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**GREEN BUILDINGS AND ENVIRONMENTAL
SUSTAINABILITY PLAN ELEMENT OF THE
MASTER PLAN**

**TOWNSHIP OF MARLBORO
MONMOUTH COUNTY, NEW JERSEY**

**Township of Marlboro Planning Board
Adopted March 6, 2013**

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- The Township of Marlboro

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I. EXECUTIVE SUMMARY

The Municipal Land Use Law provides municipal planning boards with the authority to prepare and adopt a Green Buildings and Environmental Sustainability Plan Element (“Sustainability Plan”) at section N.J.S.A. 40:55D-28b(16). The purpose of the Sustainability Plan is to “...provide for, encourage, and promote the efficient use of natural resources; consider the impact of buildings on the local, regional and global environment; allow ecosystems to function naturally; conserve and re-use water; treat storm water on-site; and optimize climatic conditions through site orientation and design.”

One of the core principles underlying the Sustainability Plan is conservation at a broad based level. Therefore, this Plan provides an assessment of the natural and built environment as it relates to broad based conservation and subsequently provides goals and objectives for the integration of human activities with the environment in a sustainable manner.

This Sustainability Plan is organized into sections by topic in order to facilitate the identification of information on each topic by the reader. Subsequent to this Executive Summary (Section I), Section II of the Plan contains includes an Introduction that outlines the Municipal Land Use Law criteria for the preparation of the Plan.

Section III of the Plan pertains to Natural Resources. This section provides an overview of the natural resource systems located within the Township and provides Goals and Objectives to enhance protection of these resources. The resource types covered include wetlands, floodplains, steep slopes, water, soils, threatened and endangered species and Natural Heritage Priority Sites.

Section IV of the Plan, entitled Land Use, provides an assessment of opportunities for sustainable development, including the Form Based Code that is currently under preparation. This section also provides Goals and Objectives for many different sustainable ordinance amendments and policy considerations, including those that seek to balance economic development with environmental conservation.

Section V of the Plan pertains to Transportation. This section examines the relationship between transportation corridors, existing land uses and the Township Zone Districts. Goals and Objectives for many different policy and ordinance amendments are provided within this section, such as a recommendation to encourage efficient multimodal transportation systems, traffic calming design and shared parking.

Section VI of the Plan, entitled Green Buildings and Sustainable Site Design, provides an overview of the techniques and benefits of sustainable building and site design. The Goals and objectives set forth within this section of the Plan pertain to policy and ordinance amendments to encourage or require more sustainable design and development practices.

Section VII, Renewable Energy Resources and Infrastructure, provides an overview of renewable energy alternatives and the benefits of their use. Goals and Objectives within this section encourage the use of energy efficient systems and enhancements to alternative energy infrastructure.

Section VIII, Water Conservation and Reuse provides an assessment of the water resources within the Township and Goals and Objectives for water quality protection and water conservation.

Section IX of the Plan pertains to Waste Reduction and Recycling. This section provides a summary of the Township's recycling program and the County's hazardous waste collection program.

Section X, Sustainable Economic Development, provides Goals and Objectives for balancing economic development with environmental conservation in a way that supports local businesses.

Section XI of the Plan addresses Public Awareness and Education. This section includes Goals and Objectives for education and outreach to educate the public on best practices as they relate to sustainability. This section highlights the important role that local government plays in the implementation of sustainable projects and programs.

Section XII of the Plan provides a brief statement regarding the consistency of this Plan with those of adjacent municipalities and Monmouth and Middlesex Counties. This Plan is also in accordance with the New Jersey State Development and Redevelopment Plan.

Section XIII contains the Glossary for this Plan. This Glossary contains definitions for terms and concepts that are commonly found in Sustainability Plans, environmental regulations and policy documents.

Section XIV, Resource List, provides an extensive list of resources for further reading and research. The resources are predominantly internet based and are organized alphabetically by topic in order to enable efficient identification by the reader.

The Appendix to the Plan contains the 2012 Marlboro Township Master Plan Reexamination Report. This Report provides supplementary information on demographic, land use, infrastructure and environmental attributes of the Township as well as recommendations for each of these topics.

II. INTRODUCTION

This Green Buildings and Environmental Sustainability Plan Element of the Marlboro Township Master Plan (“Sustainability Plan”) has been prepared in accordance with the Municipal Land Use Law (“MLUL”). MLUL section N.J.S.A. 40:55D-28a provides that the Marlboro Township Planning Board “...may prepare and, after public hearing, adopt or amend a master plan or component parts thereof, to guide the use of lands within the municipality in a manner that protects public health and safety and promotes the general welfare.” The purpose of this Sustainability Plan is to establish goals, policies and strategies to protect natural resources and to create a healthy and sustainable economy and society. Municipal planning for “green buildings and environmental sustainability” is a relatively new field, and the 2008 statutory authorization for this plan element is among the most recent amendments to the Municipal Land Use Law.

According to N.J.S.A. 40:55D-28b(16), a Green Buildings And Environmental Sustainability Plan Element:

“...shall provide for, encourage, and promote the efficient use of natural resources; consider the impact of buildings on the local, regional and global environment; allow ecosystems to function naturally; conserve and re-use water; treat storm water on-site; and optimize climatic conditions through site orientation and design.”

When viewed together with the MLUL provisions for this Plan Element, a theme emerges centered on an underlying principle of conservation at a broad-based level. The majority of the purposes of the MLUL (11 out of 15) direct the Planning Board to protect the environment, prevent urban sprawl, and protect the State’s natural resources. These eleven purposes of the law are listed below, which are consistent with the locally identified goals and objectives of this plan.

- (a) To encourage municipal action to guide the appropriate use of or development of all lands in the state, in a manner which will promote the public health, safety, morals and general welfare;
- (b) To secure safety from fire, flood, panic, and other natural and man-made disasters;
- (c) To provide adequate light, air and open space;
- (d) To ensure that the development of individual municipalities does not conflict with the development and general welfare of neighboring municipalities, the county and the State as a whole;
- (e) To promote the establishment of appropriate population densities and concentrations that will contribute to the well-being of persons, neighborhoods, communities and regions, and the preservation of the environment;

- (g) To provide sufficient space in appropriate locations for a variety of agricultural, residential, recreational, commercial, industrial uses, and open space both public and private, according to their respective environmental requirements in order to meet the needs of all New Jersey citizens;
- (h) To encourage the location and design of transportation routes which will promote the free flow of traffic while discouraging location of such facilities and routes which result in congestion or blight;
- (j) To promote the conservation of historic sites and districts, open space, energy resources and valuable natural resources in the State and to prevent urban sprawl and degradation of the environment through improper use of land;
- (m) To encourage coordination of the various public and private procedures and activities shaping land development with a view of lessening the cost of such development and to the more efficient use of land;
- (n) To promote utilization of renewable energy sources; and
- (o) To promote the maximum practicable recovery and recycling of recyclable materials from municipal solid waste through the use of planning practices designed to incorporate the State Recycling Plan goals and to compliment municipal recycling programs.

The Planning Board has prepared this Sustainability Plan in furtherance of the MLUL purposes to conserve natural resources and promote the maintenance of a clean and healthy natural and built environment.

A reexamination of the Marlboro Township Master Plan was completed in 2012 in accordance with New Jersey Municipal Land Use Law at N.J.S.A. 40:55D-89. A Reexamination Report was prepared by Heyer, Gruel & Associates in July 2012, which contains the findings of the Master Plan reexamination, including an updated Goals and Objectives of the Master Plan. The Reexamination Report recommends that the Township "...prepare and adopt a Sustainability Element as part of the Township Master Plan." This Sustainability Plan has been prepared in accordance with this provision of the 2012 Reexamination Report and promotes the Goals and Objectives of the 2012 Reexamination Report.

As the terms "**green design**" and "**sustainability**" have become commonplace in today's lexicon and comprise the key terms in the title of this Plan, it is important to provide a definition of these terms. These terms are defined as follows:

Green design: A general term implying a direction of improvement in design for the purpose of human and environmental health- i.e., continual improvement towards a whole and healthy integration of human activities with natural systems.

Sustainability: The capability to equitably meet the vital human needs of the present without compromising the ability of future generations to meet their own needs by preserving and protecting the area's ecosystems and natural resources. The concept of sustainability describes a condition in which human use of natural resources, required for the continuation of life, is in balance with nature's ability to replenish them.

A glossary of these and other terms related to sustainability is included within Section XII of this Plan. The terms that appear in the text of this Plan for which there is also a definition in the Glossary, are indicated by emboldened text.

III. NATURAL RESOURCES

Section N.J.S.A. 40:55D-28b(16) of the MLUL states that a Green Buildings And Environmental Sustainability Plan Element "...shall provide for, encourage, and promote the efficient use of natural resources; consider the impact of buildings on the local, regional and global environment; allow ecosystems to function naturally; conserve and re-use water; treat storm water on-site; and optimize climatic conditions through site orientation and design." One the primary themes of this provision of the MLUL is the conservation of natural resources. Therefore, the conservation of natural resources is one of the primary goals of this Sustainability Plan.

Marlboro Township contains a wide variety of natural resources which include streams, freshwater wetlands, potable subsurface water, wildlife, vegetation, soils suitable for farmland and the delicate ecosystems that interconnect these attributes. In addition, the Township contains environmentally sensitive features that are derived from these resources, which include floodplains, riparian zones and steep slopes.

One of the ways to conserve these natural resources and environmentally sensitive features is through the efficient use of land. For example, cluster development uses land efficiently by concentrating development on a portion of a larger tract which frees up the other portion of the tract to be retained as open space. Another example is redevelopment whereby an existing developed site can be redeveloped to contain new uses that would otherwise have been located on an undeveloped property. Therefore, the re-use of the developed site spares undeveloped land from development and helps reduce sprawl and create more open space opportunities.

A brief description of the various natural resources and environmentally sensitive features contained within the Township is provided below. More detailed information regarding these features can be found within the Township's Natural Resource Inventory, which should be updated periodically.

Wetlands

Wetlands are transitional areas between well-drained, rarely flooded uplands and the permanently flooded deep waters of lakes, rivers and streams. Wetlands typically are found in upland depressions or along waterways where they are subject to periodic flooding. However, they are sometimes located on slope areas where they are fed by groundwater seepage.

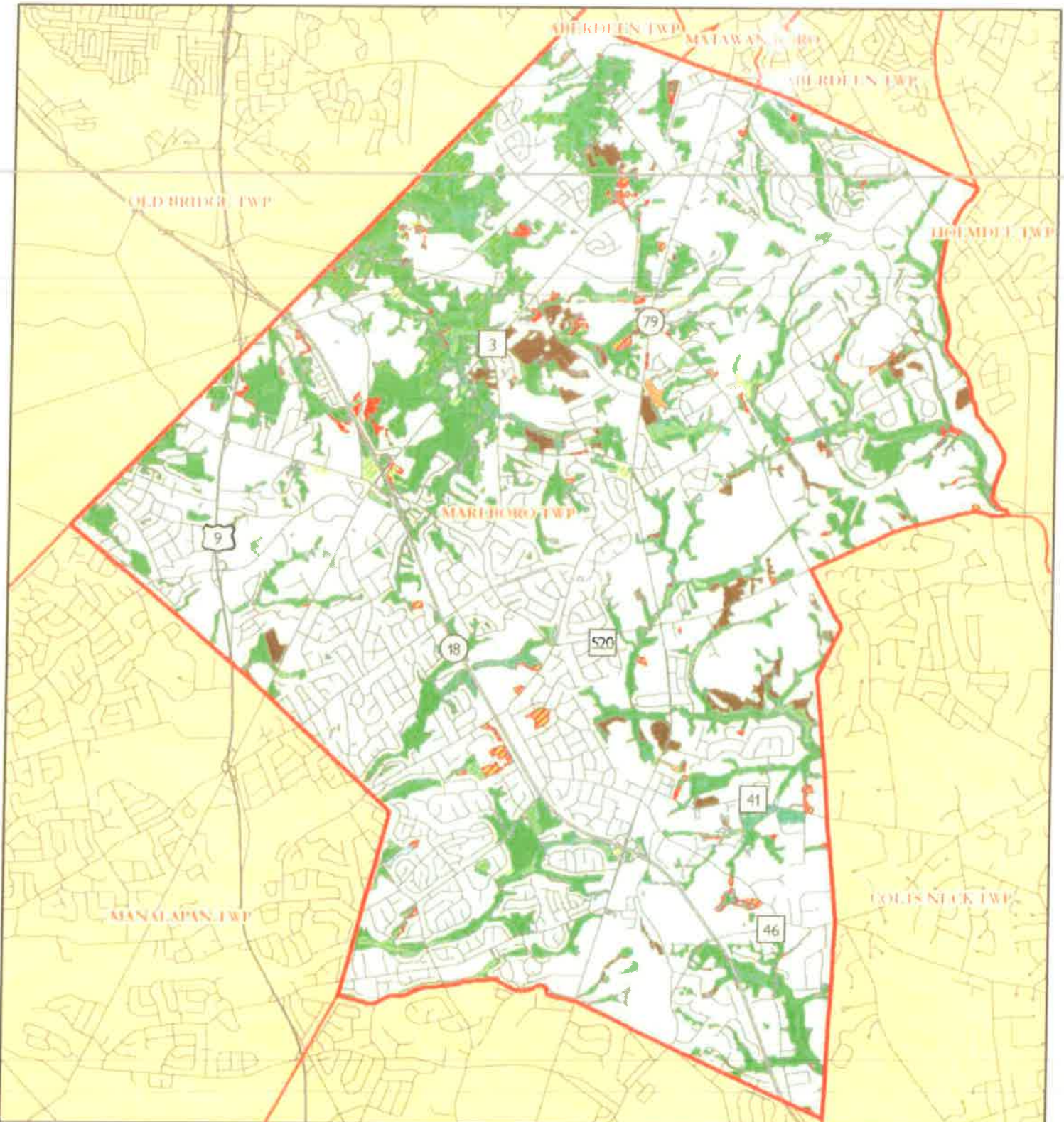
There are a variety of definitions of wetlands, but the definition adopted by the New Jersey Freshwater Wetlands Protection Act and which was originally established under Section 404 of the Clean Water Act is as follows: "Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas." (EPA, 40 CFR 230.3 and CE, 33 CFR 328.3.) This definition includes three criteria which determine if an area is a wetland: hydrology, vegetation, and soils. Wetland areas must have a sufficient exposure to water to produce saturated soil conditions (i.e., hydric soils) and to support a predominance of wetland plant species (i.e., hydrophytic vegetation). Some wetlands, such as marshes, are obvious, but others such as forested wetlands, are much less distinct.














Marlboro has wetlands scattered throughout the entire Township, with the largest wetlands located in the northwestern and eastern portions of the Township, as shown on **Figure 1, Wetlands Map**, included on the next page of this Plan. Wetlands provide natural flood control by storing excess water and slowly releasing it to surface waters. Wetlands also serve as groundwater recharge areas and as filtration systems, removing pollutants from the water table and storing them in **biomass**. As the total area of wetlands and their natural functions decrease, the overall quality and quantity of surface water is altered. Often, expensive man-made utilities are required to make up for the loss of wetlands. Wetlands and their required transition areas are the most significant regulatory constraint to development.

Floodplains

Floodplains are areas adjacent to streams, rivers, ponds and lakes. Floodplains are a vital part of any river ecosystem, acting as water filters and wildlife nurseries. Floodplains serve a natural function by: (1) storing flood waters thereby reducing the inundation of adjacent lands, (2) absorbing and dissipating the energy of flood waters, and (3) acting as a sediment trap for silt and debris-laden flood waters. Floodplains are divided into three areas: the stream channel, the floodway, and the flood fringe. The floodway is an area of rapidly moving water in which the majority of the flood flow is carried. The flood fringe is an area of slower moving water. The channel, the floodway and the flood fringe comprise what is commonly known as the flood hazard area.

Floodplains are important for the maintenance of water quality, providing fresh water to wetlands and backwaters while diluting salts and nutrients. They are major centers of biological life in the river ecosystem and improve the overall health of the habitat used by many species of birds, fish, and plants. In order to avoid destruction of property and habitat, development within the floodplains is restricted, as it is regulated by New Jersey Department of Environmental Protection (NJDEP). Development within the channel and floodway is prohibited but development may



 AGRICULTURAL WETLANDS (MODIFIED)	 MIXED SCRUB/SHRUB WETLANDS	 CEMETERY ON WETLAND
 FORMER AGRICULTURAL WETLAND	 HERBACEOUS WETLANDS	 WETLAND RIGHTS-OF-WAY
 WOODED WETLANDS	 PHRAGMITES DOMINATE INTERIOR WETLANDS	 WATER
 MIXED WOODED WETLANDS	 MANAGED WETLAND	
 SCRUB/SHRUB WETLANDS	 DISTURBED WETLANDS (MODIFIED)	


 1 inch = 5,000 feet

 Date Source: MADEP 2007 Land Use Land Cover
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FIGURE 1
WETLANDS MAP
MARLBORO TOWNSHIP, NJ


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be permitted in the flood fringe area subject to certain conditions. Marlboro's floodplains are located adjacent to the major streams, notably Big Brook, as shown on **Figure 2, Floodplains Map**, included on the next page of this Plan. Big Brook's headwaters are located in east central Marlboro including and surrounding the former Marlboro State Hospital lands.

Water Resources

The east central section of the Township is located within the Swimming River Reservoir Subwatershed Area, which is also within the DEP designated, Category One (C-1) Watershed Area. The Swimming River Reservoir is a key potable water supply facility for Monmouth County. C1 watersheds require a 300 foot buffer from development. In addition, through stormwater runoff and normal stream flow, precipitation eventually enters into the reservoir. Big Brook is a major water supply source for the Township and is a primary tributary to the reservoir. Therefore, protection of its water quality is of utmost importance. In response to this need, the Township has created the Stream Corridor Preservation Residential District (SCPR-II), which requires considerable natural buffers adjacent to Big Brook. Both the C-1 300 foot buffer and SCPR-II Zone aid in limiting development in this environmentally sensitive area of the Township. A portion of Marlboro depends on groundwater as part of its drinking water supply, thus drawing from the Englishtown Aquifer Formation and the Farrington and Old Bridge Aquifer Formations. Special attention must be taken with the development of wellhead protection areas to ensure that no contamination occurs within the water system.

A more detailed analysis of water resources is provided within Section VIII of this Plan.

Steep Slopes

Slope is measured as the percentage of vertical rise to horizontal distance. Slopes between 15% and 20% are generally considered to be steep slopes and Marlboro has some areas with slopes of 20% or more. Steep slopes in Marlboro are located primarily in the Beacon Hill Road and Reids Hill Road in the northern portion of the Township, along within contained areas adjacent to stream courses. These steep slope areas are depicted on **Figure 3, Steep Slopes Map** included on the next page of this Plan. Any potential development in these areas must be in accordance with an approved soil erosion and sediment and control plan (SESC), certified by the Freehold Soil Conservation District. This plans aids in minimizing erosion and any environmental impacts to water quality.

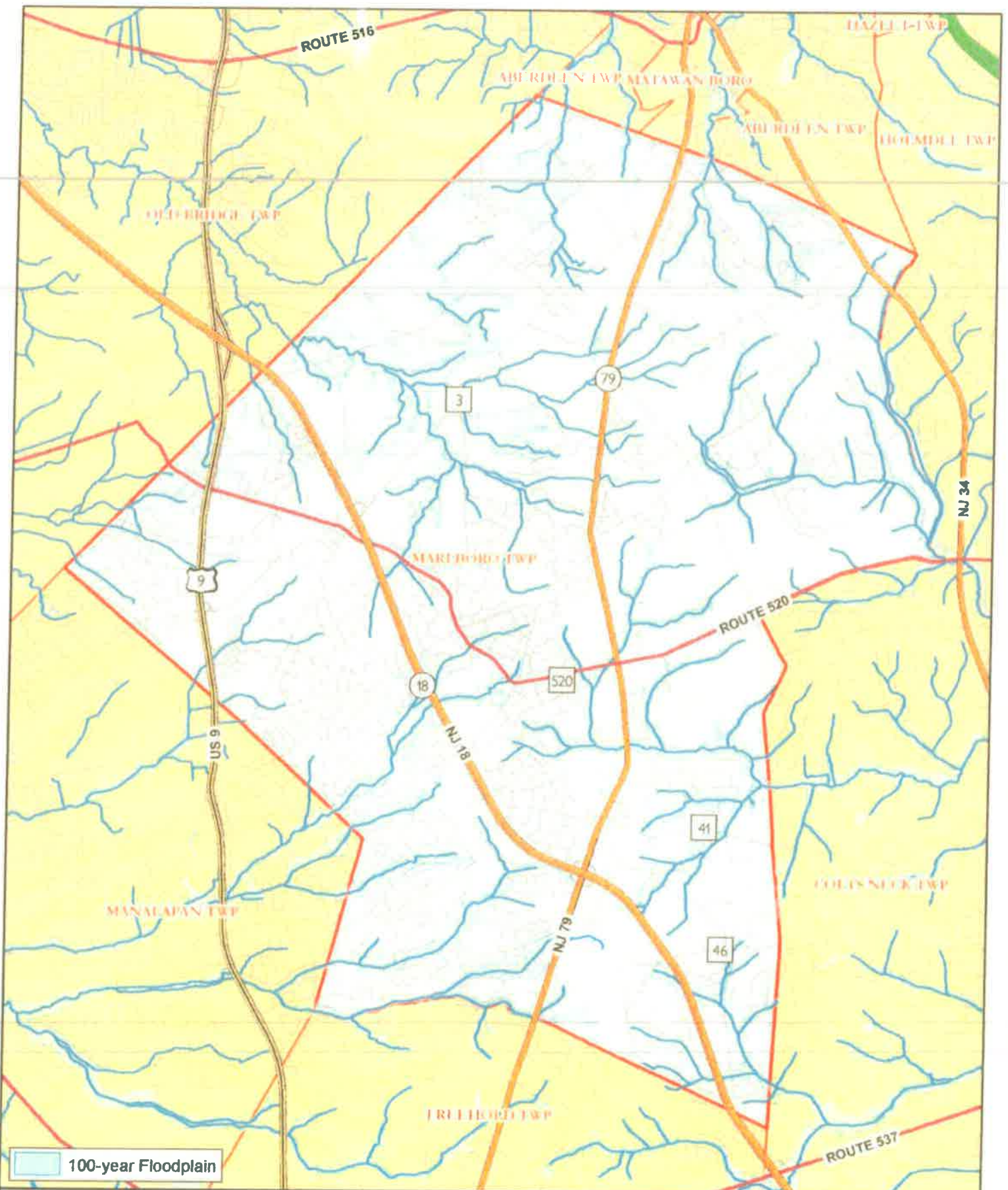
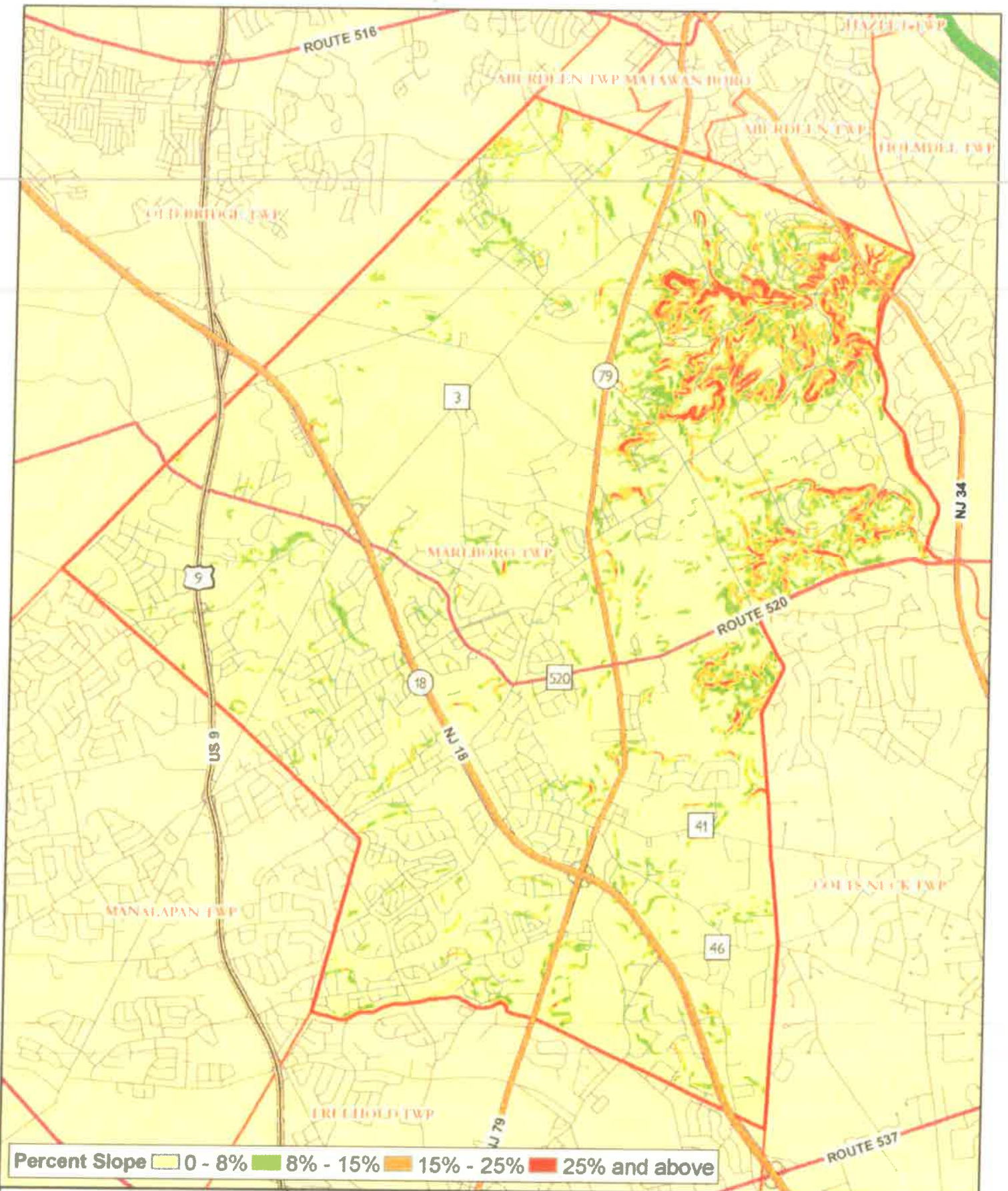


