
EXHIBIT T1

NEW GARDEN TOWNSHIP COMPREHENSIVE PLAN

Introduction

The comprehensive plan is a planning tool available to Pennsylvania municipalities under the Pennsylvania Municipalities Planning Code (MPC), Act 247. This legislation enables our Township to adopt a plan, and governs how a plan is prepared and what topics must be covered. The comprehensive plan establishes public policy by which Township officials will make future decisions concerning land use, housing, transportation, resource protection and community facilities. The plan identifies a series of recommendations that when executed, will implement the plan. This policy will guide future ordinance revisions, capital expenditures, and facilities and services.

It has been eleven years since New Garden last revisited its long-range comprehensive plan. Significant change has occurred over this period of time to warrant a full update of the document. The Township has shifted from an agricultural-based community to a suburban community. The landscape has changed from agriculture to primarily residential neighborhoods. Public sewer has expanded to a greater portion of the Township.

It is the intent of this comprehensive plan update to establish a renewed long-range plan for the New Garden. This plan update serves to replace the 1993 plan and has a horizon of ten years.

The Board of Supervisors established a task force in 2002 to prepare an update to the plan. The task force was comprised of representatives of the Board of Supervisors, planning commission, historic commission, and residents-at-large. The task force held monthly meetings open to the public over a two-year period to discuss issues and draft the plan. A professional planning consultant was contracted by the Township to assist the task force in drafting the comprehensive plan with funding received from Chester County. Prior to adoption, the Township sought comment from residents, surrounding municipalities, the school district and the County.

To make this plan update a success will require the help and support of all Township residents. We are all stakeholders in the future of New Garden Township.

Chapter 1

Regional Perspective

This Chapter examines regional forces and their impact upon the character and quality of life in New Garden Township. The position of New Garden determines the extent to which the municipality is influenced by external forces such as traffic circulation, natural resources, community facilities and services, employment and commercial centers, and land development activities and patterns. The findings of this analysis will provide a framework around which the Township can formulate strategies to address opportunities and concerns regarding regional influences. Finally, periodic review of these regional relationships is essential for maintaining an effective, on-going, comprehensive planning program.

Geographic Setting

New Garden is located within southern Chester County and is surrounded by the Townships of Kennett, East Marlborough, West Marlborough, London Grove, Franklin, London Britain; and the Boroughs of Kennett Square and West Grove. The Township is strongly influenced by Wilmington and Newark, Delaware, which are in close proximity to the Township (See: **Map 1-1, Regional Setting**). Wilmington and Newark are approximately 15 miles and 10 miles from the Township, respectively. Due to the orientation of the transportation network of the Township, such as Route 41 and Newark Road, and analyzing resident employment trends, the Wilmington and Newark areas affect the Township more directly than Philadelphia, which is 25 miles to the east. New Garden is fast becoming a "bedroom" community for Wilmington and Newark.

The regional setting of New Garden presents a unique influence on the Township. The southeastern Pennsylvania and northern Delaware area offers a mix of suburban and urban characteristics which are evident in the development activities of the region. In reaction to an increasing population, developing transportation networks, and a favorable financial situation, the development of commercial, industrial, and public infrastructure networks in these areas has stimulated development pressure in the Township. Due to these adjacent centers of employment and commercial activity, and the expanding development of northern New Castle County in the 1990s, the Township has seen a population increase, especially in the number of new residents who commute to occupations within the State of Delaware.

Population Trends

Figure 1-1 compares the population of New Garden with the adjacent municipalities, including Chester County and New Castle County, over the last three decades. Statistically, the Township was the third fastest growing community since 1970 at 119 percent, nevertheless, it was the fastest growing community during the 1990s at 67 percent and currently has the largest population of the surrounding municipalities. The number of persons increased from 1970-2000 by more than 100 percent in New Garden, East Marlborough, Franklin, and London Britain. Clearly, the New Garden and surrounding region is in transition from that of rural to a more suburban area.

Figure 1-1: Population Trends 1970-2000; New Garden and Surrounding Municipalities

Municipality	1970	1980	1990	2000	Percent Change	
					1970-2000	1990-2000
New Garden	4,153	4,790	5,430	9,083	119%	67%
Kennett	3,394	4,201	4,624	6,451	90%	40%
East Marlborough	3,031	3,953	4,731	6,317	108%	34%
West Marlborough	917	941	874	859	-6%	-2%
London Grove	3,109	3,531	3,992	5,265	69%	32%
Franklin	1,043	1,920	2,779	3,850	269%	39%
London Britain	963	1,546	2,671	2,797	190%	5%
Kennett Square Borough	4,876	4,715	5,218	5,273	8%	1%
Avondale Borough	1,025	891	954	1,108	8%	16%
West Grove Borough	1,870	1,820	2,128	2,652	42%	25%
Chester County	278,311	316,660	376,396	433,501	56%	15%
New Castle County	385,920	398,010	441,946	500,265	30%	13%

