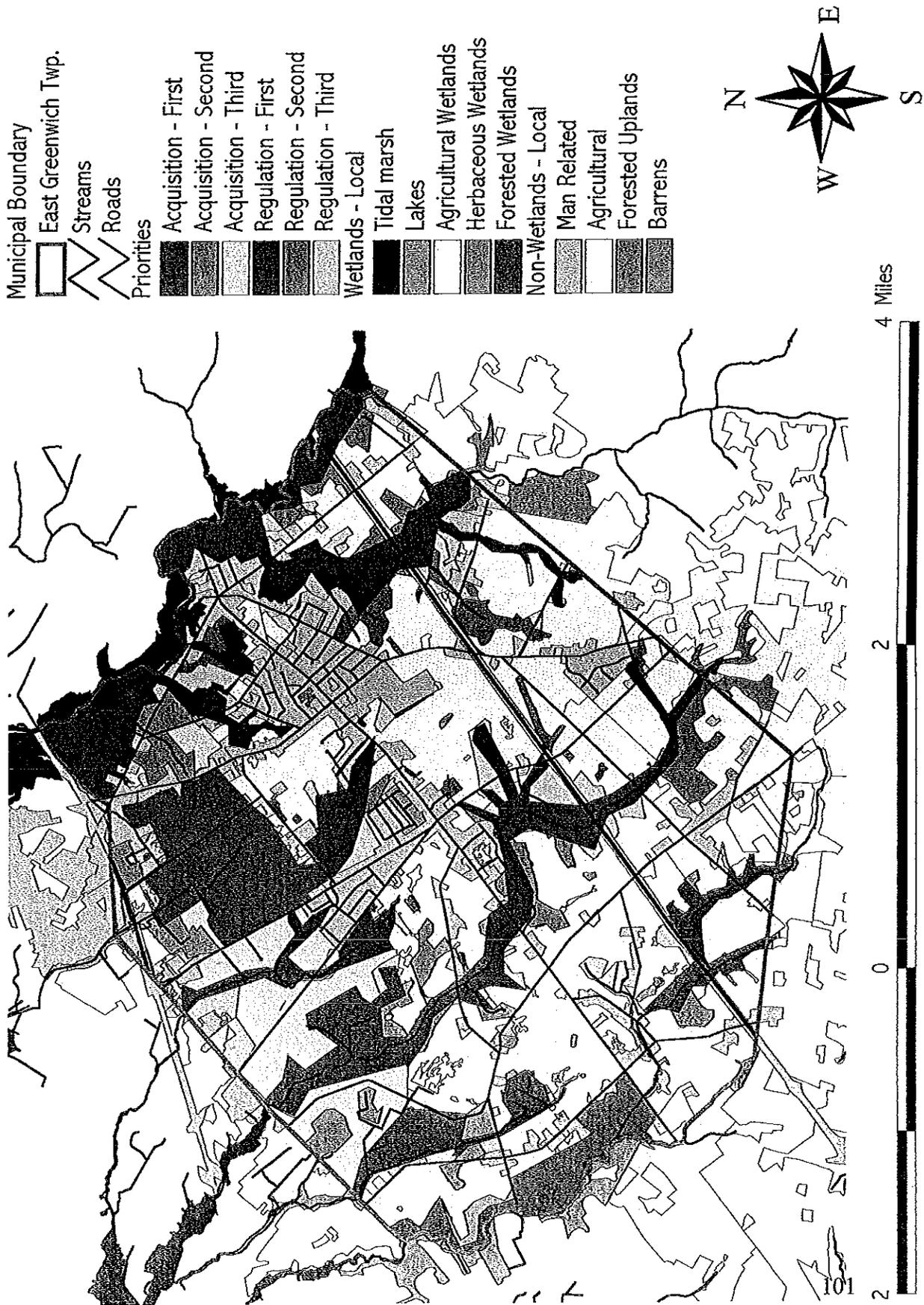
without hedge rows or woodlots. Acceptable farm land habitat refers to specific crops and management practices, which can vary radically from one species to the next. Horned Larks and Vesper Sparrows like barren ground, while Bobolinks and Savannah Sparrows prefer hay fields that are harvested after the first brood has fledged. Grasshopper Sparrows will nest in older fallow fields.

If some type of farmland preservation program can save large tracts of farmland, then these species can be saved or encouraged to repopulate areas where they once bred. However, judging from the development east of East Greenwich Township, the preservation of large tracts of farmland does not appear likely (see regional overview map). Therefore, if large tracts can be preserved, farmland habitats have moderate ecological values. If only small tracts are preserved, they have low ecological value.

### **MAP NARRATIVES**

All maps were developed using New Jersey Department of Environmental Protection and Gloucester County Planning Commission Geographic Information System digital data, but this secondary product has not been verified by GCPLC nor NJDEP and is not county or state authorized. In addition, Mellon Biological Services has only field verified a few habitats to determine which wetland and woodland data more accurately represented the township in a few critical areas. Therefore, the accuracy of the data cannot be assured by MBS, and all uses of this report should be field verified prior to significant decisions.

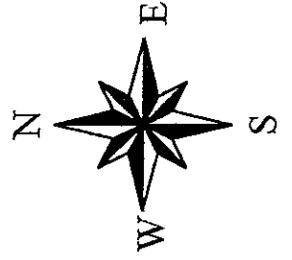
# Priorities



# Regional Overview



- Municipal Boundary
- East Greenwich Twp.
- Wetlands - Regional
- Tidal Marsh
- Lakes
- Agricultural Wetlands
- Herbaceous Wetlands
- Forested Wetlands
- Non-Wetlands - Regional
- Man Related
- Agricultural
- Forested Uplands
- Barrens



12 Miles

6

0

6