FIGURE 2
FLOODPLAINS MAP
MARLBORO TOWNSHIP, NJ


 1 inch = 5,000 feet
 0 ————— 5,000
 Feet
Data Source: NJDEP Boundaries, NJDOT Roads, State NR Flood Data
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1 inch = 5,000 feet
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 Date Source: NJDEP DSD 2011

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FIGURE 3
STEEP SLOPES MAP
MARLBORO TOWNSHIP, NJ

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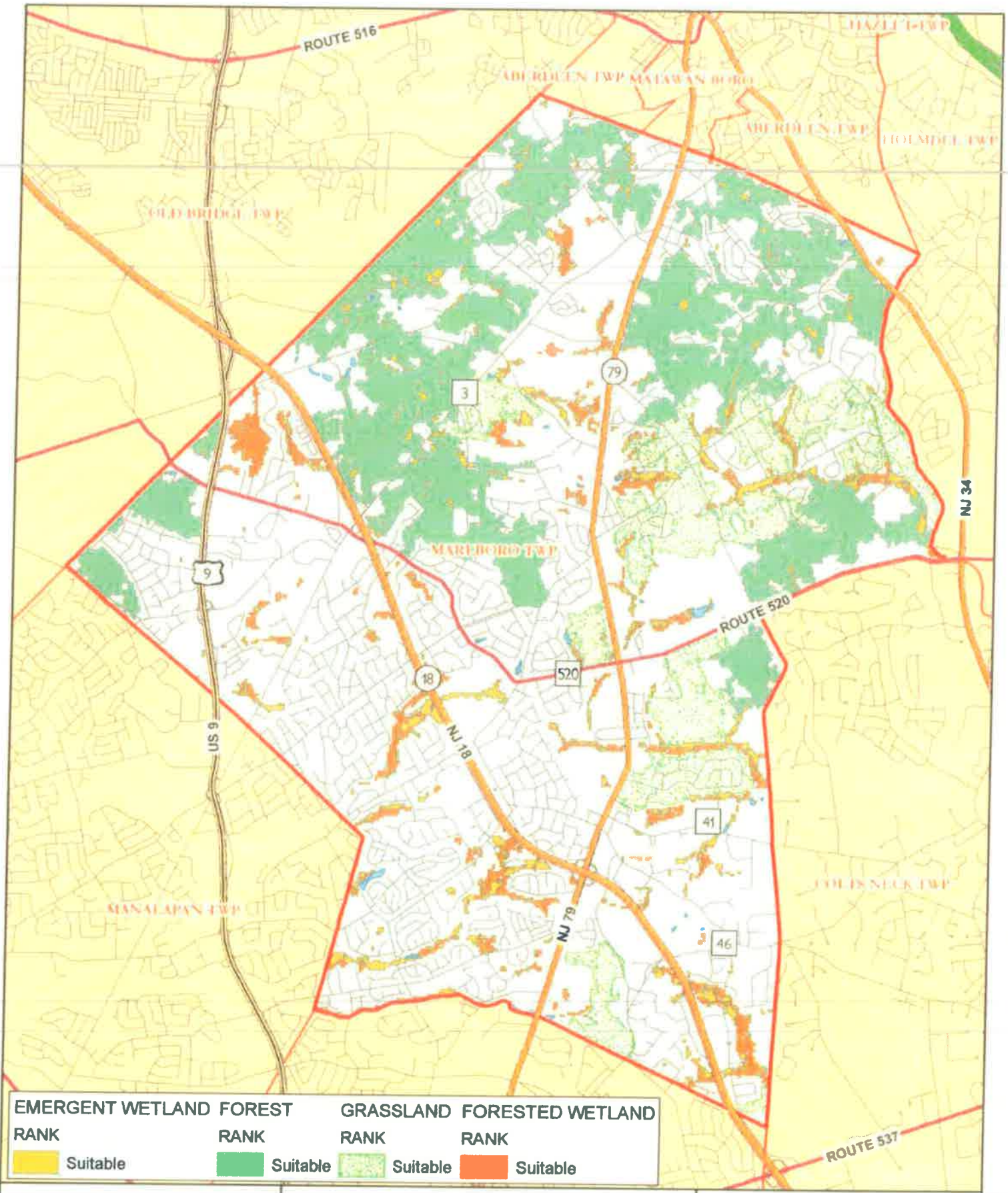
Soils

The Township contains prime agricultural soils, specifically Class I and II. These soils have high fertility and few limitations for cultivation. These soils are found mainly in the eastern portion of the Township and are among the most productive agricultural soils in the state. In addition, these soils are important in serving as wildlife habitat and as a scenic resource. Therefore, these resources should be preserved through proper land use planning and zoning.

Threatened and Endangered Species

The NJ Division of Fish and Wildlife's Endangered Species and Nongame Species Program (ENSP) created the Landscape Project. The stated goal was to protect New Jersey's biological diversity by maintaining and enhancing imperiled wildlife populations within healthy, functioning ecosystems. This program began to map critical wildlife habitats for threatened and endangered (T&E) species throughout the State. The results of this mapping was released to the public in 2001 in Version 1.0, revised in 2004 to create Version 2.0 and revised in 2007 to create version 2.1. This mapping was divided into the following habitat types: forest, grassland, forested wetland, emergent wetland, beach/dune, bald eagle foraging habitat, urban peregrine, and wood turtle habitats. The Landscape Project further ranks each of these habitat types depending on the conservation status of the species present. A rank of 1 shows that a specific area meets the minimum size requirement for a specific habitat although there are no species associated with this area. A rank of 2 shows that there is potential habitat for non-listed state species of special concern. A rank of 3 maps habitat for State threatened species. State endangered species are represented by rank 4 and federally listed species are shown as rank 5. Only species and associated habitats with a rank of 3 or greater are currently regulated.

According to the Landscape Project Mapping, Version 2.1, emergent wetland, forest, grassland and forested wetland areas are places where endangered or threatened flora and fauna species can be found in Marlboro Township, as shown on **Figure 4, Critical Habitat Map** included on the next page of this Plan. It is important to note that the T&E species habitat depicted on the Critical Habitat Map has not been field validated and is therefore, unsubstantiated. It is strongly recommended that applications for properties where mapped T&E habitat is located be supported by a T&E Species Study prepared by a qualified T&E expert. This type of study can provide a scientifically based determination as to whether or not T&E species actually utilize the site for habitat.



EMERGENT WETLAND FOREST	GRASSLAND FORESTED WETLAND
RANK	RANK
Suitable	Suitable
Suitable	Suitable

FIGURE 4
CRITICAL HABITAT MAP
MARLBORO TOWNSHIP, NJ

1 inch = 5,000 feet
 5,000 Feet
 Date Source: NJDEP Landscape Project Data 2007, NJDOT
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Natural Heritage Priority Sites

According to the NJDEP Natural Heritage Database, the Township contains one NJDEP Natural Heritage Priority site known as the Browntown Site, as depicted on **Figure 5, Natural Heritage Priority Sites Map** on the next page of this Plan. Natural Heritage Priority Sites indicate that rare species and/or natural communities may be present in a given area based on historical records of sightings or identification of an area as a probable habitat for rare or endangered species. This site is located on the Marlboro/Old Bridge boundary and is classified as a B4 Standard Site. The Browntown Site is described as having pitch pine lowland, wooded swamp, and pine/oak uplands in the pine barren outlier. The site also includes mapped rare plant wetland habitat plus additional upland buffer in the watershed.

Goals and Objectives for Natural Resources

The Goals and Objectives for the conservation of natural resources are included below. These Goals and Objectives have been prepared in accordance with the MLUL and the Goals and Objectives of the 2012 Master Plan Reexamination Report.

- A. To protect the environmental quality of the Township's natural resources in order to preserve the balance of its ecological systems and safeguard the future health and welfare of its residents.
 1. To encourage the preservation of all environmentally sensitive lands within the entire Township, including the protection of all wetlands areas in accordance with the provisions of the Freshwater Wetlands Protection Act Rules (N.J.A.C. 7:7A).
 2. Identify, protect and preserve environmentally sensitive natural features through sound planning and land use regulations.
 3. Encourage the use of conservation easements on environmentally sensitive lands in private ownership to protect future disturbance.
 4. Encourage the **remediation** of contaminated sites to enhance the local environment, protect residents and return vacant sites to productive use.

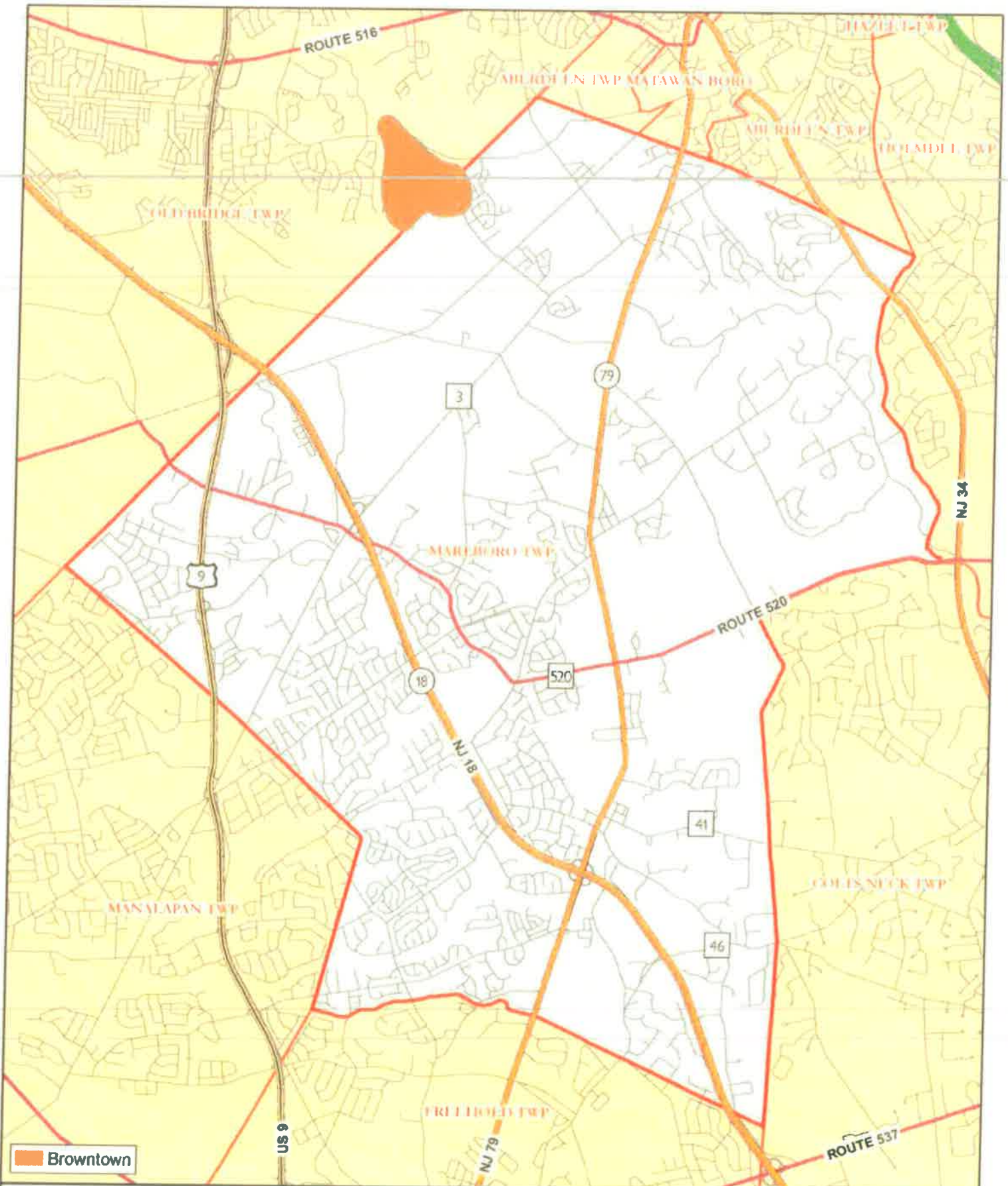


FIGURE 5
NATURAL HERITAGE
PRIORITY SITES MAP
MARLBORO TOWNSHIP, NJ



1 inch = 5,000 feet
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 Data Source: NJDEP NHPIS 2007

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IV. LAND USE

Sustainable land use policy focuses land development toward areas that are served by sewer, water, transportation infrastructure (preferably multi-modal transportation infrastructure) and that do not contain environmentally sensitive features. Sustainable land use regulations support that policy by requiring compact development that contains a mix of appropriate land uses and provides a significant amount of open space in the surrounding environs. The open space areas contain the environmentally sensitive land areas which are protected from adverse impacts of development by appropriate policy and ordinance provisions.

Another key aspect of sustainable land use is the preference for redevelopment and infill development. Redevelopment provides for the efficient use of land by removing existing development that may be dilapidated or in a state of stagnation and replacing those obsolete land uses and building with a viable land use that enhances the character of the community. Infill development involves the siting of new land uses on vacant properties contained within areas that are already developed. This approach uses the land within developed areas efficiently by building out such land. Both redevelopment and infill help prevent sprawl by providing a location for appropriate land uses that would otherwise be constructed on an undeveloped site in the environs.

As mentioned above, the areas targeted for development are surrounded by open space areas. Ideally, these open space areas should be linked to provide a network of open space where pedestrian, bicycle and other alternate modes of transportation may be accommodated and where recreational activities may be enjoyed by residents and visitors to the Township. The establishment of open space networks is also valuable to wildlife species, as sustaining populations of many wildlife species requires safe routes for them to travel and ample space for them to thrive. Open space networks provide for both of these requirements.

The establishment of these open space areas should include a strategy for preservation of these lands. Preservation of the open space areas will ensure that these amenities will be available for future generations to enjoy and prevent them from being consumed by development once development pressure starts to rise.

In addition to providing for the efficient use of land, compact development that contains an appropriate mix of land uses serves a public health benefit, as this type of development pattern is more walkable than traditional sprawl development patterns that tend to occur in suburban communities. Walkable communities enable residents to access commercial uses such as doctor's offices and restaurants by foot or bicycle for medical appointments or dining, respectively. The physical activity inherent in walking, bicycling and similar activities has been shown to have significant health benefits, including improved cardiovascular health and general physical and psychological wellness. Sustainable land use policy and regulation provides the foundation for development patterns that provide these important public health benefits.

In addition, compact development reduces vehicle miles travelled by reducing distances between destinations and providing a more efficient road network. Further, compact development reduces the cost of energy and infrastructure by reducing the amount of infrastructure that is required to serve a given population. For example, if the majority of development is located in a small geographic area, the length of sewer and water lines required to serve the population in that area is much smaller than it would be if the homes and businesses in that area were dispersed, as is the case in a sprawling development pattern.

Similar to the benefits of walkable neighborhoods (reduced vehicle miles traveled, increased exercise rates, etc.) a mix of uses should be considered for employment centers, such as office parks. Providing convenience uses, such as banks, dry cleaners, restaurants and childcare within employment centers will reduce vehicle miles traveled since employment and these uses will be in proximity to each other and will also reduce the occurrence of employees leaving the Township for these purposes, therefore additionally providing support for the local economy.

A diversity of housing stock, in terms of income and housing type, is also an important component of sustainability. Diverse housing types are positive contributions to residential/commercial mixed-use areas. Apartments and condominiums are well suited to the upper stories of buildings with commercial on the first floor. These upper story residences can not only provide the density necessary to support the commercial uses (customers and jobs) and mass transit, but they also provide modest priced and small housing opportunities. Additionally, they can help ensure a mix of ages since upper story residences are commonly occupied by young adults. Residences on small lots, such as but not limited to, townhouses, duplexes and modest sized multi-family homes, are appropriate in areas surrounding a mixed-use core. These areas can serve as a transition area to lower density parts of the neighborhood. Coupling the densities associated with these housing types with “complete streets” (those with pedestrian, bicycle and mass transit facilities) is an important step toward creating a sustainable community.

The 2012 Reexamination Report contains a recommendation that the Township implement a mixed-use “Village Center” through rezoning and the creation of a **Form Based Code** approach. A copy of the **2012 Reexamination Report** is included within **Appendix A** of this Plan. The Village Center should be implemented in a centralized location within the Township and require the establishment of strong connections to the existing residential neighborhoods with emphasis on walkability, traffic calming and building on the current commuters in the Area. The Township has received a Sustainability Grant to continue its efforts in creating a Village Center. It is recommended that the Township Land Development ordinance be amended in the future to incorporate the results of the Village Center efforts.

The establishment of this Village Center is an innovation from the current land use pattern, which is primarily comprised of residential subdivisions and parks scattered throughout the Township with commercial uses located predominately along State highway Routes 9, 18, 34 and 79 and along major collector roadways. The implementation of the Village Center would help address the current pattern of dispersed land uses and provide a working model for the establishment of other mixed-use cores and nodes in the Township.

Providing community facilities within or proximate to neighborhoods is another important component of sustainable communities. Community facilities, such as parks with passive and active recreation, community centers and municipal facilities are best located in or proximate to neighborhoods to ensure that the maximum number of residents have convenient access to them. They also provide a place for social interaction – for neighbors to get to know each other – and thus contribute toward a sense of community.

Additionally, and critical to sustainability, locating these facilities in or near concentrations of users will reduce vehicle miles traveled as visitors will have less distance to travel to reach the facilities and may not need to rely upon a car to do so to the extent required in current zoning. Safe, convenient and pleasant pedestrian, bicycle and mass transit access should be provided to these facilities. As stated, reducing vehicle miles traveled is one of the most fundamental objectives of sustainability. This not only refers to passenger vehicles moving residents, commuters, etc., but it also refers to the movement of goods. By supporting compact development patterns and providing safe, convenient and pleasant alternative forms of transportation, the Township can support the local economy. Today many find it just as convenient to get in the car and drive miles outside of their community for shopping; however, this occurrence would be reduced if it were more convenient to shop locally. This convenience is largely dependent on access to the site, as well as the availability of goods. Goods and services, which may be in the form of a neighborhood center, should be located in or proximate to neighborhoods, depending on the neighborhood size.

It is important that the Township support the commercial component of its neighborhoods. They contribute positively to the sense of community and quality of life and serve to cut down on the Township's vehicle miles traveled. Additionally, supporting the small businesses which are located in these neighborhood centers support goals for economic development and a diverse tax base. The Township can further support these goals by evaluating the Land Use Ordinance to determine if an expansion of home occupations is appropriate and by supporting a buy local, or similarly styled, campaign.

Important to sustainability, locally produced food shrinks a municipality's **environmental footprint** by reducing the travel required to bring food to a community. Food systems account for 17% of national energy usage. Local food production can reduce this figure with its lower vehicle miles required for carrying food. Food systems that rely on fresh locally grown food can offer benefits including increased access to nutrition and farmland preservation. However, coupling this concept with economic development and planning goals will bring far more benefits to the community. Through land use policies, economic development activities and farmland preservation efforts the Township can have a positive impact on retaining and enhancing local food systems. In the northern, rural part of the Township, large expanses of agricultural lands are common, the Township should focus its efforts on supporting farmers by ensuring that agriculture can be practiced undisturbed and while minimizing impacts on residential neighbors. This can be done through supporting the right-to-farm ordinance and requiring buffers to agricultural lands that reduce the impacts of farming, such as smell or noise, on neighboring lands. Supporting existing farmers is the first step toward supporting local food production.

It is recommended that the Township amend the Land Use Ordinance to expand its support for local small agriculture as a means of reducing vehicle miles travelled, as well as increasing access to fresh and healthy foods. While it may not be appropriate for large farm animals, such as cows and pigs, to be kept on a modest sized neighborhood lot, fruit and vegetable gardens can easily be accommodated. Additionally, small farm animals, such as chickens, should be permitted on residential lots where reasonable conditions can be met. There are numerous community benefits to local food production and supporting the growing movement of "urban homesteading", or victory gardens, where people take food production into their own hands and, for example, convert their rear, side or front lawns to fruit and vegetable gardens and/or raise chickens. The Township's expanded support should include not only allowing agriculture by right (with reasonable conditions) but also specifically allowing gardens in front and side yards and permitting small farm animals on residential lots based on a sliding scale of lot size and reasonable conditions. The potential benefits of this movement may include, aside from increased food production, reduced stormwater runoff, a more interesting landscape and fewer chemical inputs by encouraging organic agriculture. This includes not only gardens at the ground level, but roof-top gardens too.

It is important to note that the Township has a history of supporting local agriculture. The Township adopted a Farmland Preservation Plan Element of the Master Plan in 2011. The Farmland Preservation Element contains a prioritized list of farms targeted for preservation. Marlboro Township contains approximately 93 acres of preserved farmland, which underscores the success of the Township's farmland preservation efforts.

The Township can couple economic development strategies with those of local agriculture by permitting farmer's markets on Township owned parks and permitting them as conditional uses in nonresidential districts. Additionally, farm stands for products grown on-site should be encouraged on agricultural lands, and if modestly sized, on residential properties. These revisions to Township policies will not only support local agriculture but will increase access to fresh and healthy fruits and vegetables.

Implementing sustainable land use practices will reduce energy consumption from vehicle miles traveled by providing a mix of uses in proximity to each other and by ensuring that residents and visitors may rely upon not just vehicular transportation, but also pedestrianism, bicycling and mass transportation. Sustainable land use practices promote alternative modes of transportation, increased reliance on local goods and services and improved public health. Additionally, sustainable land use practices which encourage neighborhood-scale building patterns will promote stronger community ties and lower infrastructure costs from reduced street miles and more efficient building patterns.

Goals and Objectives for Sustainable Land Use

- A. Promote a land use policy designed to create a "sense of place" in designated centers of activity, particularly in the Village Center.
- B. Balance development opportunities with the established pattern of development and existing infrastructure.
- C. Coordinate land use and transportation planning.
- D. Use infrastructure (sewer service areas/water service areas) as a growth management tool.
- E. Balance economic development with conservation/open space.
- F. Develop a comprehensive strategy for balanced development in the Township for affordable housing.
- G. Identify opportunities to provide linkages between open space land areas in order to form an extensive open space network in the Township.
 1. This open space network should connect to the networks of surrounding municipalities in order to create a regional open space network.
 2. Collaborate with and seek funding through the County's Open Space Program and any other County, State affiliated programs.
 3. Promote the clustering of any additional residential subdivisions in order to maximize open space.
- H. Maintain, preserve, and enhance the existing established residential character of Marlboro.