Source: US Census Bureau, 1970-2000

Population density is a function of the size of the particular area and the number of residents that live there. This is important to understand because as more people move into the communities, as the population projections indicate, the densities and need for additional developable land and thus community facilities and services, will intensify. Figure 1-2 shows the density per square mile in each municipality from 1970 to 2000. The percent increase in density mirrors the percent population growth seen in the table above. With the exception of West Marlborough, there has been a steady increase in the densities of all of the adjacent municipalities, with by far the greatest increase during the 1990s being experienced in New Garden. The number of persons per square mile increased from 1970-2000 by more than 100 percent in New Garden, Kennett, East Marlborough, Franklin, and London Britain Townships. Aside from the Boroughs, New Garden has substantially more persons per square mile than the surrounding townships. These increases in density indicate a transition from largely low density, rural communities to a region with increasingly suburban characteristics.

Figure 1-2: Population Densities 1970-2000; New Garden and Surrounding Municipalities

Municipality	Density Population per Square Mile				Percent Change	
	1970	1980	1990	2000	1970-2000	1990-2000
New Garden	254	298	337	565	122%	67%
Kennett	215	269	296	415	93%	40%
East Marlborough	175	253	307	405	131%	32%
West Marlborough	22	55	51	50	128%	-2%
London Grove	175	205	228	306	75%	34%
Franklin	69	146	211	291	321%	38%
London Britain	93	156	270	283	205%	5%
Kennett Square Borough	4,925	4,286	4,744	4,679	-5%	-1%
Avondale Borough	2,135	1,782	1,908	2,249	5%	18%
West Grove Borough	3,596	3,033	3,547	4,118	15%	16%
Chester County	366	419	498	573	57%	15%
New Castle County	883	911	1,011	1,145	1%	1%

Source: US Census Bureau, 1970-2000

Urban Areas

There are three urban areas that influence the Township (See: **Map 1-2, Regional Influences**). The following will discuss the most prominent of these influences.

New Castle County, Delaware: New Castle County forms the southern border of the Township and had a 2000 population of 500,265. The cities of Wilmington and Newark, recreational areas, shopping opportunities, and employment centers within New Castle County have essential influences on New Garden Township. The city of Wilmington had a 2000 population of 72,664, the largest in the state of Delaware. It is a banking center of national importance and is a major employer and service center for the region. In addition to MBNA and AstraZeneca, the chemical industry also plays a major role in the area's economy, particularly the DuPont Corporation. Since the state of Delaware has no sales tax, people travel to Delaware to take advantage of this financial savings opportunity, especially for higher priced items. Wilmington and the surrounding recreational, employment, and shopping opportunities are easily accessible to New Garden residents by Route 41. For these reasons, New Castle County is a significant influence on the Township in terms of residential growth pressure and transportation issues.

Newark, Delaware: The 2000 US Census indicated 28,547 people live in Newark. The city is approximately ten miles from the Township and exerts some influence on the Township, though not as great as Wilmington. With a large manufacturing sector and the University of Delaware, Newark is a center of employment, education, and culture for residents of the Township.

Philadelphia, Pennsylvania: Philadelphia is the fifth largest city in the United States, with a 2000 US Census population of 1,517,550 people. From 1990 to 2000 the population decreased by 68,027 or 4.3 percent, one of only two major cities in the top 15 who lost population. Philadelphia is accessible to New Garden residents by using either Interstate 95 or US Route 1, or by Southeastern Pennsylvania Transit Authority (SEPTA) bus or rail services from transit stations in Newark, Downingtown, or West Chester. Although Philadelphia is much larger than Wilmington or Newark, Delaware, these smaller cities provide many of the same services and opportunities as Philadelphia, and offer easier access for the residents of New Garden. For these reasons, the influence of Philadelphia upon the Township is less important than its size would indicate.

Municipal Planning and Land Use

Avondale Borough: The Borough of Avondale along the western New Garden border exerts some influence upon the Township in terms of land use allocation, made even more vital due to the character of the Route 41 corridor (See: **Chapter 8, Transportation Inventory**). Currently, the majority of lands in Avondale adjacent to New Garden Township are zoned for residential development at a density of over 5 units per acre. Industrial and commercial activities are permitted along the Baltimore Pike corridor. Avondale has a population of 1,108 and is predominantly a residential community with limited commercial development. Despite this, the Borough has little influence on New Garden. The Avondale Wastewater Treatment Plant currently provides sewage disposal for Toughkenamon and areas along Route 41.