- I. Prevent continued residential sprawl.
- J. Control future residential growth.
 - 1. Retain, and where appropriate, expand the low-density policy in the east, north and west central portions of the Township consistent with the sewer service areas.
- K. Maintain and expand the Township's parks and recreation system to meet the recreation needs of Marlboro residents.
 - 1. Preserve and enhance existing park and recreation facilities.
 - 2. Support the completion of the "missing link" in the Henry Hudson Trail and coordinate with the county and other participating municipalities to complete the entire network in order to create a continuous accessible trail.
 - 3. Identify locations for possible acquisition and/or development of parks in order to address identified needs.
 - 4. Encourage the creation of pedestrian and bicycle trails for recreation purposes as well as well as to provide linkages throughout the Township including the Henry Hudson Trail and connective sidewalks.
 - 5. Continue to encourage the preservation of open space.
 - 6. Explore the need for additional active recreation facilities.
 - 7. Coordinate park and recreation plans with existing and planned Board of Education facilities.
- L. Protect the most viable farm properties from development.
 - 1. Investigate the use of Transfer of Development right for farmland preservation.
 - 2. Promote agri-tourism and farm markets.
- M. Respect the Marlboro Village Historic District when making land use policies and decisions while encouraging and promoting existing and new businesses, and maintaining the historic quality and character of the district.

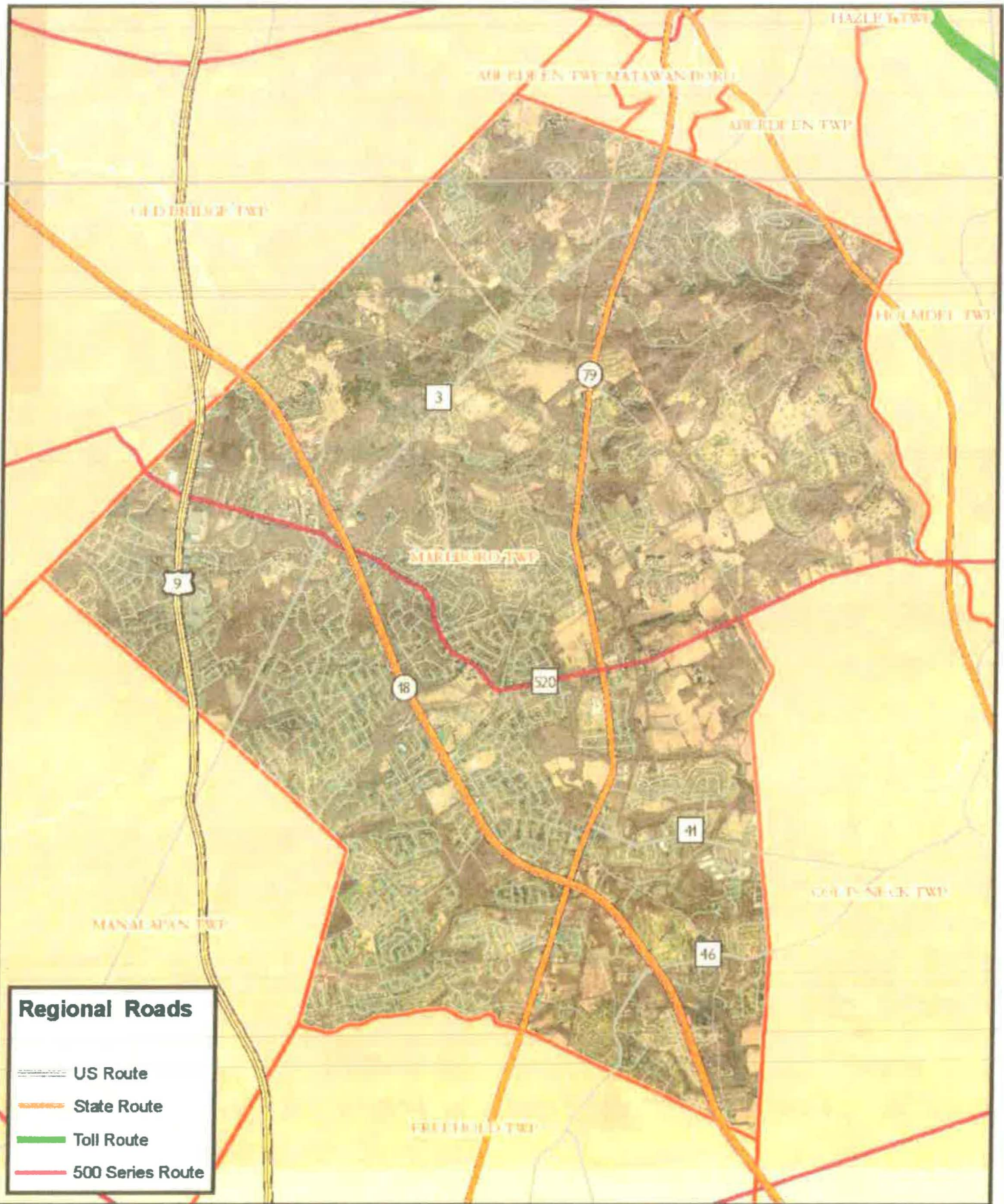
V. TRANSPORTATION

Transportation infrastructure is an important component of sustainable land use planning. Transportation infrastructure has somewhat of a circular relationship with land use whereby it may either be extended to land uses as they are approved and constructed or it may be constructed and subsequently attract development, as has been the case with the construction of State and Federal highways. Therefore, transportation infrastructure has profound implications for land use.





Marlboro Township contains a wide variety of roadways that range from State Highway Routes 9, 18, 34 and 79 down to low-intensity residential access streets. The roadway infrastructure is spread out to accommodate the range of residential, commercial and industrial developments that are dispersed throughout the Township. As mentioned previously, the current land use pattern is primarily comprised of residential subdivisions and parks scattered throughout the Township with commercial uses located predominately along State highway Routes 9, 18, 34 and 79 and along major collector roadways. The major roadways located within the Township are depicted on **Figure 6, Major Transportation Routes Map**, on the next page of this Plan.

Opportunities for the establishment of mixed-use cores, such as the proposed Village Center, may be available at or in close proximity to major roadway intersections. It is recommended that an analysis of the major roadway intersections in the Township be prepared in order to identify those that are best suited to contain a mixed-use core. This analysis could then be utilized to prioritize the implementation of future mixed-use cores at or near these intersections. These cores could be zoned to contain appropriate neighborhood commercial uses with second story office space and/or residential units. The neighborhood commercial uses could include retail service and other similar uses that could provide the residents in the neighborhood with convenient access to needed services. The commercial uses could also provide local jobs that would be available to neighborhood residents, which would both be convenient for the residents and cut down on vehicle miles travelled to work, which is a benefit to all residents of and visitors to the community.

A mixed-use core such as the Village Center represents a more efficient transportation infrastructure design where motorists and pedestrians would be able to access a wide variety of uses in close proximity to one another. In addition, this type of development is able to accommodate additional modes of transportation, such as walking and bicycling, much more easily than a sprawling development pattern. The use of more physically active modes of transportation such as walking and biking has positive health effects.



Regional Roads

-  US Route
-  State Route
-  Toll Route
-  500 Series Route





 1 inch = 5,000 feet

 Data Source: Google Earth 2011 Aerial
 CREATED BY


FIGURE 6
MAJOR TRANSPORTATION
ROUTES MAP
MARLBORO TOWNSHIP, NJ


HCSSP
CONSULTING AND MUNICIPAL ENGINEERS
 1400 Route 9 South, Howell, NJ 07731

Further, the reduction in travel time provided by the more efficient transportation network and land use design will enable people to access their destinations more quickly. This quick access frees up time in the travelers schedule for other activities and improves the quality of life. Additionally, the reduced time spent driving reduces congestion on local roadways and reduces the amount of exhaust emitted into the environment.

Street connectivity is another important aspect of transportation infrastructure. **Street connectivity** is defined as the degree to which a system of streets contains multiple routes and connections serving the same origins and destinations. A connected street system provides increased travel efficiency, which reduces traffic congestion and provides convenient access to destinations. It is important to note that connectivity applies at all levels – connections between local streets, connections between neighborhoods and connections between regions.

There are many advantages to a connected street system, which include:

- Decreased vehicle miles traveled;
- Less pollution;
- Reduced travel times;
- More convenient access to destinations;
- Enhanced safety, as emergency vehicles will have multiple and potentially more direct routes to their destinations, therefore shortening emergency vehicle response time; and
- Decreased traffic congestion.

Complete streets are another critical component to a sustainable circulation system. **Complete streets** are defined as those streets that are designed and operated to enable safe access for all users, including children, seniors and those with physical disabilities. This means that pedestrians, bicyclists, motorists and transit riders of all ages and abilities are able to safely use and cross the street. Advantages of having complete streets include:

- Improved safety for all users;
- Improved public health by increased usage by pedestrians and bicyclists due to an increased feeling of safety;
- Decreased traffic congestion by encouraging more people to walk and bike, thereby reducing vehicle trips on local roadways.

Complete streets initiatives must be combined with appropriate land use policy and regulation in order to provide land uses facing the street with pedestrian friendly site layout, appropriately sized sidewalks and amenities for pedestrians and bicyclists, including benches, bike racks and canopies to access shelter during inclement weather. The overall streetscape should be interesting, provide direct access to destinations and have a design that encourages social interaction (pocket parks, sitting areas, etc.). The design should also include sufficient windows and views to provide “eyes on the street” to ensure a feeling of safety and security. The Township has laid out a plan for this type of design in the 2009 Pedestrian Access Plan.

Buildings should be oriented toward the street with interesting architecture, as opposed to blank walls, and that a functional entrance be accessible from the street. Parking should be located along the side and rear of buildings.

A second aspect of transportation that is relevant with regard to sustainability is the mode of transportation utilized. Factors that come into play in this aspect include, but are not limited to, the fuel efficiency of the vehicle, the level of pollution emitted by the vehicle, travel time, and the number of modes of transportation available to a given destination.

Fuel efficiency is an important factor with respect to the environment and economy of travel. Increased fuel efficiency, such as that provided by hybrid and electric vehicles can both reduce pollution and save the operator a substantial amount of money. Therefore, the use of fuel efficient vehicles and a strategy for developing charging stations should be encouraged.

In order to set an example of the benefits of fuel efficient vehicle technologies it is recommended that the Township consider purchasing fuel efficient vehicles, such as biodiesel, hybrid or electric vehicles, as part of its fleet of municipal vehicles when it comes time to replace older vehicles if their purchase and use will result in a definitive cost savings. This effort may both save the Township money and help preserve the quality of the environment.

Another important component of sustainable circulation systems is multi-use paths, paths which provide shared space for pedestrians and bicyclists. While these paths are often referred to in the context of recreation, they are also a valuable way to reduce dependence on the single occupancy vehicle. In high speed, high vehicle traffic areas, they can provide pedestrian and bicycle facilities which are safely separated from the vehicle cartway. They can also provide shortcuts between streets and neighborhoods that will potentially make for a more pleasant experience and a more convenient route. Successful examples of this include the Henry Hudson Trail.

Transportation infrastructure for pedestrians and bicyclists should be included within the overall transportation network. This type of infrastructure is most easily implemented in conjunction with improvements to roadways, open spaces and the construction of commercial and residential development. In December 2009 the Township adopted a Pedestrian Access Plan, which was prepared by Heyer, Gruel and Associates. The Pedestrian Access Plan contains a detailed description of trails, sidewalks, and other pedestrian routes for many of the land uses in the Township, including recreational, commercial, residential and educational land uses. It is recommended that the Township continually seek to construct and improve infrastructure for pedestrians and bicyclists as opportunities arise through public improvements and new development.

Mass transit is another important aspect of sustainable transportation infrastructure. While the Township maintains bus service via NJ Transit along its State Highways, the Township does not contain any rail stations or other modes of mass transportation. The Matawan train station is the closest train station to the Township. While limited shuttle service to this station exists, it is recommended that the Township work with NJ Transit and Monmouth County to determine the feasibility of more convenient and frequent shuttle service. The Township should also improve and expand commuter parking as demand for this use rises.

To encourage bus ridership, which is heavily dependent on safety and convenience, there should be conveniently located bus stops that include comfortable waiting areas, lighting and bicycle facilities. To further enhance mass transit opportunities, the Township should work with area municipalities and the New Jersey Department of Transportation on obtaining **Bus Rapid Transit (BRT)** along one or more of the State Highways that run through the Township. **BRT** is defined as follows according to the Federal Transit Administration:

“An enhanced bus system that operates on bus lanes or other transit ways in order to combine the flexibility of buses with the efficiency of rail. By doing so, BRT operates at faster speeds, provides greater service reliability and increased customer convenience. It also utilizes a combination of advanced technologies, infrastructure and operational investments that provide significantly better service than traditional bus service.”

BRT would enabled residents to access regional employment opportunities, shopping destinations and other destinations more quickly and efficiently than traditional bus service.

Sustainable Transportation Goals and Objectives

The Goals and Objectives for sustainable transportation infrastructure are included below.

- A. To promote transportation infrastructure in accordance with the principles of smart growth in order to provide the Township's residents with a more efficient, multi-modal transportation system that meets their needs.
- B. The Township should create land use policies and ordinances that promote the creation of **complete streets** which are designed and operated to enable safe access for all users, including children, seniors and those with physical disabilities
- C. Encourage the use of fuel efficient vehicles.
 1. It is recommended that the Township consider purchasing fuel efficient vehicles, such as biodiesel, hybrid or electric vehicles, as part of its fleet of municipal vehicles when it comes time to replace older vehicles in order to both save the Township money and help preserve the quality of the environment.
- D. Expand mass transportation services.
 1. The Township should work with NJ Transit and Monmouth County to determine the feasibility of more convenient and frequent shuttle service to the Matawan Train Station.
 2. Partner with NJ Transit and the County to identify and develop a plan that provides additional shuttle services and expanded bus service.
 3. Work with NJ Transit to identify underserved areas of the Township, so that bus routes could be adjusted accordingly.
- E. The Township should continually seek to construct and improve infrastructure for pedestrians and bicyclists as opportunities arise through public improvements and new development.
 1. To work with the State and the County to incorporate sidewalks, bike lanes and other pedestrian and bicycle friendly amenities along State and County roadways.
 2. Create pedestrian and bike connections within the Township between and among residential neighborhoods, community resources, commercial areas, and the Henry Hudson Trail.
 3. Seek opportunities in existing and new site development application for paths.

- F. The Township should work with area municipalities and the New Jersey Department of Transportation on obtaining **BRT** along one or more of the State Highways that run through the Township in order to enable residents to access regional employment opportunities, shopping destinations and other destinations more quickly and efficiently than traditional bus service.
- G. Promote mixed-use cores at or near major roadway intersections.
 - 1. Prepare an analysis of the major roadway intersections in the Township in order to identify those that are best suited to contain a mixed-use core.
- H. To require that development applications include connected street patterns between subdivisions for reasons of emergency access and improved vehicular circulation.
- I. To encourage traffic calming techniques in areas that have been negatively impacted by through traffic in order to encourage safer driving.
- J. The Township's Land Use Ordinance should be updated to require traffic calming techniques to be included within future developments in order to avoid adverse impacts from traffic.
- K. Coordinate land use and transportation planning initiatives in order to improve efficiency and reduce costs.
- L. Take necessary measures to mitigate the effects of increased regional traffic.
- M. Provide wayfinding signage on major roads and at gateway locations to facilitate circulation and identify the route to key activity centers and destinations in the Township.
- N. Monitor the effects of continued development on Township roadways.
- O. Prepare a Township wide traffic study which should identify opportunities to implement context sensitive improvements.
- P. The Township should improve and expand shared parking and commuter parking as demand for these uses rises.
 - 1. Prepare a parking strategy that balances employee, merchant, and commuter parking (shared services).
 - 2. Consider establishing a Parking Committee to develop and manage Township parking resources.
 - 3. Collaborate with the County in implementing their Regional Vision (Western Monmouth Development Plan) for expanding commuter parking.

VI. GREEN BUILDINGS AND SUSTAINABLE SITE DESIGN

People spend the vast majority of their time in and around building. This makes building and site design of paramount importance. Green building and sustainable site design incorporates a strategy that is geared toward reducing energy consumption, water use, waste generation, improving indoor air quality and preserving and enhancing the quality of the environment. These objectives are accomplished through efficient building and site design and the selection of materials that are sustainable, non-pollution emitting.

Green building and sustainable site design provides many benefits, which include improved health for building occupants through improved indoor air quality. This benefit is realized through the utilization of non-hazardous and non-pollution emitting materials for the construction of the building and site amenities. For example, where construction materials containing **volatile organic compound** emitting glues might be used on traditional construction projects, materials that do not emit **volatile organic compounds** are used in green buildings. In addition, whereas furniture containing glues and other compounds that emit harmful volatile chemicals into the indoor environment, green building design includes a plan for furniture that does not emit these harmful compounds. The use of these higher quality and environmentally friendly materials and products results in improved indoor air quality, which translates into fewer visits to the doctor, fewer allergies and lower probability of developing chronic illness. This is of critical importance now, because current construction methods seek to reduce air flow into and out of buildings in order to maximize energy efficiency, which reduces the opportunity for external air sources to mitigate potential hazardous indoor air quality.

Another benefit of green building and sustainable site design is the preservation and enhancement of the environment. Some examples of practices that achieve this objective include the following:

- Re-use of building materials from other buildings, where feasible, and from the recycling of waste generated by the project keep these materials out of landfills, which reduces waste and pollution.
- Stormwater is directed to cisterns that are used to irrigate landscaping, thereby reducing demand on the local aquifers and the potable water supply.
- Site layout is designed to take advantage of the natural contours of the site and maximize open space, which results in less site disturbance and reduced impacts to vegetation and wildlife.

- Various energy efficiency techniques, such as **daylighting** through careful placement of windows and building orientation, implementation of energy efficient fixtures and appliances and the use of environmental benign insulation enable reduced energy consumption, which translates into less natural gas, coal or other materials that need to be used at the power plant level, thereby eliminating additional pollution that would otherwise be emitted by these power plants.

The vast majority of green building techniques are not prohibitively expensive and, in fact, many are responsible for short term economic savings for items such as, but not limited to, a smaller site area of disturbance and reduced tipping fees (fees for disposal of solid waste). Long term economic savings can be realized from reduced life cycle costs in the form of lower water consumption and lower energy consumption. Furthermore, reduced energy consumption can also result in the ability to downsize building operation systems such as the mechanical and or electrical systems.

In order to realize many of these benefits, a “green building” should be designed using a multi-disciplinary and integrated design process – one which relies upon collaboration and synergies between the design disciplines and building systems. This process is key to realizing the cost savings green building design can offer. The consideration of additional costs for green construction, compared to savings over the life of the building, is critical for those that own and operate buildings – including municipalities. Increases in cost may occur due to the following:

- The extent of green construction techniques employed;
- The stage at which green construction goals and techniques are integrated in the building design; and
- The construction team’s experience with green construction.

Buildings that integrate sustainable practices will result in long-term cost savings derived from reductions in energy and water consumption, as well as, waste generation. While the potential additional cost of green building construction is variable, indications are that savings in electricity consumption, waste output and potable water use from green construction results in financial savings in the form of reduced electricity bills, waste collection bills and water / sewer bills. While New Jersey municipalities do not have authority to alter building codes to prescribe such standards as energy and water efficiency, the Township should consider incentives in the Land Use Ordinances to encourage property owners to utilize green building design techniques. The Township can also provide leadership in this area by including green building design techniques in its own buildings as upgrades become necessary.

It is recommended that the Township require a **sustainable design** assessment be completed for larger projects. This assessment provides information on what green building techniques have been used in the development and it lays the foundation for a dialogue with developers about what green building techniques are included and excluded from a project and why. Over time, the assessments will provide information on what green building techniques are the most cost efficient and effective in Marlboro. The Township may want to evaluate this section of the Land Use Ordinance to determine if the **sustainable design** assessment should be applied to a larger range of projects to ensure that developers of small and/or modest sized projects consider green building techniques. Particularly for small and modest sized projects, the Township should consider providing additional guidance on the information required to reduce the burden on the developer of completing an assessment with sufficient detail. The Township should also consider requiring that the assessment be a required component of a development application completeness determination.

A sample of green building techniques is listed below:

- Vent all combustion-based equipment
- Install energy-efficient lighting
- Choose eco-friendly paints, sheens, and finishes
- Use low-**VOC** construction products
- Choose hard, low-formaldehyde floors
- Use reclaimed or renewable materials
- Install a green roof
- Install water-saving fixtures
- Choose a high-efficiency water heater
- Select energy-efficient equipment
- Minimize site disturbance
- Upgrade insulation
- Provide controls and zoning for HVAC
- Use operable windows and ceiling fans for natural ventilation
- Provide rainwater collection system

Green Building and Site Design Goals and Objectives

The Goals and Objectives for green building and sustainable site design are included below. It is important to note that the renewable energy production and water conservation components of **sustainable design** are addressed in Sections VII and VIII of this Plan, respectively.

- A. To promote sustainable or green building and sustainable site design in order to achieve a more environmentally and socially responsible, healthy, and prosperous environment that improves the quality of life for Marlboro Township residents.
 - 1. It is recommended that the Township identify and encourage the use of incentives for green building and sustainable development provided by federal, State and County entities and other organizations as they become available.
 - 2. It is recommended that the Township periodically update its ordinance in order to encourage or require that the latest techniques in **sustainable design** and development be utilized.
 - 3. It is recommended that the Township require a **sustainable design** assessment to be prepared for projects.
 - 4. To perform an energy audit to pinpoint areas where energy is being used inefficiently and identify ways to increase the efficiency while reducing operating costs.
 - 5. Promote energy conservation programs at the residential and Township level through the use of efficient energy consuming devices.

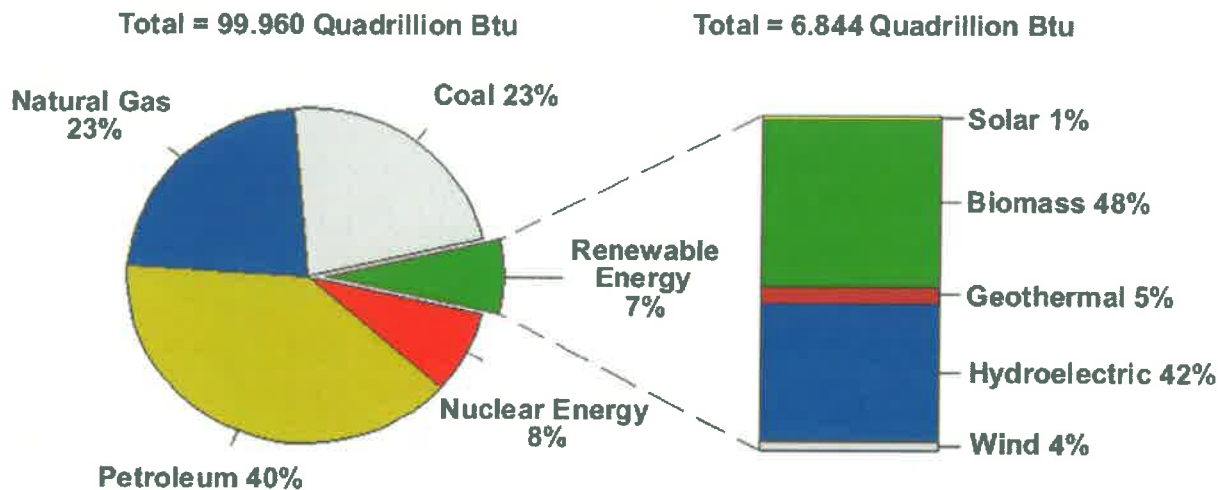
VII. RENEWABLE ENERGY RESOURCES AND INFRASTRUCTURE

Renewable energy resources, such as solar, wind and geothermal energy, are a vast source of energy that can be harnessed and utilized to replace traditional **fossil fuels**. The cost of energy and the impacts of **fossil fuel** use on the environment are two of the most pressing issues that we face today.

The United State Energy Information Administration (“USEIA”) defines renewable energy as “energy sources that are naturally replenishing but flow limited. They are virtually inexhaustible in duration but limited in the amount of energy that is available per unit of time. Renewable energy sources include: **biomass**, hydro, geothermal, solar, wind, ocean thermal, wave action and tidal action.”

Chart 1, below, depicts a breakdown of energy usage by resource type, as provided by the USEIA. The most common types of renewable energy in New Jersey include solar, wind and geothermal with a limited amount of **biomass** and hydroelectric.

Chart 1: The Role of Renewable Energy Consumption in the Nation’s Energy Supply, 2006



Courtesy of the U.S. Energy Information Administration at http://www.eia.gov/cneaf/solar.renewables/page/prelim_trends/rea_prereport.html; accessed October 25, 2012

The renewable energy field is evolving rapidly. New technologies are being invented and implemented at a fast pace and have resulted in a flurry of new legislation at the State and Federal level. For example, in November 2009 MLUL Section 40:55D-4 (Definitions) was revised to specify “wind, solar or photovoltaic energy facilit(ies) or structure(s)” as inherently beneficial uses. Additionally, the 2011 New Jersey Energy Master Plan (EMP) sets forth a goal for 22.5% of New Jersey’s energy to be generated by renewable sources by 2020.

While many people opt to use **renewable energy** for the protection of the environment, a comparable motivator is cost, as **renewable energy** use can provide substantial cost savings. As mentioned previously, it is recommended that the Township identify and encourage the use of incentives for green building and sustainable development provided by federal, State and County entities and other organizations as they become available. As many of these incentives involve energy usage and conservation, this recommendation is particularly important with respect to renewable energy.

Another way in which the Township can take advantage of the benefits of energy conservation is to conduct an energy audit its buildings, vehicles and equipment. The energy audit is utilized to identify areas where energy is being utilized inefficiently and to identify ways to increase energy efficiency. This type of audit may be able to be completed at no cost or at a reduced cost through the utilization of State programs and incentives. Common improvements recommended in the findings of the audit may include, but not be limited to:

- Smart metering of the Township's existing lighting and HVAC systems to improve efficiency;
- **Solar powered** street lights;
- LED (Light Emitting Diode) street lights, traffic lights and exterior safety lighting; and
- High efficiency pumps for water and wastewater supply, storage and distribution (note that this must be coordinated with regional water and wastewater authorities).

The three most popular renewable energy technologies that have either been implemented or are under consideration within Marlboro are solar, wind and geothermal energy systems. Information regarding each of these technologies as they pertain to the Township is included below.

Solar Energy Facilities

Solar power derived from the installation of Solar Photovoltaic (PV) Panels and other technologies is a viable option to provide current and future energy needs, and should contribute to meeting EMP **targets** for renewable energy generation. These facilities are a viable option for providing energy for individual uses through the construction of ground or roof mounted solar arrays. Larger solar facilities may also be constructed for the purpose of providing energy directly into the grid for consumption by other uses. Intermediate sized facilities may be designed to provide energy for on-site use and feed excess energy into the electric grid network.

As stated previously, the MLUL was revised in 2009 relating to solar facilities. 40:55D-38.1 states (in part) that "(a)n ordinance requiring approval by the planning

board of either subdivisions or site plans, or both, shall not include solar panels in any calculation of impervious surface or impervious cover.” 40:55D-66.11 (entitled “Wind and solar facilities permitted in industrial zones”) sets forth that renewable energy facilities are to be permitted uses in all industrial districts “on a parcel or parcels of land comprising 20 or more contiguous acres that are owned by the same person or entity.” In addition, the MLUL now recognizes solar facilities as inherently beneficial uses as can be seen in the excerpt below.

“Inherently beneficial use’ means a use which is universally considered of value to the community because it fundamentally serves the public good and promotes the general welfare. Such a use includes, but is not limited to, a hospital, school, child care center, group home, or a wind, solar or photovoltaic energy facility or structure.

‘Wind, solar or photovoltaic energy facility or structure’ means a facility or structure for the purpose of supplying electrical energy produced from wind, solar, or photovoltaic technologies, whether such facility or structure is a principal use, a part of the principal use, or an accessory use or structure.”

Due to the Township’s physical characteristics, solar energy is likely to be the most widely used form of renewable energy for the foreseeable future. Roof mounted solar panels, when mounted parallel to the roof, are the most desirable type of alternative energy. With the exception of within historic districts, they provide the most unobtrusive form of renewable energy since they do not disturb the ground and are able to visually blend into the built environment. Where proposed in historic districts or on a historic building, solar panels should not be visible from the front of the building.

Where roof mounted panels are not possible, ground arrays can be considered in appropriate areas of the Township. While they provide the same benefit of renewable energy, they do present potential drawbacks of being visually obtrusive and being located on land which could otherwise serve as productive farmland and/or wildlife habitat. Ground arrays are best located on lands that are not prime farmland and those that do not serve as important wildlife habitat. To further mitigate this circumstance, ground arrays should be installed such that some agriculture can continue beneath them, such as, but not limited to, grazing land for sheep, and/or the land can function as a natural meadow that can serve as wildlife habitat. This will require that the panels be installed at a height sufficient to allow vegetation to grow beneath.

One of current impediments to the expansion of large scale solar facilities in certain locations, including Marlboro Township, is the lack of electrical lines that are of sufficient size to carry excess electricity for distribution into the grid. An upgrade of utility lines is needed in order to remedy this occurrence and can be accomplished on a case by case basis.

Energy conservation is critical in the discussion of reducing dependence on **fossil fuels** as well as reducing building operating costs and supporting **sustainability** principles. It is recognized that the Township is constrained in its ability to rely upon passive solar strategies due to its developed character. However, new construction and redevelopment should utilize passive solar strategies to the extent possible. Passive solar design refers to the use of the sun's energy for the heating and cooling of living spaces; it does not involve mechanical or electrical equipment. Building design examples of this include roof overhangs to provide shade in the summer and window glazings to maximize solar heat gain in winter and minimize it in summer. Another aspect of passive solar design, and one which is ripe for land use ordinance regulation, is building orientation to maximize solar heat gain in winter and minimize it in the summer. For a development to make best use of its solar resources, the homes should all be aligned with their long axis facing south and with no obstructions for their solar collectors. It may also require creative placement of roadways. To maximize this principle, blocks should be oriented within plus or minus 15 degrees of geographical east/west, and the east/west lengths of those blocks are at least as long, or longer, as the north/south lengths of the block. Additionally, buildings should be designed and oriented such that the longer axis is within 15 degrees of geographical east/west axis. If designed from the start to be energy efficient, the structure should be oriented with the long axis to the south and with most of the windows on that side. Thick, fully insulated walls and roofs (allowing for solar panel installation) along with efficient heating and cooling systems (such as geothermal) and energy smart appliances and lighting complete the picture. The source and nature of building materials and the waste stream from construction must also be factored into the building's lifetime energy demand.

Older homes may not be aligned to take advantage of the sunlight, or may not have rooflines with the long axis facing south. In addition, the windows tend to be equally distributed on all four sides. To help address these issues, this homeowner in Lawrence put solar panels on an outbuilding that had the right solar orientation and replaced the oil-fired boiler with an open loop geothermal system. Rainwater collection, blown-in insulation, new energy efficient windows and high-efficiency appliances also helped to green this home.

When preparing planting and site plans, designers should be cognizant of the need for solar access for existing or future nearby solar arrays. Solar access is defined as availability of or access to) unobstructed, direct sunlight. The placement of new trees and buildings should be sensitive to the solar access needs of an existing array and should consider the solar access needs of any likely locations for future arrays. Deciduous trees are desired as they provide shade in the summer to reduce the need for cooling and allow access to sun in the winter when they lose their leaves.

Wind Energy Systems

Wind energy systems are another sustainable **renewable energy** option. The system usually takes the form of wind turbines with associated mechanical equipment to turn the kinetic energy of the blade rotation into electrical energy.

Elements of the MLUL were revised in 2009 relating to wind energy systems. 40:55D-66.12 (Municipal ordinances relative to small wind energy systems) sets forth that “(o)rdinances adopted by municipalities to regulate the installation and operation of small wind energy systems shall not unreasonably limit such installations or unreasonably hinder the performance of such installations.” In addition, as mentioned previously, wind facilities are considered to be inherently beneficial uses as per the MLUL.

Notwithstanding the above, some of the common land use issues for wind turbine uses include height, aesthetics and structural integrity. Wind turbine height is a common provision in the regulation of these structures. For example, federal regulations exist for wind turbine heights within 10 miles of an airport.

Height also ties into the aesthetics issue. Adverse aesthetic impacts can occur when the turbines are sited within or adjacent to scenic or historic areas and significantly alter the viewshed.

With regard to structural considerations, it is important that the design and location of wind turbines be such that they do not pose a risk of collapsing or throwing a blade. Some of the concerns relating to these issues can be mitigated by locating the wind turbine at a minimum safe distance from other structures and/or providing a conservative minimum strength rating requirement in their design.

While no wind energy systems currently exist within the Township, this technology may be appropriate in certain situations where impacts to the viewshed are limited and sufficient area exists on-site to construct the turbine and provide sufficient buffer for safety considerations due to the remote risk of structural failure.

Geothermal Energy Systems

Geothermal energy systems utilize the heat energy and stable temperatures found underground to provide heating and cooling for buildings. Geothermal systems have an advantage over solar and wind systems in that the sunlight and wind fluctuate significantly while the Earth’s temperature remains stable and available for energy production 24 hours a day. In addition, the standard carrier medium for obtaining energy through geothermal systems is recirculated water, which is inexpensive and readily available in Marlboro Township.

The Marlboro Township Municipal Utilities Authority and some single-family homes within the Township use geothermal energy systems. Utilization of these systems is encouraged, as it reduces demand on existing utility infrastructure and it is a renewable energy resource.

Goals and Objectives for Renewable Energy Resources and Infrastructure

The Goals and Objectives for Renewable Energy Resources and Infrastructure are included below.

- A. Encourage sustainable and energy efficient infrastructure and energy systems for all infrastructure needs.
- B. Encourage the implementation and use of sustainable alternative energy infrastructure where compatible with adjacent land uses, including but not limited to solar, geothermal, wind and biodiesel energy systems to satisfy the energy needs of the Township and its residents.
- C. Periodically update the Township's Ordinance to reflect new regulatory requirements for **sustainability** and alternative energy.
- D. Encourage public and private actions that will conserve the Township's nonrenewable energy resources.

VIII. WATER CONSERVATION AND REUSE

Water conservation is an important aspect of sustainable development, as potable water resources become scarcer each year as usage increases and pollutants taint resources. These factors combine to restrict water use for human consumption and/or require treatment prior to consumption.

Water resources primarily exist and surface and subsurface waters. Surface waterbodies are classified into watersheds. The USEPA defines a watershed as a geographic area in which all sources of water, including lakes, rivers, estuaries, wetlands, and streams, as well as ground water, drain to a common surface water body. The high points in the terrain, such as hills and ridges, define the boundaries of a watershed. Subsurface waters are organized into an aquifer classification system.

Large watersheds are made up of a succession of smaller ones, and smaller ones are made up of the smallest area – the catchment area of a local site. The land drains to the body of water for which each sub watershed is named. Each watershed corresponds to a hydrological unit code, or HUC, as delineated by the United States Geological Survey (USGS). A HUC-11 watershed (identified by an 11-digit code) contains a number of HUC-14 sub watersheds (identified by a 14-digit code). The State of New Jersey has 152 HUC-11 watersheds and over 900 HUC-14 sub watersheds.

The Township of Marlboro contains four (4) watersheds. The four watersheds are the Raritan / Sandy Hook Bay tributaries, Raritan River Lower, Navesink River / Lower Shrewsbury River and Matchaponix Brook. Marlboro Township is located within two Watershed Management Areas (WMA) which are the Lower Raritan, South River, and Lawrence WMA (WMA 9) in the western portion of the Township and the Monmouth WMA (WMA 12) in the eastern portion of the township. The Matchaponix Brook and the Raritan River Lower both lie within WMA 9 and the Raritan / Sandy Hook Bay tributaries and Navesink River / Lower Shrewsbury River are in WMA 12.

The aquifer system underlying the Township includes the Englishtown, Old Bridge, and Farrington aquifers. Water conservation techniques are important in reducing the drawdown of these aquifer systems so that they will continue to provide potable water to the region.

Surface Water Quality

Wetlands and riparian areas are of particular importance to water quality. Wetlands are areas where water occurs at the soil surface for long enough periods to establish a certain biological and ecological community. These areas are known for their ability to filter pollutants and thereby improve water quality. Riparian areas are the

land adjacent to surface waters that act as a buffer. When these areas contain vegetation, especially native and adaptive tall grasses, shrubs, and woods, this buffer acts to protect the surface waters from **non-point source pollution** (contaminants carried via stormwater runoff). Both wetlands and riparian areas are regulated by the NJDEP. In order to develop a sustainable plan for water resources, the Township must understand the importance of these areas and the impacts from their development. While groundwater is not nearly as visible as streams and lakes, it is still heavily impacted by the land use and development at the earth's surface. Interestingly, groundwater makes up approximately 30.1% of the earth's total freshwater, while surface waters, including streams and lakes, make up only 0.3% (the remaining is held in icecaps and glaciers).

Atmospheric moisture, surface waters, and groundwater are all interconnected. The impervious coverage caused by land development blocks water from infiltrating into the soil and recharging groundwater. As a result, when storms occur, more runoff enters the streams, causing increased flooding, and less water goes into the soil to recharge groundwater. In addition, during drought conditions, there is less groundwater (because of decreased recharge), causing a shortage in the availability of drinking water from wells and a shortage of groundwater flow into streams and lakes.

The shortage of groundwater flow into surface waters (base flow) during low-flow conditions causes water quality to degrade, as a larger and larger percentage of the surface water is polluted water from point and nonpoint sources. For these reasons, the Township should seek to reduce impervious cover. One of the largest sources of impervious cover in the Township is parking areas. It is recommended that the Land Use Ordinance be evaluated for opportunities to reduce the required parking standards, as well as to create incentives to reduce impervious cover in existing and proposed developments. Additionally, porous pavement should be used when appropriate to increase water infiltration. Raised curbs along roads and parking areas should be revised to flush curbs, which allows water to run off into grass and landscaped areas also increasing water infiltration. However, an assessment of impacts to adjacent properties should be performed prior to implementation in order to ensure that no flooding issues would result from the flush curb system.

Water quality standards are established by Federal and State governments to ensure that water is suitable for its intended use. The federal Clean Water Act (P.L. 95-217) requires that wherever possible, water-quality standards provide water suitable for fish, shellfish, and wildlife to thrive and reproduce and for people to swim and boat.

All waterbodies in New Jersey are classified by NJDEP as either freshwater (FW), pinelands water (PL), saline estuarine water (SE), or saline coastal water (SC). Freshwater that originates and is wholly within Federal or State parks, forests, or fish and wildlife lands (FW1) and all other freshwater (FW2). The water quality for each of these groups must be able to support designated uses that are assigned to each waterbody classification (see Surface Water Quality Standards N.J.A.C. 7:9B-1.12). In addition to being classified as FW1 and FW2, fresh waterbodies are classified as trout producing (TP), trout maintaining (TM) or nontrout waters (NT). Each of these classifications may also be subject to different water quality standards.

According to NJDEP rules, FW2 (both trout maintaining and non-trout maintaining) waters must provide for (1) the maintenance, migration, and propagation of the natural and established biota; (2) primary and secondary contact recreation (i.e., swimming and fishing); (3) industrial and agricultural water supply; (4) public potable water supply after conventional filtration and disinfection; and (5) any other reasonable uses.

The determination of whether or not water quality is sufficient to meet a waterbody's designated use(s) is based on whether or not the waterbody is within established limits for certain surface water quality parameters. Some examples of surface water quality parameters include fecal coliform, dissolved oxygen, pH, phosphorous, and toxic substances. NJDEP also evaluates water quality by examining the health of aquatic life in stream.

Waterways can also be designated Category One (C-1), because of exceptional ecological significance, exceptional water supply significance, exceptional recreational significance, exceptional shellfish resource significance or exceptional fisheries resource significance. Development adjacent to C-1 waterbodies generally requires a 300-foot buffer.

A C-1 designation indicates an extra level of protection for waterbodies that "provide drinking water, habitat for endangered and threatened species, and popular recreational and/or commercial species, such as trout or shellfish". Any exceptionally significant waterway can be designated C-1, whether that significance is ecological, recreational, or for drinking water quality. A C-1 waterway operates under more stringent stormwater regulations that emphasize groundwater recharge and also provide wider riparian buffers of 300 feet from the top of the bank on each side. These riparian buffers are required to remain in their natural state and the clearing or cutting of trees or brush is prohibited. The use of fertilizers, pesticides, or other chemicals is also prohibited within the buffer in order to protect water quality.

In addition to the stormwater buffer requirements of N.J.A.C. 7:8, a riparian buffer may be required pursuant to N.J.A.C. 7:13-4.1 of the Flood Hazard Control Act Rules. A riparian zone exists along every regulated waterbody with the exception of the Atlantic Ocean, man-made lagoons, stormwater basins, oceanfront barrier islands or peninsulas. A riparian zone buffer of 300 feet wide extending from the top of bank is required for designated C-1 waterways, and all upstream tributaries that are situated within the same HUC-14 watershed.

A 150-foot wide riparian zone buffer extending from the top of bank is required for those waters that are trout production waters, trout maintenance waters and all upstream waters within one (1) linear mile as measured along the length of the regulated water, any segment of water flowing through an area containing documented habitat for a threatened or endangered species that is dependent on the regulated water for survival, or segment flowing through areas containing acid producing soils. The riparian zone for all other waterways that are not mentioned above will contain a 50-foot wide long buffer extending from the top of bank and located on both sides of the waterway.

All the streams in Marlboro Township are non-trout maintaining freshwater streams. Big Brook, Willow Brook, and Yellow Brook are classified by NJDEP as C-1 waterways. The various streams located within the Township are depicted on **Figure 2, Floodplains Map**, within Section III, Natural Resources.

Water Supply

The Gordon's Corner Water Company and Marlboro Township Water Department provides water service to the Township. In addition, public water supply wells are located on Tennant Road and Harbor Road which includes the Township's water treatment facilities. Detailed information regarding water supply use regulation is set forth at section 356 (Water Use) of the Township's Ordinance.

Many private wells also exist in the Township. The quality of the water drawn from private wells varies according to the local hydrologic conditions and any historic contamination. For example, a well located in a pristine geologic area would provide water that would satisfy all applicable potable water testing criteria. In contrast, a well located next to a septic system that has not been properly maintained or an area contaminated by buried refuse may not provide water that would meet applicable water quality standards. If contamination is suspected, it is recommended that the property owner have their water tested. If contamination is found, property owners are encouraged to investigate the source of contamination and have the responsible party remove the source of the contamination to the extent feasible and implement appropriate **remediation** measures.

Wellhead Protection Areas

As part of its 1991 Wellhead Protection Program Plan, NJDEP has delineated Wellhead Protection Areas (WHPAs) around all community wells. A WHPA is the area from which a well draws its water within a specified time frame (tiers). Pollutants spilled directly on or near the wellhead will enter the water source within that time frame. Once delineated, these areas become a priority for efforts to prevent and clean up groundwater contamination. Other components of the Wellhead Protection Plan include implementing best management practices to protect groundwater, land use planning, and education to promote public awareness of groundwater resources.

Once WHPAs are delineated, potential pollution sources may be managed by landowners or municipalities in relation to tier locations. Protection of land and restriction on activities within wellhead zones relating to uses that generate contaminants, and to the storage, disposal, or handling of hazardous materials, are important for maintaining the quality of water within those zones.

According to available NJDEP data, two public water supply well exists within Marlboro Township. Each of these wells has an associated wellhead protection area. Uses that are commonly associated with groundwater contamination, such as dry cleaners, heavy industrial uses, gas stations and any use that has associated outdoor storage that involved any harmful chemicals, should not be located within wellhead protection areas.

Stormwater Management

One of the ways in which to maximize water conservation and efficiency is to utilize sustainable stormwater management practices. The techniques include, but are not limited to, the following:

- Direct roof gutters to a cistern that stores stormwater for use in irrigating landscaping;
- Design the stormwater management system to recharge 100 percent of the stormwater that falls onto the site.
- Utilization of bioretention basins, porous pavement, infiltration trenches, and vegetated swales, as appropriate.

Other water conservation techniques include:

- Installation of landscaping that is drought tolerant, and therefore, does not need to be watered as often.
- Installation of fixtures and equipment that is efficient and operates with reduced water consumption (e.g., low-water usage toilets, shower heads, etc.).
- Educating homeowner in the benefits and proper installation, use and maintenance of water conserving equipment.

In order to mitigate the impacts of development and impervious cover, innovative stormwater management techniques can be used to treat and infiltrate runoff and mimic the natural hydrology. As mentioned previously, some examples of these types of best management practices (“BMPs”) include bioretention basins, porous pavement, infiltration trenches, and vegetated swales. The Township should encourage the use of these types of facilities that treat runoff, reduce runoff volume, and recharge groundwater. Unfortunately, the majority of the Township has been developed without the benefit of these types of BMPs. Many of the developments in the Township use traditional detention basins, which don’t allow for any infiltration during most storm events. Other developments do not have any stormwater management BMPs. In order to improve stormwater management and reduce **non-point source pollution** in these areas, residents and business owners should be encouraged to use smaller on-site BMPs, such as rain gardens (small bioretention basins), dry wells, porous pavers, rain barrels, smaller lawn areas, native vegetation, and disconnecting downspouts that are tied in directly to the storm sewers. If these types of on-site BMPs are used by many people in the community, they can become an effective tool to improving the water quality in the Township’s watersheds.

When humans consume water, the source may be many miles away and the energy required to treat and convey the water can be significant. In addition, the withdrawals from the surface waters and groundwater bypass the natural hydrology through hard piping. The water that is consumed then becomes wastewater which is then treated and later discharged further downstream. This bypass of the natural hydrology is, in part, a cause for the impairment of the local watersheds. In order to provide a sustainable water supply and healthier watersheds, it is important to incorporate water conservation strategies that will reduce consumption and keep water local to the community. Some examples of these types of strategies are infrastructure improvements, leak detection surveys, high-efficiency appliances, rain barrels, cisterns and low-maintenance native and adaptive landscaping that requires less irrigation.

Sustainable landscaping practices provide a number of benefits. Plants which are native or adapted to this region are geared toward the local climate and soil conditions. As such, they typically require fewer or no pesticides and fertilizers, which have a positive impact on water quality since the runoff will contain less or none of these inputs, and they are typically compatible with area precipitation rates and therefore require less irrigation, which has a positive impact on water quantity. While they may be well adapted to the region, invasive plant species should be avoided. Invasive plant species are defined as introduced species that can thrive in areas outside of their range of natural dispersal and are commonly adaptable, aggressive and have a high reproductive capacity. Invasive plant species can cause a loss of habitat as they replace native plants and landscapes which are relied upon by wildlife. They can also cause significant maintenance problems when they spread to unintended areas.

Sustainable landscaping practices also address watering methods. Property owners can reduce water use by installing drip irrigation rather than sprinklers and installing rain sensors to ensure that plants and lawn areas are not watered when it is unnecessary. An additional consideration of sustainable landscaping is the reduction of lawn areas. Lawn areas do not provide good water infiltration and in fact, they can only absorb about a tenth the rainfall as a forested area. Replacement of lawn areas with forest, meadow or naturalistic plantings can also lead to fewer fertilizer and pesticide inputs, therefore positively impacting water quality.

Goals and Objectives for Water Conservation and Reuse

Implementing sustainable water resource practices will provide reliably clean water to the current residents of Marlboro Township without compromising the ability of future generations to meet their own needs. The conservation of water quantity and the preservation and enhancement of water quality is a priority within the community. The goals for sustainable water resource practices must balance growth and redevelopment with conservation of resources. The Goals and Objectives for water conservation and reuse are included below.

- A. To enforce that water resources are of critical importance to the Township, additional consideration needs to be given to land use development techniques to protect water quality, reduce unnecessary water usage and preserve natural resources throughout the entire Township.
- B. Promote the protection of groundwater resources by encouraging the **remediation** of contaminated sites and by prohibiting land uses that pose a relatively high risk of contaminating groundwater from locating within well head protection areas.
- C. Promote adequate drainage and flood control through the codification of required stormwater management ordinances and by encouraging the use of best management practices when designing and implementing stormwater management systems.
- D. Encourage the construction of storm drainage systems that will minimize the hazards of flooding and erosion.

IX. WASTE REDUCTION AND RECYCLING

Waste reduction and recycling is an importance aspect of **sustainability** in two ways. The reuse of materials through recycling reduces the amount of raw materials that need to be extracted from the Earth, which reduces adverse impacts to the environment. In addition, the reduction of waste, either through efficiency or through recycling, reduces the amount of waste that goes to landfills and subsequently has the potential to contaminate groundwater and air resources.

The recycling of waste and used materials has become a required and commonly accepted practice within the State of New Jersey. The MLUL was amended to provide for a recycling plan element within municipal master plans. The State of New Jersey passed a voluntary recycling act in 1981, and the passage of the New Jersey Statewide Mandatory Source Separation and Recycling Act of 1987 (the "Act") mandated the creation of a municipal recycling program and the adoption of a recycling ordinance.

The Act required all New Jersey counties to establish recycling plans and all municipalities to provide a collection system for recycling. The Act was further amended by the NJ Recycling Enhancement Act (P.L. 2007, Chapter 311; effective date Jan. 13, 2008).

As per N.J.S.A. 40:55D-28b(12), a Master Plan may include a recycling plan element which incorporates the State Recycling Plan goals, including provisions for the collection, disposition and recycling of recyclable materials designated in the municipal recycling ordinance, and for the collection, disposition and recycling of recyclable materials within any development proposal for the construction of 50 or more units of single-family residential housing or 25 or more units of multi-family residential housing and any commercial or industrial development proposal for the utilization of 1,000 square feet or more of land.

Marlboro Township provides recycling pick-ups on a bi-weekly schedule. Pick up days vary by zone. The Solid Water/Recycling Bureau is responsible for the development, management and administration of the contract for collection of bulk solid waste and recycling.

The Marlboro Township Recycling Center, located at the Marlboro Municipal Complex on Lotta Burke Way accepts the following materials:

- Papers- Newspaper/ print, telephone books and magazines, books, mixed paper, and office paper
- Cardboard
- Commingled Recyclables- Aluminum, tin bimetal cans, glass (blown, green or clear), plastic containers (milk, water, soda and detergent)
- Plant material- Christmas trees, leaves, brush and tree parts
- Clothing

Residents may also bring non-construction, household bulk items to the Township Recycling Center which is free of charge. However, a permit is required to insure that only Township residents use the facility. Acceptable bulk materials include:

- Household Items- all appliances, furniture, TV's, carpeting and padding
- Car Parts- wheel hubs and rims, tires, tire rims
- Empty propane tanks
- Metals- white goods, scrap metal
- Untreated lumber

The most up to date rules on Township recycling can be found in the Township's Recycling Calendar or on the Recycling Center website: www.Marboro-NJ.gov/dpw_recy_center.html

The Township also provides for leaf, grass, and yard waste collection on a seasonal basis. In general, the Township conducts a leaf and brush collection in the Spring (March, April and May). Leaf collection is also done in the Fall (October, November, and December) during specified time periods during those months. Brush collection is also done in Winter (January and February) and Summer (June, July, and September).

Hazardous waste is collected, by appointment, at the Monmouth County Permanent Household Hazardous Waste Facility which is located at 3211 Shafto Road in Tinton Falls. The maximum amount of material allowed per visit is 200 pounds of dry material or 20 gallons of liquid (no container larger than 5 gallons) The following materials are accepted by the facility, each must be in marked containers with original labels:

- Pesticides and herbicides
- Solvents and thinners
- Corrosives and cleaners
- Anti-freeze
- Liquid paints and varnishes
- Aerosol cans
- Fertilizers
- Used motor oil
- Old gasoline
- Automobile batteries
- Mercury thermostat switches

The Township of Marlboro has incorporated recycling requirements into its ordinances, and has regularly re-viewed, amended and updated those requirements in accordance with local, county and state recycling objectives.

Since public education is key to increasing recycling rates, the Township should provide a public education campaign informing the residents and business owners of the Monmouth County Improvement Program (MCIA) program as well as available recycling programs throughout the region in order to increase recycling rates and decrease garbage collection costs. The public education campaign can involve newspaper articles, the Township website, the schools and working with community groups. The Township may also wish to partner with nearby municipalities on recycling programs in order to save on administrative costs and to expand the reach of the program.

To further reduce solid waste, the Township should consider how sale and exchange of used goods can be accommodated while maintaining character of an area. These sales or exchanges, such as yard sales, flea markets and organized salvages, are a valuable way to reduce solid waste and provide an outlet for local recycling and reuse efforts.

Additionally, the Township should review the Land Use Ordinance to ensure that all commercial and multi-family developments provide adequate recycling space. Recycling should be as simple as possible. The Township may also wish to consider ways to reduce construction and demolition waste. According to the National Association of Home Builders, an estimated 8000 pounds of waste is created from the construction of a 2000 square foot home. Construction and demolition waste is a particularly high contributor, in a municipality such as Lawrence where much of new development will be in the form of redevelopment. This could be done through an incentive program and/or mandatory requirements.

Additionally, the Township should consider best practices in waste reduction. The following practices provide a few of the strategies that are being employed by municipal operations throughout the United States:

- Placing recycling containers conveniently next to every garbage;
- Clearly labeling what materials may be recycled so that all possible materials are diverted;
- Set double-sided as the default preference for all printers and copiers within the municipal building and other municipal agencies;
- Refurbish printer toner cartridges rather than purchasing new cartridges;
- Promote the use of electronic documents rather than paper documents;
- Remove the municipality and municipal employees from junk-mail lists;
- Select products from suppliers and manufacturers that use minimal packaging;

- Purchase products made of post-consumer recycled paper;
- Re-use packing material whenever possible; and,
- Create boxes for single sided prints. When enough single sided prints are compiled, create notepads.

A substantial amount of municipal solid waste is derived from food scraps. Nearly two thirds of the solid waste stream is comprised of organic materials such as yard trimmings, food scraps, wood waste and paper/paperboard products. A municipality can limit the amount of organic waste generated by implementing a multi-faceted composting policy. For years now the Township has operated a compost facility that composts yard waste and is available to Township residents. The Township can increase its composting rates through a public education campaign to educate residents and business owners about the benefits of composting, how composting works, and best practices on integrating composting into the home or business. Township residents and business owners should be encouraged to compost their own yard waste and food scraps to reduce their own waste generation, reduce pressure on the compost facility and increase the **sustainability** of their home or business. Residents and business should also be encouraged to leave grass clippings on the lawn when they mow since not only does it cut down on waste (it is to be thrown away) and work (no need to move to the garbage or compose), but they provide a natural fertilizer for the lawn. However, it must be noted that not all organic materials can be composted and composting may be challenging on very small lots.

Goals and Objectives for Waste Reduction and Recycling

Reducing waste and increasing recycling, which go hand in hand, are a primary component of **sustainability**. Recycling limits waste of potentially useful materials, reduces consumption of raw materials, cuts energy use, reduces air pollution (from incineration), reduces water pollution (from landfills) and often lowers **greenhouse gas** emissions — all as compared to the production of virgin materials. Composting is also an important beneficial component of waste reduction strategies but, which is considered distinct from organized recycling programs.

- Increase materials reuse and recycling awareness through a public education campaign that utilizes the Township's website, flyers available at Township facilities and other means, as appropriate.
- Expand recycling services as new materials recycling technologies and services become available.
- Provide services that promote efficiency and create a system that is user friendly.
- Encourage materials reuse for both public and private sector projects.
- Encourage existing commercial and industrial uses to recycle and/or reuse as many materials as is feasible, and reduce their overall waste stream.

- Encourage the development of “green” industries that incorporate recycling into the production process.
- Discourage littering and illegal dumping through public awareness of the adverse impacts and through active monitoring and enforcement of the law to the extent feasible.
- Investigate the feasibility of partnering with adjacent municipalities and/or Monmouth County on recycling programs in order to save on administrative costs and to expand the reach of the program.
- It is recommended that the Township consider how sale and exchange of used goods can be accommodated while maintaining character of the area.
- Additionally, the Township should review the Land Use Ordinance to ensure that all commercial and multi-family developments provide adequate recycling space.
- Consider implementing a multi-faceted composting policy and try to increase composting through a public education campaign to educate residents and business owners about the benefits of composting, how composting works, and best practices on integrating composting into the home or business.

In addition, the State of New Jersey Bureau of Recycling and Planning sets forth the following goals:

1. Increase demand for recyclable materials and recycled products
2. Increase the supply of high quality secondary materials;
3. Maximize the overall efficiency of the recycling infrastructure; and
4. Further recycling-related job development in the collection, processing and manufacturing sectors.

X. SUSTAINABLE ECONOMIC DEVELOPMENT

Sustainable initiatives must not only be sustainable from an environmental and social perspective, they must also be sustainable from an economic perspective. Economic, environmental and social aspects of **sustainability** must be kept in balance in order to provide a holistic approach that not only conserves natural resources but improves the quality of life for residents, business owners and visitors. Therefore, in order to balance sustainable initiatives for environmental and social purposes, the sustainable economic development goals and objectives of this **Sustainability** Plan are included below.

Goals and Objectives for Sustainable Economic Development

The sustainable economic development objective identified to both support and balance the other goals and objectives in this Plan are presented below.

- A. Promote continued growth and development of the Township's economic base.
- B. Plan for continued economic viability by strengthening the tax base through the encouragement of continued private investment and tax producing uses, which are consistent with community needs, desires, and existing development.
- C. Encourage future commercial businesses and economic opportunities in appropriate locations and easily accessible areas
- D. Ensure that transportation, business and economic development retain a healthy relationship with the residential character of the Township.
- E. Promote existing farmland as both an economically beneficial use and an attractive amenity ("agri-tourism").
- F. Continue to work closely with the Economic Development Committee (EDC) to identify specific types of businesses & develop specific strategies to attract commerce.
- G. Coordinate with the Greater Monmouth Chamber of Commerce, business programs at local colleges, and the NJ Small Business Development Center.
- H. To continue to promote commercial development in appropriate areas of the Township, while establishing standards for commercial site design.
- I. To encourage a diversity of appropriate commercial uses within existing commercial zones.

XI. PUBLIC AWARENESS AND EDUCATION

Educating the public and providing opportunities for public involvement in sustainable projects and programs is a key ingredient to the success of the project or program. In addition, the holistic nature of **sustainability** reserves a key role for the public in that, with regard to conservation of resources and the environment, the key players are residents, business owners and government. Looking deeper into this aspect, the business owners and government officials are also residents of either Marlboro or another municipality. As ecosystems and economic systems transcend political boundaries, the residents, business owners and government officials comprise the public as a whole. Therefore public education and outreach are of paramount importance in building support for sustainable initiatives and in instilling the best practices of **sustainability** into these individuals as good habits that people will practice and pass on to future generations.

Each aspect of this **Sustainability** Plan (e.g., water conservation, renewable energy, etc.) represents an opportunity for outreach and education. Goals and objectives for public outreach and education are set forth within the section below.

Goals and Objectives for Public Awareness and Education

The goals and objectives for public education and outreach are presented below.

- A. Educate residents about the importance of **sustainability**, conservation of natural resources, historic preservation, sustainable economic development and other aspects of **sustainability** through available media, such as the Township's website, information kiosks, informational placards at Township parks and buildings, and similar means.
- B. Utilize public processes, such as Master Plan and Ordinance preparation and adoption, as an opportunity to increase public involvement and for education through holding well advertised meeting and reserving ample time for public input.
- C. Continue to educate the public through "Sustainable Jersey," the US Green Building Council, and partnering with other "green" organizations in the area, which provide educational programs.
- D. Support the works of the Environmental Commission, the "Green Team" and the Historic Commission established through participation in "Sustainable Jersey."
- E. Educate the public and private sector about alternative energy choices and encourage their use.
- F. To develop a program to enhance the availability and dissemination of information related to mass transportation and other alternative modes of transportation in order to increase the use of these alternative modes.

XII. RELATIONSHIP TO OTHER PLANS

This Green Building and **Sustainability** Plan Element is consistent with the Master Plans of the municipalities in Monmouth and Middlesex Counties that are adjacent to the Marlboro Township. Additionally, this Plan is consistent with the Monmouth County Master Plan, Middlesex County Master Plan and the New Jersey State Development and Redevelopment Plan.

XIII. GLOSSARY

Adaptive Reuse: The process of adapting old structures for purposes other than those initially intended. An example of adaptive reuse could include transforming an old warehouse or factory into apartments or lofts.

Biofuel: A fuel derived directly from living matter.

Biomass: A biological material from living, or recently living organisms, most often referring to plants or plant-derived materials. As a renewable energy source, biomass can be converted to **biofuel**.

Brownfield: Sites that are abandoned, idled, or under-used industrial and commercial facilities where expansion or redevelopment is complicated by real or perceived environmental contamination.

Bus Rapid Transit (BRT): An enhanced bus system that operates on bus lanes or other transit ways in order to combine the flexibility of buses with the efficiency of rail. BRT operates at faster speeds, provides greater service reliability and increased customer convenience than traditional bus service. It also utilizes a combination of advanced technologies, infrastructure and operational investments that provide significantly better service than traditional bus service.

Carbon Footprint: A measure of the impact our activities have on the environment, and on climate change. It relates to the amount of **greenhouse gases** produced in our day-to-day lives through burning **fossil fuels** for electricity, heating and transportation etc.

Complete Streets: Those streets that are designed and operated to enable safe access for all users, including children, seniors and those with physical disabilities.

Context Sensitive Design: Roadway design that is in harmony with the community and preserves the environmental, scenic, aesthetic, historic, and natural resource values of an area.

Daylighting: Illumination of indoor spaces by natural light using various techniques, such as windows, openings and reflective surfaces.

Environmental Footprint A measure of human demand on the Earth's ecosystems, it compares human demand with planet Earth's ecological capacity to regenerate. It represents the amount of biologically productive land and sea area needed to regenerate the resources a human population consumes and to absorb and render harmless the corresponding waste. Using this assessment, it is possible to estimate how much of the Earth (or how many planet Earths) it would take to support humanity if everybody lived a given lifestyle. For 2005, humanity's total ecological footprint was estimated at 1.3 planet Earths - in other words, humanity uses ecological services 1.3 times as fast as Earth can renew them.

Environmentally Preferable Purchasing (EPP): Program initiated by former President Bill Clinton in September 1998, with Executive Order (EO)13101, entitled "Greening the Government through Waste Prevention, Recycling and Federal Acquisition." The program encourages the purchase of products or services that "have a lesser or reduced effect on human health and the environment when compared with competing products or services that serve the same purpose. This comparison may consider raw materials acquisition, production, manufacturing, packaging, distribution, reuse, operation, maintenance or disposal of the product or service."

Form Based Code: Form-based codes foster predictable built results and a high-quality public realm by using physical form (rather than separation of uses) as the organizing principle for the code. They are ordinances, adopted into law. Form-based codes address the relationship between building facades and the public realm, the form and mass of buildings in relation to one another, and the scale and types of streets and blocks.

Fossil Fuels: Fuels formed by natural resources such as anaerobic decomposition of buried dead organisms. Fossil fuels range from volatile materials with low carbon-hydrogen ratios like methane, to liquid petroleum, to nonvolatile materials composed of almost pure carbon, like anthracite coal. Fossil fuels are non-renewable (see definition below) resources because they take millions of years to form, and reserves are being depleted much faster than new ones are being formed.

Geothermal Power: Power extracted from heat stored in the earth. The Earth's geothermal resources are theoretically more than adequate to supply humanity's energy needs, but only a very small fraction of it may be profitably exploited.

Green Business: A business that manufactures and/or sells organic and eco-friendly products or provides services which are earth friendly and promote **sustainability**. Successful green businesses not only benefit the environment, but also use green business practices as means to market their products.

Green Design: A general term implying a direction of improvement in design, i.e., continual improvement towards a whole and healthy integration of human activities with natural systems.

Green Goods and Services: Organic and eco-friendly products and services, typically manufactured and sold or offered by a green business.

Greenfield: Any parcel of land that has not had any previous type of development on site. Greenfield sites are almost always found in suburban or rural areas. Parcels of land include but are not limited to undeveloped farmlands and woodlands.

Greenhouse Gas: Gases in the atmosphere that absorb and emit radiation within the thermal infrared range. The main greenhouse gases in the Earth's atmosphere are water vapor, carbon dioxide, methane, nitrous oxide, and ozone.

High Performance Design: Design that realizes high efficiency and reduced impact in the building structure, operations, and site activities; Focuses on technical efficiency; May limit embracing the larger natural system benefits.

Hydrologic: Pertaining to the scientific study of the properties, distribution, and effects of water on the earth's surface, in the soil and underlying rocks, and in the atmosphere.

Hydrologic Modification: Alteration of a stream flow by human activities.

Hydromodification: Alteration of the hydrologic characteristics of waters, which in turn could cause degradation of water resources, including any alteration to a stream or river, whether a diversion, channel, dam, or levee.

Indicators: Provide direction for further investigation and progress towards achieving goals; they do not provide the solutions themselves. Examples include: average vehicle miles traveled by residents of the community; average energy use of all government facilities in the community; voter turnout at primary election, etc.

LEED: The Leadership in Energy and Environmental Design (LEED) Green Building Rating System was developed by the U.S. Green Building Council, a non-profit trade organization that promotes **sustainability** in building design and construction. LEED-certified buildings use resources more efficiently when compared to conventional buildings that are simply built to code.

LEED Accredited Professional (LEEDAP): A professional accreditation indicating professional excellence and a strong depth of knowledge and a practical understanding of the LEED Rating Systems.

Non-Point Source Pollution (NPS): Generally results from land runoff, precipitation, atmospheric deposition, drainage, seepage or **hydrologic modification**. Any source of water pollution that does not meet the legal definition of "point source" in section 502(14) of the Clean Water Act (see definition of Point Source Pollution, below). Non-point sources can include, but are not limited to: excess fertilizers, herbicides and insecticides from agricultural lands and residential areas; oil, grease and toxic chemicals from urban runoff and energy production; sediment from improperly managed construction sites, crop and forest lands, and eroding streambanks; salt from de-icing and irrigation practices and acid drainage from abandoned mines; bacteria and nutrients from livestock, pet wastes and faulty septic systems; and atmospheric deposition and **hydromodification**.

Non-Renewable Resource: A natural resource that cannot be produced, re-grown, regenerated, or reused on a scale which can sustain its consumption rate.

Point Source Pollution: Any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged. Does not include agricultural storm water discharges and return flows from irrigated agriculture.

Raw Materials Regeneration: The process of restoring, renewing or revitalizing sources of energy and materials, creating sustainable systems that integrate the needs of society with the integrity of nature.

Regenerative Design: A design approach, in which an ecosystem restores, renews, or revitalizes its own sources of energy and materials, creating a sustainable system that integrates the needs of society with the integrity of nature. Based on a closed loop input-output model in which the output is greater than or equal to the input with all outputs viable and all inputs accounted for. The model is meant to be applied to many different aspects of human habitation such as urban environments, buildings, economics, industry and social systems.

Remediation: Removal of pollution or contaminants from environmental media such as soil, groundwater, sediment, or surface water for the general protection of human health and the environment or from a **brownfield** site intended for redevelopment.

Renewable Resource: Those replaced by natural processes at a rate comparable or faster than its rate of consumption by humans. May also include commodities such as wood, paper, and leather, if harvesting is performed in a sustainable manner.

Restoration: Renewing a degraded, damaged, or destroyed ecosystem through active human intervention.

Restorative Design: A design approach that uses the activities of design and building to restore the capability of local natural systems to a healthy state of self organization.

Solar Power: The capture of energy from sunlight. The energy can be in two forms: heat or electricity. Heat from the sun can be captured to heat water or air; photovoltaics (PV) generate electricity directly from solar rays. Power gained from PV can reduce or eliminate the need for purchased electricity (usually electricity gained from burning fossil fuels) or, if energy gained from PV exceeds the home's requirements, the extra electricity can be sold back to the owner's supplier of energy, typically for credit.

Street Connectivity: The degree to which a system of streets contains multiple routes and connections serving the same origins and destinations.

Sustainability: The capability to equitably meet the vital human needs of the present without compromising the ability of future generations to meet their own needs by preserving and protecting the area's ecosystems and natural resources. The concept of sustainability describes a condition in which human use of natural resources, required for the continuation of life, is in balance with Nature's ability to replenish them.

Sustainable Design: See "Green Design" with an emphasis on reaching a point of being able to sustain the health of the planet's organisms and systems over time.

Targets: quantitative measures that identify what a community needs to do to achieve sustainability. Targets identify if a community is generally moving in the right direction and how far it still has to go to achieve sustainability.

Triple Bottom Line (TBL): A method of accounting that attempts to describe the social and environmental impact of an organization's activities, in a measurable way, to its economic performance in order to show improvement or to make evaluation more in-depth.

Volatile Organic Compound (VOC): These compounds are emitted as gases from certain solids or liquids. Concentrations of many VOCs are consistently higher indoors (up to ten times higher) than outdoors. VOCs are emitted by a wide array of products numbering in the thousands. Examples include: paints and lacquers, paint strippers, cleaning supplies, pesticides, building materials and furnishings, office equipment such as copiers and printers, correction fluids and carbonless copy paper, graphics and craft materials including glues and adhesives, permanent markers, and photographic solutions. VOCs include a variety of chemicals, some of which may have short- and long-term adverse health effects or may cause harm to the environment.

Whole System Integration Process: A process that seeks to optimize (make the best use of) the relationships among key systems and entities in the service of desired objectives. Typically requires that the smallest unit of design be the largest manageable watershed within which a project resides.

Wind Power: The conversion of wind energy into a useful form of energy, such as using wind turbines to make electricity, wind mills for mechanical power, or wind pumps for pumping water or drainage.

XIV. RESOURCE LIST

The list of websites and articles below has been provided for the Township of Marlboro as a resource for implementing suggested strategies and action plans. The list covers in detail all of the topics discussed in the plan, and many provide links to online and print resources. The websites are categorized by subject, which are listed in alphabetical order.

Adaptive Re-use

Design Cost Data

http://www.dcd.com/insights/insights_janfeb_2008.html

New Jersey Department of Environmental Protection

www.nj.gov/dep/opsc/dpcs/Adaptive_Reuse.pdf

Air Quality in New Jersey

New Jersey Bureau of Air Quality Planning

<http://www.nj.gov/dep/baqp/>

New Jersey Department of Environmental Protection Air Quality Education

<http://www.nj.gov/dep/seeds/airqed/index.htm>

Anti-Idling

Environmental Defense Fund

http://www.edf.org/documents/9236_Idling_Nowhere_2009.pdf

Hinkle Charitable Foundation

<http://www.thehcf.org/antiidlingprimer.html>

Community Gardening

American Community Gardening Association

<http://communitygarden.org/learn/>

Municipal Research and Services Center of Washington

<http://www.mrsc.org/Subjects/Parks/comgarden.aspx>

Serve.gov

<http://www.serve.gov/toolkits/comm-gardens/index.asp>

Energy Auditing

Energy Star

http://www.energystar.gov/index.cfm?c=home_improvement.hm_improvement_audits

NJSSI Green Future Roadmap: Energy Audit Tool

http://www.njssi.org/uploaded_documents/EnergyAudit1-25-08.pdf

Energy Planning

American Council for an Energy-Efficient Economy

<http://www.aceee.org/consumerguide/>

Clean Energy Solutions (CES) – NJ Economic Development Association

www.njeda.com/ces

Combined Heat and Power (CHP) Program

www.njcleanenergy.com

Home Energy Audits – US Department of Energy

http://www.energysavers.gov/your_home/energy_audits/index.cfm/mytopic=11160

Local Government Energy Audit – New Jersey Clean Energy Program

<http://www.njcleanenergy.com/commercial-industrial/programs/local-government-energy-audit/local-government-energy-audit>

New Jersey Clean Power Choice Program

www.njcleanpower.com

New Jersey Clean Energy Program

www.njcep.com

U.S. Department of Energy, Energy Efficiency and Renewable Energy

www.energysavers.gov

Environmental Protection Agency (EPA) Resources

Building Reuse and Adaptive Reuse

http://www.state.nj.us/dep/opsc/docs/Adaptive_Reuse.pdf

Composting

<http://www.epa.gov/wastes/conserves/rrr/composting/index.htm>

Green Communities Program

www.epa.gov/greenkit/index.htm

Landowner Incentive Program

www.njfishandwildlife.com/ensp/lip_prog.htm

Mid-Atlantic Green Landscaping

<http://www.epa.gov/reg3esd1/garden/>

Mid-Atlantic Water: Stormwater

<http://www.epa.gov/reg3wapd/stormwater/>

National Idle Reduction Campaign

<http://epa.gov/cleanschoolbus/antiidling.htm>

Office of Planning & Sustainable Communities

<http://www.nj.gov/dep/opsc/sustcomm.html>

Site Remediation Program

www.nj.gov/dep/srp

Green Affordable Housing

Green Affordable Housing Coalition

<http://frontierassoc.net/greenaffordablehousing/>

New Jersey Green Homes Office

<http://www.state.nj.us/dca/hmfa/gho/about/>

New Jersey Housing and Mortgage Finance Agency

<http://www.nj.gov/dca/hmfa/>

Green Buildings

American Institute of Architects

www.aia.org

American Lung Association Health House

www.healthhouse.org

Build It Green
www.builditgreen.org

Earthcraft House Guidelines
www.southface.org

Energy Star
www.energystar.gov

Environments for Living
www.eflhome.com

GreenHomes Northeast
www.ghne.org/index.html

Home Performance with Energy Star
www.njcleanenergy.com

LIHTC Qualified Allocation Plan
www.nj.gov/dca/hmfa/gho/dprograms/lowincome

National Association of Home Builders (NAAHB)
www.nahb.org

New Jersey Chapter of the U.S. Green Building Council
www.usgbcnj.org

New Jersey Comfort Partners
www.njcleanenergy.com

New Jersey SmartStart Buildings Program
www.njcleanenergy.com

ReGreen
www.regreenprogram.org

Rutgers Center for Green Building
www.greenbuildingrutgers.us

Special Housing Needs Trust Fund (SHNTF)
www.nj.gov/dca/hmfa/gho/dprograms/specialneeds

U.S. Green Building Council
www.usgbc.org

Weatherization Assistance Program (WAP)
www.state.nj.us/dca/divisions/dhcr/offices/wap/html

Green Building Example Ordinances and Incentive Programs

Building Green in Cleveland, OH
<http://www.greencitybluelake.org/images/building/greencode05-17-02.pdf>

Environmental Assessment Ordinance Language
http://www.nj.gov/dep/opsc/docs/env_assessment_ord_language.pdf

LEED Initiatives in Government and Schools
www.usgbc.org/showfile.aspx?DocumentID=691

The King County/Seattle Built Green™ Incentive
www.builtgreen.net/incentive.html

LEED Certification for City Funded Construction – Salt Lake City, UT
<http://www.usgbc.org/ShowFile.aspx?DocumentID=2266>

Smart Communities Network
www.smartcommunities.ncat.org/buildings

Smart Communities Network (Green Development Codes/Ordinances)
www.smartcommunities.ncat.org/greendev/codes.shtml

Solar Access Ordinance – Boulder, CO
<http://ci.boulder.co.us/files/PDS/codes/solrshad.pdf>

Sustainable Building Standards Ordinance – Cranford, NJ
<http://twp.millburn.nj.us/View-document/12-NRI-Appendix-2>

Green Product Standards and Certification Programs

WaterSense
<http://www.epa.gov/watersense/>

Cradle to Cradle Design Certification
<http://www.c2ccertified.com/>

GREENGUARD
<http://www.greenguard.org/>

Green Seal
<http://www.greenseal.org/>

GreenSpec Directory
<http://www.buildinggreen.com/menus/>

Forest Stewardship Council (FSC)
<http://fscus.org/>

Sustainable Forestry Initiative (SFI)
<http://www.sfiprogram.org/>

Green Purchasing

NJSSI Green Future Roadmap, Green Purchasing Tool
http://www.njssi.org/uploaded_documents/GreenPurchasing2-28-08.pdf

Seattle Office of Sustainability and Environment
<http://www.seattle.gov/environment/purchasing.htm>

Sustainability Purchasing Network
<http://www.buysmartbc.com/resources.html>

Incentive, Rebate, Grant and Loan Programs for Renewable Energy

CORE Renewable Energy Rebate Program
www.njcleanenergy.com

Edison Innovation Clean Energy Manufacturing Fund – Grants and Loans
http://www.njeda.com/web/Aspx_pg/Templates/Npic_Text.aspx?Doc_Id=885&menuid=1287&topid=718&levelid=6&midid=1175

Energy Star Homes Program
<http://www.njcleanenergy.com/residential/programs/nj-energy-star-homes/nj-energy-star-homes>

Energy Star Product Rebates
<http://www.njcleanenergy.com/residential/programs/energy-star-productrebates/new-jersey-energy-star-product-rebates>

Home Performance with Energy Star Program
<http://www.njcleanenergy.com/residential/programs/home-performance-energystar/home-performance-energy-star-r>

NJ Board of Public Utilities – Solar Renewable Energy Certificates (SRECs)
<http://www.njcep.com/srec>

New Jersey Clean Energy Solutions Capital Investment Loan/ Grant Programs
<http://www.njeda.com/CESCI>

New Jersey Comfort Partners Program
<http://www.njcleanenergy.com/residential/programs/comfort-partners/comfortpartners>

NJ CoolAdvantage and WarmAdvantage Programs
www.njcleanenergy.com

New Jersey Customer – Sited Renewable Energy Rebates
<http://www.njcleanenergy.com/renewable-energy/programs/renewable-energyincentive-program>

NJ Property Tax Exemption for Renewable Energy Systems
http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=NJ25F&state=NJ¤tPageID=1&RE=1&EE=0
New Jersey SmartStart Buildings
<http://www.njsmartstartbuildings.com/>

Pay for Performance Program
<http://www.njcleanenergy.com/commercial-industrial/programs/pay-performance>

PSE&G Solar Loan Program
<http://www.pseg.com/customer/solar/index.jsp>

Solar Energy Sales Tax Exemption
<http://www.bpu.state.nj.us>

WARMAvantage Program
http://www.njcleanenergy.com/html/1residential/2_warm_advantage.html

Green Roofs

Green Roofs for Healthy Cities
<http://www.greenroofs.org/>

Native Green Roofs
<http://www.wildflower.org/greenroof/>

The Green Roof Industry Resource Portal
<http://www.greenroofs.com/>

United States Environmental Protection Agency
<http://www.epa.gov/heatisland/mitigation/greenroofs.htm>

Urban Design Tools, Low Impact Development
http://www.lid-stormwater.net/greenroofs_home.htm

Landscaping

Brooklyn Botanical Gardens, Easy Lawn Resources
www.bbg.org/gar2/topics/sustainable/handbooks/lawns/index.html

NJDEP, "Creating Sustainable Communities, A Guide for Developers and Communities"
www.state.nj.us/dep/opsc/docs/Sustainable_Landscape.pdf

Garden for Wildlife, National Wildlife Federation
www.nwf.org/gardenforwildlife

Guidelines for Developing and Evaluating Tree Ordinances
<http://www.smartcommunities.ncat.org/landuse/lucodtoc.shtml>

Sustainable Landscaping
http://www.uri.edu/ce/healthylandscapes/index_landscaping.html

Street Trees, Shrubs and Plants Management; Carpinteria, CA (1994)
<http://www.smartcommunities.ncat.org/codes/sttrees.shtml>

Local & Sustainable Food

American Community Gardening Association
<http://www.communitygarden.org/>

Jersey Fresh – Urban Farmers Markets
<http://www.state.nj.us/jerseyfresh/searches/urban.htm>

New Jersey Agri-Tourism
<http://www.state.nj.us/jerseyfresh/agritourismhome.htm>

Sustainable Table
<http://www.sustainabletable.org/home.php>

Open & Green Space

Greenway District Ordinance; Jackson County, OR (1989)
http://www.co.jackson.or.us/Files/Chapter_255.pdf

New Jersey Green Acres Program
<http://www.nj.gov/dep/greenacres/>

Open Space Is a Good Investment – Association of New Jersey Environmental Commissions
<http://www.greatswamp.org/Education/anjec.htm>

Save Our Open Space – Environment New Jersey
<http://www.environmentnewjersey.org/open-space/save-our-open-space>

Rehabilitation

National Park Service Checklist for Rehabilitating Historic Buildings
<http://www.nps.gov/history/hps/tps/cheklist.htm>

Responsible Waste

The Freecycle Network
<http://www.freecycle.org/>

Lead Hazard Control Assistance Fund
www.leadsafenj.org

Pay-As-You-Throw Programs – Rhode Island
<http://www.dem.ri.gov/programs/bpoladm/stratpp/payt/payt.htm>

Solar Access Protection

Title 9 Land Use Regulations: Chapter 8 Solar Access; Boulder, CO (1991)
<http://www.smartcommunities.ncat.org/codes/chapter8.shtml>

Solar Energy Ordinance; Port Arthur, TX (1979)
<http://www.smartcommunities.ncat.org/codes/portatx.shtml>

Solar Access: Summary of Ordinance; Boulder, CO (1991)
<http://www.smartcommunities.ncat.org/codes/boldera1.shtml>

Solar Access Regulations; Boulder, CO (1991)
<http://www.smartcommunities.ncat.org/codes/boldera2.shtml>

Solar Access, Thermal Performance and Solar Heating; Solders Grove, WI (1980)
<http://www.smartcommunities.ncat.org/codes/soldiers.shtml>

Solar Codes and Ordinances; New Pattonsberg, MO (1996)
<http://www.smartcommunities.ncat.org/codes/solar.shtml>

Solar Orientation and Site Design

California Energy Commission: Consumer Energy Center
<http://www.consumerenergycenter.org/home/construction/solardesign/orientation.html>

Build It Solar
<http://www.builditsolar.com/References/SunChartRS.htm>

Olgyay, Victor. *Design with Climate*, Princeton University Press, Princeton, NJ, 1963.

Thompson, William and Kim Sorvig. *Sustainable Landscape Construction: A Guide to Green Building Outdoors*, Island Press, Washington, DC, 2000.

U.S. Department of Energy Efficiency and Renewable Energy
http://www1.eere.energy.gov/buildings/residential/site_design.html

Whole Building Design Guide
<http://www.wbdg.org/resources/psheating.php>

Woking Borough Council, Climate Neutral Development: A Good Practice Guide
http://www.woking.gov.uk/council/planning/publications/climateneutral2/sitelayoutand_buildingdesign.pdf

Smart Growth

American Planning Association, The Growing Smart Legislative Guidebook
<http://www.planning.org/growingsmart/>

Density Bonus Program – Austin, TX
http://www.ci.austin.tx.us/downtown/downloads/db_1_density_bonus_recs.pdf

Downtown Housing – Ann Arbor, MI
http://www.a2dda.org/partnering_with_our_community/downtown_housing/

Municipal Land Use Center
www.tcnj.edu/mluc

New Jersey League of Municipalities
www.njslom.com

New Jersey Redevelopment Authority Financing
www.njra.us

New Jersey Smart Growth Gateway
www.smartgrowthgateway.org

Smart Communities Network
www.smartcommunities.ncat.org

Smart Growth Online
<http://www.smartgrowth.org/>

Sustainable Curriculums for Schools

Build Green Schools
<http://www.buildgreenschools.org/>

Sustainability Planning

Enterprise Green Communities
<http://www.greencommunitiesonline.org/>

Facing the Future: Sustainability and Global Issues Educational Resources
<http://www.facingthefuture.org/>

Local Government Commission
www.lgc.org

New Ecology, Inc.
<http://www.newecology.org/>

New Jersey Future
www.njfuture.org

New Jersey Sustainable State Institute (NJSSI)
www.njssi.org

Sustainable Jersey
www.sustainablejersey.com

Sustainable Communities Network
www.sustainable.org

The Sustainability Institute
www.sustainer.org

Union of Concerned Scientists
www.ucsusa.org

Transportation

Association of Pedestrian and Bicycle Professionals
<http://www.apbp.org/>

Benefit-Cost Analysis of Building Bicycle Facilities
<http://www.bicyclinginfo.org/bikecost/>

Center for Transit Oriented Development
<http://www.reconnectingamerica.org/public/tod>

Complete Streets
<http://www.completestreets.org/>

Downtown Streetscape Project – Cary, NC
<http://www.carystreetscape.org/>

National Center for Safe Routes to School
<http://www.saferoutesinfo.org/>

Online TDM Encyclopedia
<http://www.vtpi.org/tdm/tdm39.htm>

Traffic Calming – Federal Highway Administration
<http://www.fhwa.dot.gov/environment/tcalm/>

Vanpool Incentive Program (VIP) – PACE Bus
<http://www.pacebus.com/sub/vanpool/default.asp>

Walkinginfo.org: Pedestrian and Bicycle Information Center
www.walkinginfo.org

Voter Outreach

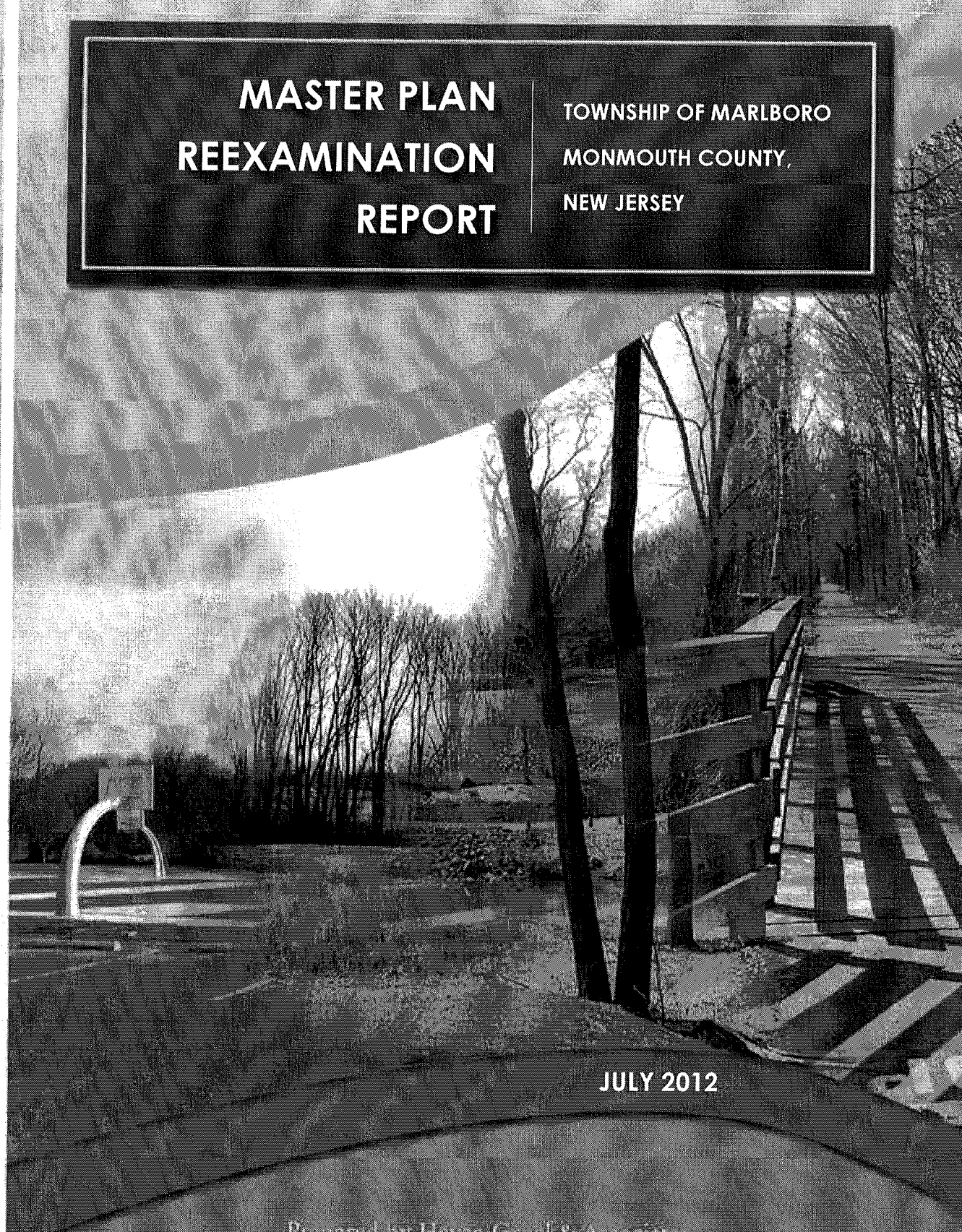
New Voters Program, NJPIRG Student Chapter
<http://www.njpirgstudents.org>

Tides Foundation
www.tiesfoundation.org/voteraction

APPENDICES

APPENDIX A

2012 REEXAMINATION REPORT



**MASTER PLAN
REEXAMINATION
REPORT**

**TOWNSHIP OF MARLBORO
MONMOUTH COUNTY,
NEW JERSEY**

JULY 2012

Prepared by Heyer, Grull & Associates

MARLBORO TOWNSHIP MASTER PLAN REEXAMINATION REPORT

Marlboro Township
Monmouth County, New Jersey

Prepared by

Heyer, Gruel & Associates
Community Planning Consultants
236 Broad Street
Red Bank, New Jersey 07701
732-741-2900

The original of this report was signed and
Sealed in accordance with N.J.S.A. 45:14A-12.



Susan S. Gruel, P.P. #1955



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I. INTRODUCTION

This report constitutes a Master Plan Reexamination Report for the Township of Marlboro as defined by the New Jersey Municipal Land Use Law (N.J.S.A.40:55D-89). The purpose of the Reexamination Report is to review and evaluate the local Master Plan and Development Regulations on a periodic basis in order to determine the need for update and revisions. The Township last adopted a Reexamination Report in March, 2008.

Section III of this report identifies the goals and objectives established in the 1997 Master Plan and the 2008 Master Plan Reexamination Report. Sections IV and V describe what changes have occurred in the Township, the County and the State since the adoption of the 2008 Master Plan Reexamination Report. Finally, Sections I and III discuss recommended actions to be addressed by the Township in the future.

According to the Planning Board resolution adopting the 2008 Reexamination Report, the Board voted to approve the Reexamination Report of 2003 without endorsing the recommendations detailed in the 2003 Report. In 2003, a draft Master Plan Reexamination Report was prepared and the draft report was filed with the County Planning Board with a public hearing notice of November 5, 2003. There is no record, however, that the Planning Board took any action to adopt the 2003 Report.

It is important to note that the Township adopted a Vision Plan in July 2010 as an element of the Township Master Plan. This Plan establishes a comprehensive long term Township wide strategic vision that reinforces the continued implementation of smart Growth principles.

II. PERIODIC REEXAMINATION

The New Jersey Municipal Land Use Law (NJSA 40:55D-89) requires that the Reexamination Report contain the following:

- A. The major problems and objectives relating to land development in the municipality at the time of the adoption of the last reexamination report.
- B. The extent to which such problems and objectives have been reduced or have increased subsequent to such date.
- C. The extent to which there have been significant changes in assumptions, policies and objectives forming the basis for the master plan or development regulations as last revised, with particular regard to the density and distribution of population and land uses, housing conditions, circulation, conservation of natural resources, energy conservation, collection, disposition, and recycling of designated recyclable materials, and changes in State, county and municipal policies and objectives.
- D. The specific changes recommended for the master plan or development regulations, if any, including underlying objectives, policies and standards, or whether a new plan or regulations should be prepared.
- E. The recommendations of the planning board concerning the incorporation of redevelopment plans adopted pursuant to the "Local Redevelopment and Housing Law," P.L.1992, c. 79 (C.40A:12A-1 et seq.) into the land use plan element of the municipal master plan, and recommended changes, if any, in the local development regulations necessary to effectuate the redevelopment plans of the municipality.

III. THE MAJOR PROBLEMS AND OBJECTIVES RELATING TO LAND DEVELOPMENT IN THE TOWNSHIP OF MARLBORO AT THE TIME OF THE ADOPTION OF THE LAST REEXAMINATION REPORT.

The 2008 Reexamination Report relied upon the major goals and objectives detailed in the 1997 Master Plan. The 2002 Master Plan Amendment did not identify revised goals and objectives but instead also identified the 1997 goals.

The major objectives identified in the 1997 Master Plan, listed in order of relative importance were:

- Determine the viability for additional aged-restricted housing in the Township. If viable, potential locations should be investigated.
- Consider alternative uses/zoning for Marlboro Airport and adjacent lands should it cease operation.
- Retain and augment the low density policy in the east and west central portions of the Township consistent with the State Development and Redevelopment Plan Planning Area 5 designation.
- Establish criteria and standards and appropriate locations for corporate headquarters facilities.
- Provide for the Township's fair share of low and moderate income housing and improve the existing housing stock through rehabilitation as set forth in the Housing Element and Fair Share Plan adopted in March, 1995. The use of Regional Contribution Agreements should be maximized. Once the Housing Plan Element is certified by COAH it should be incorporated into the Master Plan.
- Develop a list of recommended uses and proposed standards for Marlboro Hospital lands including campus-style corporate headquarters, higher education facilities, low density residential uses and a golf course. Because of the environmental sensitivity of this area high density residential and commercial uses are to be discouraged.
- Review zoning criteria and permitted uses for Marlboro Village area.

- Develop a Recreation and Open Space Plan that provides recreation facilities for Township residents of all ages consistent with projected population growth and proposals of the Recreation Commission.
- Work closely with the Historic Commission to develop a Historic Preservation Plan.
- Endorse development of a storm water management master plan.
- Encourage controlled and properly designed commercial and industrial development in areas so designed on the Master Plan. The extension of sewers should be encouraged to the LI Zone on Vanderburg Road and the CIR Zone along Route 79.
- Establish a conservation Plan that will protect environmentally sensitive areas of the Township including wetlands, floodplains and steep slopes.
- Propose local road improvements in order to alleviate specific problem areas.

IV. THE EXTENT TO WHICH SUCH PROBLEMS AND OBJECTIVES HAVE BEEN REDUCED OR HAVE INCREASED.

The Township has addressed many of the issues identified in the Reexamination Report.

Community Vision Plan

The Township adopted the Community Vision Plan as an element of the Township's Master Plan in July 2010. The purpose of the Community Vision Plan was to provide a framework for the coordination of key planning initiatives, to coordinate the Town's planning efforts with regional planning entities and State agencies, and to provide recommendations for enhancing existing connections and creating new connections. The Community Vision Plan provides a unified, long-term Township-wide strategic vision that reinforces the continued implementation of Smart Growth principles in the Township.

A key component of establishing the Community Vision was an extensive public outreach process. The outreach process included a series of well advertised public meetings where issues and opportunities were identified. A Vision Plan committee was also established that met periodically throughout the process and provided insight and general guidance.

The following issues were identified through the visioning process in order of importance:

- *Limit residential development:* There has been an increasing amount of residential development throughout the Township in the past. Therefore, the impacts of additional residential development in the Township were a major concern. In addition, the balanced provision of affordable housing while limiting residential development is critical.

- *Mixed-use village center:* The lack of an "identified center," with pedestrian-friendly mixed-uses including restaurants/shops was one of the key land use issues identified. A pedestrian friendly Village Center should be created to incorporate a mixture of residential and retail options along with distinctive restaurants, coffee shops, antique and specialty shops. This invigorated "Center" should be located in a centralized area of the Township, include mixed commercial/residential uses and be a walkable and attractive meeting/gathering area, with availability of public transportation. Historically, the "Village Center" was located in the area of the intersection of School Road and Route 79.

- *Economic/commercial:* Promoting, expanding, and diversifying the existing businesses and the overall economic development of Marlboro was a key issue. The Route 9 Corridor which stretches from Old Bridge, through Marlboro, into Manalapan, is a major commercial corridor for the Township and the existing development located along Route 9 generates an uncoordinated atmosphere, creates traffic congestion, lacks a variety of non-chain restaurants and requires better pedestrian connections. Providing economic development opportunities and businesses throughout the Township was also a key issue.

- *Circulation:* The Township faces a wide variety of circulation issues ranging from a lack of pedestrian-friendly sidewalks to a lack of commuter parking. All of the issues are primarily related to the functionality of the Township.
 - Traffic Congestion – Circulation in the Township primarily suffers from traffic congestion at major Township intersections was the main circulation issue. Specific "hot spots" of congestion identified during the public outreach process included Route 9, Route 79 and Route 520, Union Hill Road/Pleasant Valley Road, and Tennant Road.
 - Public Transit – The accessibility of available public transit locations, including the Matawan train station, as well as the expansion and rescheduling of the shuttle service to accommodate rail schedules was identified.
 - Parking availability – Insufficient commuter parking and park-and-ride lots, and the use of public transportation for commuting, shopping and other daily trips was a concern.

- Sidewalks – The lack of sidewalks especially on major routes and the need to create linkages for the benefit of pedestrians and bicyclists between existing residential developments, recreational facilities, community facilities, and commercial establishments was noted.
- *Parks and Recreation:* The existing parks in the Township could benefit from better linkages between parks, community facilities, schools, residential developments, and commercial areas. Other concerns include:
 - Due to the popularity of the sports programs, the recreational facilities within the Township are becoming overcrowded. In addition, the problem is worsened due to the increasingly year-round nature of organized sports programs.
 - Parking and maintenance associated with the Township's recreation facilities and playing fields have become difficult due to the heavy use and expense of maintaining these amenities.
 - Completion of the Henry Hudson Trail, improving accessibility to the trail and the provision of sufficient parking to access the trail are important in creating additional recreation opportunities.
- *Environmental Issues:* The main issue related to the preservation of natural resources and the environment is the regulation of land development in order to preserve wetlands, streams and stream buffers.
 - Overdevelopment has placed stress in the Township's natural resources which creates flooding and affects the overall quantity and quality of surface water.
 - The Township also plans to become more sustainable through adopting the principles of "green" development and to reduce the environmental impacts that buildings have on their surroundings.
- *Open Space/Farmland Preservation:* A major issue is the potential loss of a substantial amount of open space due to additional development. There is a need for continued preservation and expansion of open space and farmland, including large existing farms.

- *Historic Resources:* The Township contains several historic resources, including listings on the State/National Registers, dating between the 1700's to the early-mid 20th century, many concentrated in the existing Historic Village. Issues include conversion of buildings into businesses and apartments and the continued preservation of remaining historic buildings as well as a general lack of awareness by the public of the location of historic resources.

- *Education:* The public and private school systems in Marlboro offer excellent education programs and should continue to be promoted and maintained; however, the school systems face increasing demands from additional residential development. Some of the facility needs include separate programs or facilities for Special Needs children, the need for full day kindergarten and the introduction of a Pre-K component into the public school system.

- *Industrial Uses:* Light industrial uses within the Township, range from warehousing and distribution to a mix of indoor commercial and recreation activity uses within industrial buildings. Most of these industrial uses are located within the LI – Light Industrial Zone along Vanderburg Road. Issues include:
 - Concerns about the effects of recreation/commercial uses in close proximity to light industrial uses.
 - Potential conflicts including parking, loading, circulation, and timing created by varying parking standards within shared developments.
 - The overall safety of the children using these services.
 - There is also concern over the narrow turning radii for large scale trucks at the intersection of Vanderburg Road and Route 79. This is the main access to the industrial uses located along Vanderburg Road. Concerns included the traffic congestion and safety concerns created from truck traffic.

- *Emergency Services:* Generally, the types and amount of emergency services are adequate throughout Marlboro. The key difficulty is recruiting additional volunteers for the First Responders program and other emergency services, especially during the work day when most of Marlboro's residents have significant work commutes.

- *Utilities:* Presently, the capacities for both potable water and sanitary sewer are sufficient. The Township has been actively working with Monmouth County, the Western Monmouth Utility Authority, and the Bayshore Regional Sewer Authority in updating their sewer service areas.

Farmland Preservation

The Township Planning Board adopted a comprehensive Farmland Preservation Plan in August 2011. This Plan replaced the 2006 Township Farmland Preservation Plan and refined the Agricultural Preservation Project Areas and Target Farms for preservation programs. The Township worked closely with Monmouth County to coordinate farmland preservation efforts and leverage funding. Monmouth County adopted a County Farmland Preservation Plan in 2010 which reinforced the Township's farmland preservation policies.

There have been several farmland preservation purchases during the past several years. In September 2011, the State Agricultural Development Committee (SADC) approved a Planning Incentive grant to Marlboro Township for the purchase of a development easement on 14 acres of the Peppadew Farm. The cost share grant included funding participation from the State (SADC), Monmouth County and the Township.

The Township also conveyed a development easement to the County Agricultural Development Board for the McCarron Farm property (Block 155 Lot 13.03). The County Agricultural Board has purchased development easements on the 18 acre Eckel Farm property. The property is adjacent to the preserved Airport property and on the Township's Target Farms list. The purchase of Smith Farm will be funded with a grant from the County Open Space Fund and with State Green Acres funds.

Open Space/Recreation

The Township has been successfully receiving funding to acquire open space throughout the Township. The Township also maintains a one penny open space tax which allows the Township to qualify for planning incentive grant funding from the State Green Acres program. Last summer, the Township was awarded \$416,442 in Green Acres funding. Marlboro has over \$1.4 million in funds for open space preservation.

During the Fall of 2011, the Township purchased a 30 acre undeveloped parcel on Tennent Road for open space. The parcel is adjacent to the Morganville First Aid Squad, and existing open space.

The Township is also partnering with Monmouth County and the State to acquire open space in the Township. In November 2011 an agreement was reached with the State to cleanup and preserve the Marlboro State Hospital property as open space. The cleanup of the 411 acre property will be paid for by the State and is scheduled for completion in 2014.

In 2010, Monmouth County purchased the former airport property on Route 79. The site has become part of the County open space network and is adjacent to the Henry Hudson Trail.

A section of the Henry Hudson Trail between Texas Road in Matawan and Greenwood Road in Marlboro had been closed for almost two years due to the environmental cleanup of the Imperial Oil superfund site. The cleanup of the site is complete and that section of the Trail has been reopened.

Circulation

The Township is often characterized as a "bedroom community" or "commuter Town". A significant percentage of resident workers commute by automobile. The most common work destination is North Jersey followed by New York City. Public transportation is provided at the Matawan train station or by bus along Routes 9 and 79. There are four park and ride lots in the Township, mostly along US Route 9.

Monmouth County adopted a Route State 79 Transportation Study in 2007 which analyzed the existing land uses along the corridor and its impact on the transportation network. State Route 79 is a major north-south route traversing the Township. The study concluded that there were existing operational shortcomings. There were a number of recommendations in the Study that were also identified in the 2010 Vision Plan and are currently being implemented. These include:

- encouraging center based development strategies
- increasing connectivity of uses
- extending the sidewalk and bicycle network and increasing transit service and connection with the corridor.

One of the recommendations contained in the 2010 Vision Plan was the preparation of a Township wide Bike and Pedestrian Plan. The plan was completed in December 2009. The purpose of the Study was to increase the safety of pedestrian crossings to establish sidewalk continuity throughout the Township. The Plan assesses the functionality of existing facilities, identifies deficiencies and proposes actions to improve connectivity. It is being used to prioritize sidewalk construction and coordinate with road construction projects.

Infrastructure

Sewers

Marlboro Township is located within the sewer service areas of the Western Monmouth Utilities Authority (WMUA) and the Bayshore Regional Sewerage Authority (BRSA). The WMUA services the southern portion of the Township while the BRSA services the northern section. The Central portion of the Township is not located within any sewer service area. BRSA has a contractual agreement with the WMUA to service Marlboro.

Monmouth County is the designated Wastewater Management Planning Agency. The County has been preparing a comprehensive revision to the WMP in coordination with the NJDEP and the member municipalities including Marlboro. A public hearing was held in June 2011 on the draft Wastewater Management Plan. The draft Plan was subsequently adopted by the Monmouth County Board of Chosen Freeholders.

The Township considers defining the sewer service boundaries as a key growth management tool. As a general Township policy, parcels located in the LC and A/LC zones should not be serviced or located in the sewer service area. As the next step in the process, the County performed a build out analysis based upon existing zoning for each municipality.

Water

The majority of the Township is serviced with potable water. Approximately 60% of the Township is served by Marlboro Township Division of Water Utility and the remaining portion is serviced by Gordon's Corner Water Company.

The Township dissolved the Marlboro Utilities Authority in December 2009 and created the Division of Water Utility within the Township Department of Public Works. The Division assumed all the services previously operated by the Utility.

Affordable Housing

The Township adopted a Housing Element/Fair Share Plan on December 17, 2008 and filed a petition under protest with COAH for substantive certification. At that time, the Township had a fair share obligation of 1,673 units before exclusions. The Township subsequently adopted an amended Fair Share Plan in July 2010.

The Township affordable housing strategy in both Plans was to focus on existing disturbed sites with respect to affordable housing. Minimizing the use of "Greenfield" sites was reinforced through the visioning process as well as limiting the number of "new roofs" in the Township. The Township is currently involved in litigation regarding affordable housing.

Economic Development

The Economic Development Committee has been working with local businesses to stimulate local economic development. One initiative has been the "Shop Marlboro" campaign. Started in 2010, it is a public relations effort targeted to residents to shop at businesses in Marlboro. Discounts and other incentives are part of the program.

Sustainability

The Town established a "Green Team" which is composed of residents. The purpose of the Team is to identify actions that can be implemented so that the Township becomes a green sustainable community. In 2010, the Township attained Sustainable Jersey certification. The Township recently received a Sustainable NJ grant in order to implement the Village Center.

V. THE EXTENT TO WHICH THERE HAVE BEEN SIGNIFICANT CHANGES IN ASSUMPTIONS, POLICIES AND OBJECTIVES FORMING THE BASIS FOR THE MASTER PLAN OR DEVELOPMENT REGULATIONS AS LAST REVISED, WITH PARTICULAR REGARD TO THE DENSITY AND DISTRIBUTION OF POPULATION AND LAND USES, HOUSING CONDITIONS, CIRCULATION, CONSERVATION OF NATURAL RESOURCES, ENERGY CONSERVATION, COLLECTION, DISPOSITION, AND RECYCLING OF DESIGNATED RECYCLABLE MATERIALS, AND CHANGES IN STATE, COUNTY AND MUNICIPAL POLICIES AND OBJECTIVES.

Current, Historic and Projected Population Growth

The 2010 population of Marlboro Township was 40,191, which was an increase of 3,793 people from the 2000 population. The population trends experienced in Marlboro Township, Monmouth County and the State of New Jersey from 1930 through 2010 are shown below. Marlboro has experienced steady growth since 1940, with a noticeable increase of 10,414 people from 1980-1990, however the pace of growth has slowed in the last decade. Monmouth County and the State of New Jersey have both seen steady growth since the 1930's, with large population swells occurring during the sixties and seventies.

<i>Populations Trends, 1930 to 2010</i>									
Year	Marlboro Township			Monmouth County			New Jersey		
	Population	Change		Population	Change		Population	Change	
		Number	Percent		Number	Percent		Number	Percent
1930	NA	-	-	147,209	-	-	4,041,334	-	-
1940	5,015	-	-	161,238	14,209	9.7%	4,160,165	118,831	2.9%
1950	6,359	1,344	26.8%	225,327	64,089	39.7%	4,835,329	675,164	16.2%
1960	8,038	1,679	26.4%	334,401	109,074	48.4%	6,066,782	1,231,453	25.5%
1970	12,273	4,235	57.7%	461,849	127,448	38.1%	7,171,112	1,104,330	18.2%
1980	17,560	5,287	43.0%	503,173	41,324	8.9%	7,365,011	463,899	6.5%
1990	27,974	10,414	59.3%	553,124	49,951	9.9%	7,730,188	365,177	5.0%
2000	36,398	8,424	30.1%	615,331	62,207	11.2%	8,414,350	684,162	8.9%
2010	40,191	3,793	10.4%	630,380	15,049	2.4%	8,791,894	377,544	4.5%

Source: US Census 2010

Population and Household Composition

Census data indicates several noteworthy shifts in the age composition of Marlboro. Analysis of age group characteristics provides insight in the actual changes in population. The age composition of Marlboro has shifted since 2000, with the largest increases in the Township occurring in the 55 and over age cohorts, while under 5 and the 25-44 age cohorts saw decreases in population. These comparisons are helpful in determining impacts these changes may have on housing needs, as well as community facilities and services for the municipality. The median age of Marlboro residents in 2010 was 40.8 years.

Population	2000		2010		Change, 2000 to 2010	
	Number	Percent	Number	Percent	Number	Percent
Under 5	2,723	7.4%	2,034	5.1%	-689	-25.3%
5 to 14	6,509	17.8%	7,267	18.1%	758	11.6%
15 to 24	3,781	10.3%	4,798	11.9%	1,017	26.9%
25 to 34	3,450	9.4%	2,351	5.8%	-1,099	-31.9%
35 to 44	7,041	19.3%	6,108	15.2%	-933	-13.6%
45 to 54	6,384	17.5%	7,892	19.6%	1,508	23.6%
55 to 64	3,303	9%	5,197	12.9%	1,894	57.3%
65 and over	3,207	8.8%	4,544	11.3%	1,337	41.7%
Total	36,398	100%	40,191	100%	3,793	10.4%

Source: US Census

	2000		2010	
	Number	Percent	Number	Percent
Population	36,398	-	40,191	-
Race				
White	30,487	83.8%	31,587	78.6%
Black or African American	752	2.1%	841	2.1%
Asian	4,612	12.7%	6,939	17.3%
Hispanic or Latino (of any race)	1,051	2.9%	1,619	4.0%
Households				
Total Households	11,478	-	13,001	-
Married Couple Households	9,326	81.2%	10,121	77.8%
Female Householder, no husband present	646	5.6%	798	6.1%
Single-person Household	1,110	9.7%	1,560	12.0%
Income/Employment				
Median Household Income	\$101,322	-	\$130,802	-
Per Capita Income	\$38,635		\$51,168	
Population in Poverty	1,256	3.4%	595	1.5%

Source: US Census

Married couple made up 77.8% of households in 2010, while single female householders made up 6.1%. Approximately 12% of households consisted of persons living alone.

<i>Per Capita and Household Income 2010</i> <i>Marlboro Township, Monmouth County, New Jersey</i>		
	2010 Per Capita (\$)	2010 Median Household (\$)
Marlboro Township	\$51,168	\$130,802
Monmouth County	\$40,976	\$82,265
New Jersey	\$34,858	\$69,811

Source: US Census

The median household income for 2010 in Marlboro was \$130,802, almost \$50,000 more than the County and nearly double the State's median household income. Ninety percent of the households within the Township had a household income greater than \$35,000; almost 2/3 of the Township (64%) had incomes greater than \$100,000. Of the 40,191 persons in Marlboro in 2010, 595 or 1.5% lived in poverty. According to the New Jersey Department of Labor Workforce and Development, the unemployment rate in Marlboro was 3.6% in 2008.

Housing Characteristics

As shown in the table below, the total number of housing units in Marlboro increased from 11,895 units in 2000 to 13,436 units in 2010, an increase of 1,541 units (or about 13% - similar to the rate of population growth, which was 10.4%). In 2010, the vast majority of units (96.8%) were occupied, with an overwhelming amount of these units (95.4%) being owner-occupied. While the number of owner-occupied units increased slightly between 2000 and 2010, the percentage of owner occupied units in the Township decreased. The number of renter-occupied units increased from 386 units in 2000 (3.4% of occupied units) to 594 units (4.6% of occupied units) in 2010.

<i>Housing Characteristics</i> <i>Marlboro Township, 2000 and 2010</i>				
	2000		2010	
	Number	Percent	Number	Percent
Total Housing Units	11,895		13,436	
Occupied housing units	11,478	96.5%	13,001	96.8%
Owner occupied	11,092	96.6%	12,407	95.4%
Renter occupied	386	3.4%	594	4.6%
Vacant	418	3.5%	435	3.2%
Built between 1990 and 2000	3,852	32.4%		
Built between 2000 and 2010			2,167	16.1%

Source: US Census

In direct correlation with the significant growth the Township had experienced, the housing stock within Marlboro is relatively new. The highest percentage of structures (3,793 structures or 28.2%) were built between 1980-1989. Similarly, from 1990-1999, a steady rate of construction continued at 23.5% or 3,160 structures. The median age of the housing structures in Marlboro is 1987.

<i>Housing Data Marlboro Township</i>		
	Total	Percent
Total Housing Units	13,436	-
Total Occupied Housing Units	13,001	-
Tenure		
Owner occupied	11,092	95.4%
Renter occupied	386	4.6%
Year Structure Built		
Built 2005 to 2010	549	4.1%
Built 2000 to 2004	1,618	12.0%
Built 1990 to 1999	3,160	23.5%
Built 1980 to 1989	3,793	28.2%
Built 1970 to 1979	1,609	12.0%
Built 1960 to 1969	1,155	8.6%
Built 1950 to 1959	341	2.5%
Built 1940 to 1949	197	1.5%
Built 1939 or earlier	299	2.2%
Median year built	1987	

Source: US Census

Marlboro Township's housing stock includes a high percentage of single-family detached housing. In 2010, there were 10,843 one-family structures representing 85.2% of the housing stock. The second largest type was single-family attached with 9.2%. Multi-family housing (3 or more units) represented a total of 5.3% of the housing stock within the Town.

<i>Housing Type and Size Marlboro Township 2008-2009</i>		
Units in Structure	Total	Percent
Total	12,721*	
1, detached	10,843	85.2%
1, attached	1,175	9.2%
2	35	0.3%
3 or 4	83	0.7%
5 to 9	148	1.16%
10 to 19	336	2.6%
20 or more	0	0
Mobile home	101	0.8%
Boat, RV, van, etc.	0	0

Source: US Census

*Data collected from 2008-2009 American Community Survey, not 2010 decennial census.

Age Restricted Housing – “Sarlo” bill

This state legislation permits developers to convert age restricted units to non age restricted units as long as there is an affordable housing setaside. Under the law, for a developer to be eligible for conversion, they would have to setaside 20% of the units as affordable.

This has particular significance to Marlboro since there are age restricted approvals that may be subject to the law. In addition, a number of the rezoning requests by property owners were to rezone to age restricted housing.

Time of Decision

A May 2010 amendment to the Municipal Land Use Law permits developers as of May 2011 to file land development applications and, with limited exception, get the benefit of the zoning ordinances in effect at the time of filing. In effect, this amendment addresses the practice of some municipalities in amending the zoning after an applicant has filed an application, particularly on controversial applications. This law will protect developers from municipal zone changes.

Inherently Beneficial Uses- Wind, Solar, Photovoltaic Energy facilities

The Municipal Land Use Law was amended in 2009 to amend the definitions section to include wind, solar and photovoltaic energy facilities or structures as inherently beneficial uses. An inherently beneficial use is defined as one that is “universally considered of value to the community” and by its very nature “fundamentally serves the public good and promotes the general welfare”. A 2010 state law also excludes solar panels from the calculation of impervious coverage.

The Municipal Land Use Law was also amended in 2011 to permit as of right renewable energy facilities when the property is located in an industrial zone and at least 20 acres is in common ownership.

Permit Extension Act

In response to the economic recession, the State Legislature passed the Permit Extension Act in 2008. The Act tolled the expiration of all development approvals that were granted during the extension period. The Act was modified in January 2010 and extends some permits until June 30, 2013.

Affordable Housing/COAH

After the Appellate Division invalidated the third round growth share regulations in 2007, COAH proposed a "revised" set of third round regulations. Numerous appeals followed and in October 2010, the Appellate Division struck down portions of the regulations, invalidated the growth share methodology and directed COAH to develop new regulations. The NJ Supreme Court granted all petitions for certification in October 2010 and is set to hear the appeals.

In addition, in June 2011, the Governor issued a Reorganization Plan which eliminated the 12 member COAH effective August 29, 2011. The Plan consolidated and transferred all duties of COAH to the NJDCA Commissioner.

State Strategic Plan

The draft Final State Strategic Plan: New Jersey's State Development and Redevelopment Plan and the draft Infrastructure Needs Assessment was released for public comments and hearings in November 2011. The Plan is "to focus the State's policies and investments on vibrant regions by fostering targeted job growth, supporting effective regional planning and preserving the State's critical resources". A total of six public hearings have been scheduled throughout the State for February and early March.

VI. THE SPECIFIC CHANGES RECOMMENDED FOR THE MASTER PLAN OR DEVELOPMENT REGULATIONS, IF ANY, INCLUDING UNDERLYING OBJECTIVES, POLICIES AND STANDARDS, OR WHETHER A NEW PLAN OR REGULATIONS SHOULD BE PREPARED.

Goals and Objectives

Based upon the extensive public outreach and visioning process that occurred between 2008 and 2010, changes in underlying objectives and policies were identified. As a result, the following goals and objectives are recommended to replace the objectives identified in the 1997 Master Plan and carried forward in the 2002 Master Plan amendment, the 2003 draft Reexamination Report and the 2008 Reexamination Report.

Goals

- Promote a land use policy designed to create a "sense of place" in designated centers of activity, particularly in the Village Center.
- Balance development opportunities with the established pattern of development and existing infrastructure, where appropriate.
- Coordinate land use and transportation planning.
- Create pedestrian and bike connections within the Township between and among residential neighborhoods, community resources, commercial areas, and the Henry Hudson Trail.
- Create attractive gateways at entrances to identify the Township through upgraded land uses, streetscape improvements and signage.
- Simplify the Township land use regulations.
- Balance economic development with conservation/open space.
- Use infrastructure (sewer service areas/water service areas) as a growth management tool.
- Develop a comprehensive strategy for balanced development in the Township for affordable housing.

Objectives

Land Use

- Maintain, preserve, and enhance the existing established residential character of Marlboro.
- Avoid strip commercial development along Route 79 and other major streets.

- Prevent continued residential sprawl.
- Limit future residential growth.
- Encourage properly designed commercial and industrial development.
- Retain, and where appropriate, expand the low-density policy in the east, north and west central portions of the Township consistent with the sewer service areas.

Circulation

- Take necessary measures to mitigate the effects of increased regional traffic.
- Employ traffic calming measures to retain the character of the Township.
- Ensure that the needs of bicyclists and pedestrians are met.
- Provide wayfinding signage on major roads and at gateway locations to facilitate circulation and identify the route to key activity centers and destinations in the Township.
- Monitor the effects of continued development on Township roadways.
- Prepare a Township wide traffic study which should identify opportunities to implement context sensitive improvements.
- Maintain the character of Route 79 as a two lane roadway.

Community Facilities

- Maintain and enhance the existing high level of community facilities consistent with the character and development of the Township.
- Explore the possibility of creating a multipurpose community center.
- Coordinate with the Board of Education to jointly use schools as community centers wherever feasible.
- Continue to explore shared services opportunities.

Parks and Recreation

- Maintain and expand the Township's parks and recreation system to meet the recreation needs of Marlboro residents.
- Preserve and enhance existing park and recreation facilities.
- Support the completion of the "missing link" in the Henry Hudson Trail in order to create a continuous accessible trail.
- Identify locations for possible acquisition and/or development in order to address identified needs.
- Encourage the creation of pedestrian and bicycle trails for recreation purposes as well as well as to provide linkages throughout the Township including the Henry Hudson Trail.

- Continue to encourage the preservation of open space.
- Explore the need for additional active recreation facilities.
- Coordinate park and recreation plans with existing and planned Board of Education facilities.
- Protect the most viable farm properties from development.
- Investigate the use of Transfer of Development right for farmland preservation.
- Promote agri-tourism and farm markets.

Conservation

- Identify, protect and preserve environmentally sensitive natural features through sound planning and land use regulations.
- Encourage the use of conservation easements on environmentally sensitive lands in private ownership to protect future disturbance.
- Encourage the remediation of contaminated sites to enhance the local environment, protect residents and return vacant sites to productive use.
- Promote energy conservation programs at the residential and Township level through the use of efficient energy consuming devices.
- Promote and develop active and passive energy conservation approaches to reduce energy usage by the Township and new developments.
- Create Green Building Standards and a Green Development Ordinance.

Historic Preservation

- Encourage awareness and protection of Marlboro's cultural, social, and historic heritage.
- Respect the Marlboro Village Historic District when making land use policies and decisions.
- Recognize and preserve the historic character of the Township and continue to support the Historic Preservation Commission.
- Encourage historic programming to educate residents and visitors about the Township's history.

Economic

- Promote continued growth and development of the Township's economic base.
- Plan for continued economic viability by strengthening the tax base through the encouragement of continued private investment and tax producing uses, which are consistent with community needs, desires, and existing development.

- Encourage future commercial businesses and economic opportunities to locate along Route 9, within the proposed Village Center, along Route 34, and other identified areas on Route 79.
- Ensure that transportation, business and economic development retain a healthy relationship with the residential character of the Township.
- Redevelop the former Imperial Oil Supefund site.

Land Use/Zoning

There were a series of rezoning recommendations from property owners/developers that were detailed in the 2003 draft Reexamination Report and referenced in the 2008 Reexamination Report. There has also been a rezoning request since 2008. This request for Block 213 Lots 3 and 4 is located on Route 79 near the intersection of Route 520. There are no environmental constraints on the site and the area is located in the sewer service area. The area which is 4 acres in size is currently zoned OPT-2. The request is to rezone to C-2 which is consistent with the adjacent property at the intersection. It is recommended that this property be rezoned to C-2.

A rezoning request matrix (see Appendix A) has been prepared that lists relevant information for each parcel including:

- Block and lot
- Address
- Acreage
- Existing zoning
- Existing Land use
- Environmental constraints
- Sewer service area status
- Farmland status
- State Planning Area
- Development approvals
- Other relevant information
- Recommendations

An overarching Township policy is to limit residential development. The key growth management technique is to carefully define sewer service areas. As a general policy, parcels located in the LC and A/LC zones should not be serviced or located in the sewer service area. The primary focus of these zones is conservation, not development. These Township policies were used in

evaluating rezoning requests. In addition, the recent change in the State law with respect to the conversion of age restricted to non age restricted housing was considered as well as the factors detailed in the matrix.

Village Center

It is also recommended that the Township continue to implement the "Village Center" through rezoning and the creation of a form based code approach.

The creation of a pedestrian friendly mixed use Village Center which builds on the existing Marlboro Village was a key land use recommendation identified in the 2010 Township Vision Plan. The success of the Village Center will require the establishment of strong connections to the existing residential neighborhoods with emphasis on walkability, traffic calming and building on the current commuters in the Area.

The Township received a Sustainability grant to continue its efforts in creating a Village Center. It is recommended that the Township Land Development ordinance be amended in the future to incorporate the results of the Village Center efforts.

Additional Recommendations

- Continue to coordinate with County's Route 79 Corridor Plan.
- Collaborate with and seek funding through the County's Open Space Program and any other County, State affiliated programs.
- Promote existing farmland as both an economically beneficial use and an attractive amenity ("agri-tourism")
- Continue to support the Historic Preservation Commission.
- Create programs for better awareness of historic resources present in the Township and their importance to the community. Support school-based programs.
- Partner with the Board of Education both in terms of facility use and maintenance and long term planning.
- Continue to seek remediation of contaminated sites.
- Continue to support the Recreation Improvement Committee by identifying the need for a new facility, appropriate location, facilities inventory, & evaluation of condition of existing parks/facilities/fields.
- Complete the "missing link" of the Henry Hudson Trail and coordinate with the county and other participating municipalities to complete the entire network.

- Prepare and adopt a Sustainability Element as part of the Township Master Plan.
- Create and adopt Green Building Standards and a Green Development Ordinance.
- Continue to educate the public through "Sustainable Jersey" and partnering with other "green" organizations in the area, which provide educational programs.
- Support the works of the Environmental Commission and the "Green Team," established through participation in "Sustainable Jersey."
- Work with NJ Transit to identify underserved areas of the Township, so that bus routes could be adjusted accordingly.
- Partner with NJ Transit and the County to identify and develop a plan that provides shuttle services and expanded bus service.
- Conduct a comprehensive review of the Township's road network & identification of opportunities to implement contextually sensitive improvements.
- Coordinate with the County to implement Route 79 Plan improvements.
- Conduct a study for the need for additional park and ride or commuter lots and shared services with adjacent towns.
- Develop a parking strategy that balances employee, merchant, and commuter parking (shared services).
- Consider establishing a Parking Committee to develop and manage Town parking resources.
- Collaborate with the County in implementing their Regional Vision (Western Monmouth Development Plan) for expanding commuter parking.
- Continue to work closely with the Economic Development Committee (EDC) to identify specific types of businesses & develop specific strategies to attract commerce.
- Coordinate with the Greater Monmouth Chamber of Commerce, business programs at local colleges, and the NJ Small Business Development Center.

VII. THE RECOMMENDATIONS OF THE PLANNING BOARD CONCERNING THE INCORPORATION OF REDEVELOPMENT PLANS ADOPTED PURSUANT TO THE "LOCAL REDEVELOPMENT AND HOUSING LAW," P.L.1992, C. 79 (C.40A:12A-1 ET SEQ.) INTO THE LAND USE PLAN ELEMENT OF THE MUNICIPAL MASTER PLAN, AND RECOMMENDED CHANGES, IF ANY, IN THE LOCAL DEVELOPMENT REGULATIONS NECESSARY TO EFFECTUATE THE REDEVELOPMENT PLANS OF THE MUNICIPALITY.

There are currently three redevelopment areas in the Township: the Marlboro Hospital Redevelopment Area, Block 180 Lot 14 Redevelopment Area off Tennant Road and the Entron Redevelopment Area.

Both the Marlboro Hospital and Entron areas have adopted Redevelopment Plans. As previously noted, the Marlboro Hospital site is being purchased for preservation as open space which is consistent with the Redevelopment Plan. The Entron area has received development approvals consistent with the Redevelopment Plan. The remaining redevelopment area is municipally owned and has limited development potential due to environmental constraints and a deed restriction. The deed restriction limits uses to open space conservation and recreation purposes.

Requests for Age-Restricted Multi-Family Housing

Reexam Name*	Block	Lot	Address	Owner	Acreage	Existing Zoning	Land Use	% Env. Constrained	SSA In/Out	State Planning Area	Approvals/Other information	Rezoning
Entron	132	18	418 Route 79	Entron Industries Ltd. Prtn.	18	LI	Industrial	1	IN	PA2	Site Plan Approvals; Affordable Housing Site	NA
Airport				Monmouth County						NA	County Purchased for Open Space	
Meiterman	415	22	Route 79	Fieldcrest Holdings, LLC	34	C-5	Farm	18.8	IN	PA2		No
Meiterman	421	3	96 Buckley Road	Buckley, Lila Et als	31	R-80	Farm	0.0	IN	PA2		No
Meiterman	421	8	110 Buckley Road	Sulinski, Joseph & Dolores	12	R-80	Farm	11.7	IN	PA2 & 5		No
Casola	415	24	Route 79	Route 79 11.2, LLC	11.2	C-5	Farm	12.5	IN	PA2	Targeted farm	No
Casola	415	27	125 South Main St	Casola, Carmine Jr & C Jr & Danielle	19	C-5	Farm	16.3	IN	PA2	Targeted farm	No
K. Hovnanian	207	5	194 Route 79	Windridge Manor, L.L.C.	19.4	LC	Farm	51.5	O U T	PA2 & 5	Targeted farm	No
W.H.S.	171	33	Station Road	W H S Inc C/O Atlantic Realty	19.5	R-80	Farm	86	IN	PA2		No
Elon	299	33	475 Union Hill Rd	Elon Associates, LLC	11.6	R-20	Farm & Residence	23.0	IN	PA2		No
Byron Hill	355	6, 7, 11	19 South Main St	Buckdale Associates LLC	10.2	C-2	Vacant & Residential	9.3	IN	PA2 & 3	Currently in litigation; located in Village Center	No
Stillwell	172	33	142 Amboy Road	Stillwell Capital, LLC	32.5	LC	Vacant (Forested)	36.0	O U T	PA3		No
Fox	157	39.03	134 Conover Road	Fox, Jill	3.8	LC	Residential	76.8	O U T	PA5		No
C-1 District	213	41	62 North Main Street	Fontanes, Ricardo	5	C-1	Residential	100	IN	PA5	abuts Henry Hudson Trail	No
C-1 District	213	43	52 North Main Street	Giunco, John A. T/A Giunco Realty	14.3	C-1	Commercial (Warehousing)	12.2	IN	PA2 3 & 5	abuts Henry Hudson Trail	No
C-1 District	213	44.01	Route 79	Richter, Gerald N (Retirement Trust)	6	C-1	Farm (Vacant)	65.7	IN	PA2	abuts Henry Hudson Trail	No

Reexam Name*	Block	Lot	Address	Owner	Acreage	Existing Zoning	Land Use	% Env. Constrained	SSA In/Out	State Planning Area	Approvals/Other information	Rezoning
C-1 District	213.01	44	Route 79	Marlboro Development Gr C/O Bathgate	13.8	C-1	Vacant	23.7	IN	PA2	abuts Henry Hudson Trail	No

*Refers to Marlboro Reexamination 2003. Reference Name is often the name of the property owner; however, in some instances ownership has changed since the Reexamination Report.

Reexam Name*	Block	Lot	Address	Owner	Acreage	Existing Zoning	Land Use	% Env. Constrained	SSA In/Out	State Planning Area	Approvals	Rezoning
Alisady / Zaheer/ Azer	153	39.01	Conover Rd	Alizaidy, Syed	5.3	LC	Vacant	33.9	OUT	PA 5		No
Alisady / Zaheer/ Azer	153	39.02	39 Conover Rd	Azher, Sarwat	5.3	LC	Residential	28.3	OUT	PA 5		No
Alisady / Zaheer/ Azer	153	39.03	Conover Rd	Zaheer, Syed	10.4	LC	Vacant	16.3	OUT	PA 5		No
Wilfredo and Ann Figueroa	146	22	31 Falson Lane	Figueroa, Ann M. & Wilfredo	7.4	LC	Residential	40.1	OUT	PA 2		No
Louis and Helen Sona	146	20	45 Falson Lane	Sona, Andrew J & Jeanne N.	6.8	LC	Residential	3.2	OUT	PA 2		No
Ram Bady	147	15.01	389 Texas Road	Bokkism, Pallavi	5.1	LC	Residential	0.0	OUT	PA 2 & 3		No
Ram Bady	147	15.02	39 Wooleytown Road	Badey, Ramchandar & Jyothi	4.7	LC	Residential	0.0	OUT	PA 2 & 3		No
Ram Bady	147	16	385 Texas Road	Badey, Ramchandar & Jyothi	1.9	LC	Residential	0.0	OUT	PA 2		No
H.K. Management	157	21.01	199 Route 520	Eckel, Timothy	6.5	LC	Vacant	96.9	OUT	PA 5	#940-05 Minor Subdivision	No
H.K. Management	157	21.02	199 Route 520	Buchman, Adam	6.4	LC	Residential	10.9	OUT	PA 5	#940-05 Minor Subdivision	No
H.K. Management	157	21.03	199 Route 520	Buchman, Adam	73.7	LC	Vacant	44.1	OUT	PA 5	#940-05 Minor Subdivision	No

Reexam Name*	Block	Lot	Address	Owner	Acreage	Existing Zoning	Land Use	% Env. Constrained	SSA In/Out	State Planning Area	Approvals	Rezoning
Vastola	157	9	Route 520	Vastola, Dorothy & Etals	25.6	LC	Vacant	21.0	OUT	PA5	#945-05 Subdivision Approval (7 lots)	No
Kawe			Route 520									
Schuster			Route 520									
Manzo	157	27	Orchard Hills Road	Manzo, Joseph & Phyllis	6.1	LC	Vacant	7.7	OUT	PA5		No
Manzo	157	29	Route 520	Manzo, Joseph & Phyllis	6.1	LC	Vacant	37.4	OUT	PA5		No
Manzo	157	31	Route 520	Manzo, James	0.3	LC	Residential	0.0	OUT	PA5		No
Manzo	157	32	Conover Road	Manzo, Joseph	2.1	LC	Vacant	0.0	OUT	PA5		No
Manzo	157	33	Conover Road	Manzo, Joseph & Phyllis	23.5	LC	Vacant (Utility Power Lines)	24.4	OUT	PA5	Adjacent To Minor Sub (Case#940-05)	No

*Refers to Marlboro Reexamination 2003. Reference Name is often the name of the property owner; however, in some instances ownership has changed since the Reexamination.

Requests for Increased Density in the R-80 Zoning District (Page 24 of Reexam, Subsection C)

Reexam Name*	Block	Lot	Address	Owner	Acreage	Existing Zoning	Land Use	% Env. Constrained	SSA In/Out	State Planning Area	Approvals	Rezoning
Matchaponix Associates			Tennent Rd									
Greenwood Holdings	268.07	6	Route 520	Knopf, Antoinette & Carissimo, Vito	7.0	R-80	Vacant	0.0	IN	PA2		No
Angelo D'Arpa	160	9	Route 79 & Pleasant Valley Road	D'arpa, Angelo & Gioacchino V	72.6	LC	Farm	62.2	OUT	PA	County Targeted Farm	No

*Refers to Marlboro Reexamination 2003. Reference Name is often the name of the property owner; however, in some instances ownership has changed since the Reexamination.

Review Rezoning of Split-Zoned Lot from LC and C-2 to all C-2 (Page 24 of Reexam, Subsection E)

Reexam Name*	Block	Lot	Address	Owner	Acreage	Existing Zoning	Land Use	% Env. Constrained	SSA In/Out	State Planning Area	Approvals	Rezoning
Split Zone - Modern Construction	147	37	164 Tennent Road	Glowacka, Gregory	21.2	LC / C-2	Residential & Forest	63.1	OUT	SPA2		No

*Refers to Marlboro Reexamination 2003. Reference Name is often the name of the property owner; however, in some instances ownership has changed since the Reexamination.

Zone District Boundary Modifications to be Reviewed (Page 25 of Reexam, subsection F)

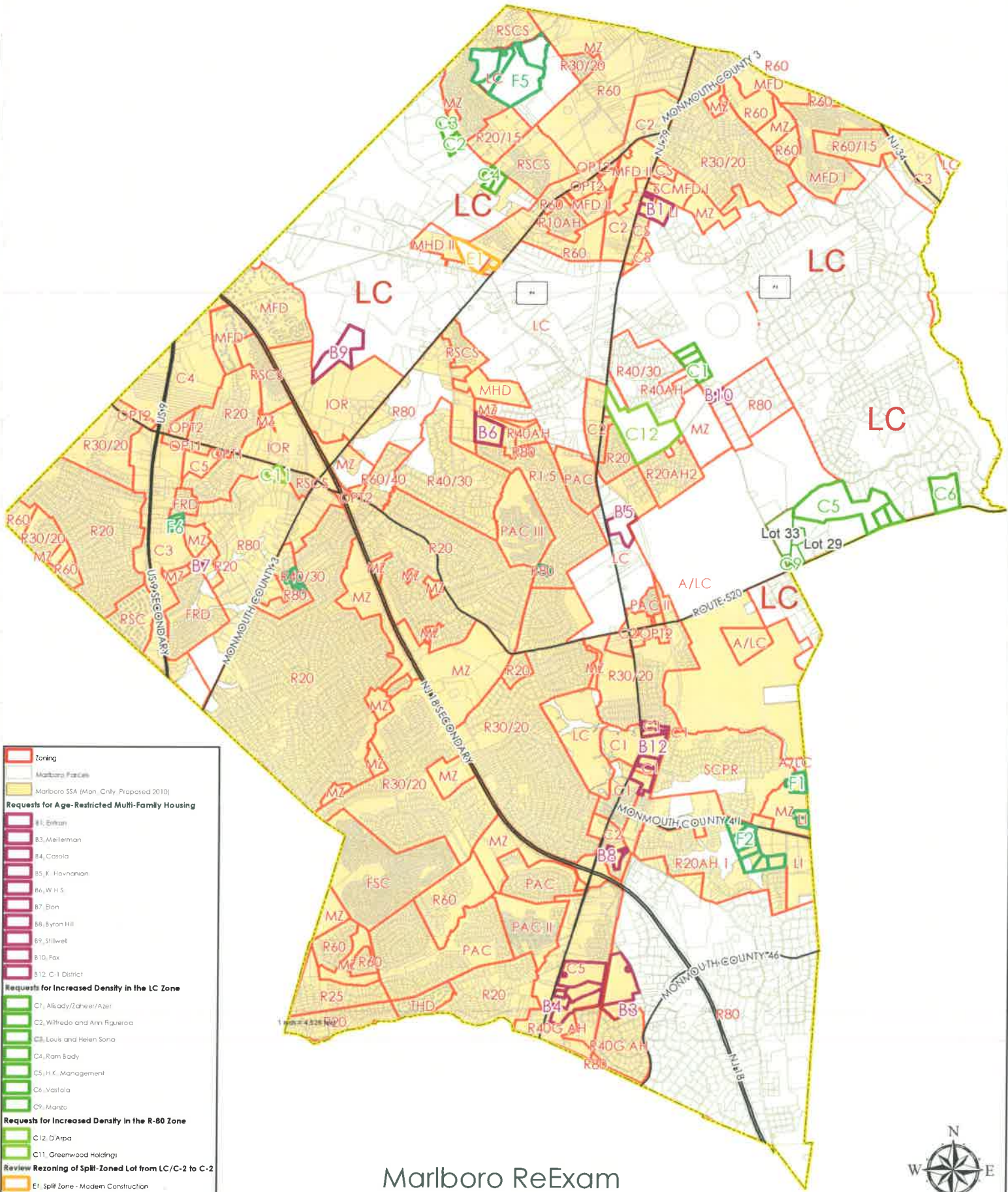
Reexam Name*	Block	Lot	Address	Owner	Acreage	Existing Zoning	Land Use	% Env. Constrained	SSA In/Out	State Planning Area	Approvals	Rezoning
LI Zone Modification	214	50	156 Boundary Road	Vams Brook, LLC	9.5	LI	Vacant (Tennis Courts)	66.7	I N	PA-3		No
LI Zone Modification	214	51.01	186 Boundary Road	Boundary Road LLC	3	LI	Industrial	0.0	I N	PA-3		No
LI Zone Modification	214	52	184 Boundary Road	Lucol Co., LLC	3	LI	Commercial	0.0	I N	PA-3	Built (Case #1007-08 - Office Addition)	No
LI Zone Modification	360.02	11	10 Timber Lane	Timberlane Partners, LLC	6.3	LI	Industrial	0.0	I N	PA-3		No
LI Zone Modification	360.02	12	6 Timber Lane	MCS Realty Corp.	4.5	LI	Industrial	0.0	I N	PA-3		No
LI Zone Modification	360.02	13	6 Timber Lane	MCS Realty Corp.	7.6	LI	Industrial	69.7	I N	PA-3		No
LI Zone Modification	360.02	14	4 Timber Lane	Dadekian Marlboro Partnership	5.4	LI	Industrial	1.9	I N	PA-3		No
LI Zone Modification	360.02	15	2 Timber Lane	Timber Associates LLC	12.4	LI	Industrial	85.5	I N	PA-3	Built (Case #933-05 Office/Warehouse)	No
LI Zone Modification	360.02	17	94 Vanderburg Road	C & L Real Estate, LLC	6.2	LI	Commercial	29.0	I N	PA-3		No
R-80 Zone Modification	206	27	Wyncrest Rd	Maghan, James H	3.1	LC	Farm	0.0	I N	PA2		No
R-80 Zone Modification	300.01	14	28 Church Road	Twp Of Marlboro	0.8	R-80	Vacant	0.0	I N	PA2		No
R-80 Zone Modification	300.01	15	38 Church Road	Hunfer, Eli & Hope	0.7	R-80	Residential	0.0	I N	PA2		No
												No
R-80 Zone Modification	300.01	16.01	36 Church Road	Knight, Robert & Mary Ann	1.0	R-80	Residential	0.0	I N	PA2		No
R-80 Zone Modification	300.01	16.02	36 Church Road	Lourenco, Jose & Amanda	1.4	R-80	Residential	0.0	I N	PA2		No
R-80 Zone Modification	300.01	17	40 Church Road	Barba, Carlos Alex	0.9	R-80	Residential	0.0	I N	PA2		No
R-80 Zone Modification	300.01	6	328 Timber Hill Drive	Rinder, Robert & Nancy	0.7	R40	Residential	0.0	I N	PA2		No
R-80 Zone Modification	300.01	7	334 Timber Hill Drive	Pearlman, Charles & Ellen	1.0	R40	Residential	0.0	I N	PA2		No
R-80 Zone Modification	300.01	8	340 Timber Hill Drive	Nadrich, Beth	0.9	R40	Residential	0.0	I N	PA2		No
LC Zone Modification	119	4	189 Ticetown Rd	Strawberry Fields NJ LLC C/O Hayes	20.5	LC	Residential	2.0	O U T	PA2		No
LC Zone Modification	119	11	157 Ticetown Rd	Riker, Gary J Sr & Debra	14.3	LC	Farm	42.6	O U T	PA2		No
LC Zone Modification	119	12	141 Ticetown Rd	Terzulli, Paul L & Carola	51.3	LC	Residential	55.9	O U T	PA2		No

Reexam Name*	Block	Lot	Address	Owner	Acreage	Existing Zoning	Land Use	% Env. Constrained	SSA In/Out	State Planning Area	Approvals	Rezoning
LC Zone Modification	119	13	133 Ticetown Rd	Vigliante, Virginia	1	LC	Vacant	26.0	O U T	PA2		No
LC Zone Modification	119	14	211 Greenwood Rd	Fariello Estate, C/O WM.J. Wolf, Esq.	18.9	LC	Farm	99.7	O U T	PA2		No
C-3 Zone Modification	269	17	1 Pin Oak Road	Andreadis, Arlene L.	1.8	C-3	Residential	44.4	I N	PA2		No
C-3 Zone Modification	269	18	2 Pin Oak Road	Feather, Frank & Cassini, Paula	1.5	C-3	Residential	20.0	I N	PA2		No
C-3 Zone Modification	269	19	3 Pin Oak Road	Zinna, Domenico	2.4	C-3	Residential	4.2	I N	PA2		No

*Refers to Marlboro Reexam 2003. Reference Name is often the name of the property owner; however, in some instances ownership has changed since the reexam.

Other Zoning Changes (Page 25 of Reexam, Subsection G)

Rezone	Rezoning
Establish C-2 Zone on Tennent Road between Brown Rd and Harbor Rd.	No
Assisted living as a conditional use in the CIR Zone District.	No



- Zoning
- Marlboro Parcels
- Marlboro SSA (Mon. Only Proposed 2010)
- Requests for Age-Restricted Multi-Family Housing**
- B1, Britton
- B3, Merleman
- B4, Casola
- B5, K. Rovnanian
- B6, W H S
- B7, Elon
- B8, Byron Hill
- B9, Stillwell
- B10, Fox
- B12, C-1 District
- Requests for Increased Density in the LC Zone**
- C1, Alixady/Zaher/Azer
- C2, Wilfredo and Ann Figueroa
- C3, Louis and Helen Sosa
- C4, Ram Body
- C5, H.K. Management
- C6, Vastala
- C9, Manzo
- Requests for Increased Density in the R-80 Zone**
- C12, D'Arpa
- C11, Greenwood Holdings
- Review Rezoning of Split-Zoned Lot from LC/C-2 to C-2**
- E1, Split Zone - Modern Construction
- Zone District Boundary Modifications to be Reviewed**
- F1, U Zone Modification
- F2, U Zone Modification
- F5, LC Zone Modification
- F6, C-3 Zone Modification
- F3, R-80 Zone Modification
- F4, R-80 Zone Modification

Marlboro ReExam
 Properties Reviewed for
 Zoning Change Requests
 Marlboro Twp, NJ