East Marlborough Township: East Marlborough is a uniquely diversified municipality in the region in relation to the types of land uses. It forms New Garden's northeast border. It contains the villages of Unionville and Willowdale, a commercial district along US Route 1, and the institutional uses of Longwood Gardens and the New Bolton Center. East Marlborough completed a Comprehensive Plan in 1989 and has planned for the majority of its land to be developed at low and medium density **residential development**. Two village commercial areas and an area of higher density residential development in the **southwest area** of the Township are planned adjacent to the northern boundary of New Garden. **Longwood Gardens**, an internationally renowned tourist attraction, extends into the eastern border of the township. Residential uses are the largest land use category, with single-family detached dwellings the most dominant form of land

use scattered throughout the Township. Multi-family residences are mostly located in the vicinity of US Route 1, with concentrations of commercial development located in Unionville, Willowdale, and along US Route 1 corridor. Industrial development is primarily near US Route 1 at the Walnut Road Industrial Park. The increase of single-family residential development and the reduction of farmland, woodlands, and undeveloped lands is changing the character of the township.

Kennett Township: Kennett is primarily a residential community. The Township has experienced growth over the last decade similar to New Garden. Kennett updated its comprehensive plan in 2003. The future land use plan of the 2003 Plan focuses residential uses at densities ranging from 0.25 to 4.0 units per acre. There is a potential for redevelopment just east of Kennett Square Borough along Ways Lane. Kennett, as well as New Garden, serve as bedroom communities for the greater Wilmington-Newark area. There are still large tracts of undeveloped land within the Township with most new development being single family residential neighborhoods. A corridor of commercial uses has developed along Route 1 and Baltimore Pike both east and west of Kennett Square Borough. Mushroom farming, processing, and distributing are located adjacent to Kennett Square and in outlying areas.

Growth trends within the Township during the 1980's can be partially attributed to the economic growth of New Castle County, Delaware. Since the average commuting time to Wilmington is less than 20 minutes, the attractive environment of the Township places it under additional development pressure. The most intensive residential development has occurred along the US Route 1 and Baltimore Pike corridors and several planned residential developments (PRDs) along the Route 52 corridor. These areas are particularly active due, in part, to their accessibility to Wilmington. As this area becomes built out, pressure may increase in other areas of the Township.

Kennett Square Borough: With a population of 5,273, the Borough is the largest area of concentrated population in southeastern Chester County with 4,679 people per square mile. The 2001 comprehensive plan for the Borough calls for a mix of land uses commonly associated with a town setting. Kennett Square has seen little new development compared to other rural and suburban municipalities. The Borough's land use pattern is stable and well established with a central business and commercial core surrounded by residential neighborhoods, providing food, convenience items, and other professional uses such as banking, legal, and social services for the surrounding municipalities. Manufacturing is interspersed with residential neighborhoods to the south and west of the Borough's center and little vacant land exists in Kennett Square although underused parcels could be put to higher and more productive use. The Borough completed a Kennett Common Report for the block surrounding the library in November, 2001 and an Urban Center Revitalization Plan in May, 2003. The Revitalization Plan details an action plan to guide the Borough's revitalization efforts in the areas of economic development, housing, transportation and infrastructure, and public facilities and services.

London Grove Township: As the principal western border of New Garden Township, London Grove influences the allocation and intensity of land use in the western half of New Garden. There are two residential zoning districts adjacent to New Garden, Residential-High (RH) with a range of minimum lot sizes from 7,200 to 12,500 square feet, and the Residential-Rural District with a minimum lot size of one acre. There is pressure to convert more of its land for residential purposes. London Grove is also important because two of the major roads in the region, US Route 1 and Route 41, meet in the Township, and the Township is one of the principal mushroom processing communities in the region. London Grove, with a 2000 US Census population of 5,265, completed work on a comprehensive plan for the Township in 1992. From 1970 to 2000 the Township experienced a growth rate of 69 percent, with 32 percent of that rate occurring between 1990-2000.

Franklin Township: Franklin Township comprises a portion of the southwestern border of New Garden Township. Franklin had a population growth rate of 269 percent from 1970-2000, double that of New

Garden (118%), and one of the highest in the County. The lands adjacent to New Garden are planned for rural residential development and conservation purposes. These uses would present few compatibility problems with New Garden. Considering its location, development history, and growth patterns, Franklin will continue to be in the path of growth and have increased pressure for residential development, due to its proximity to Wilmington and Newark, as well as developing communities in Chester County. Development restrictions in New Castle County have further increased the demand for homes in Franklin and the region. Routes 841 and 896 through the Township provide transportation connections to growing regional commercial and employment centers. Continued proposals for new development within the Township, particularly residential development, indicate that Franklin will continue to be a developing community.

London Britain Township: London Britain, along the southwest border of New Garden, had only 2,797 residents according to the 2000 Census. The Township's future land use plan, part of their 1989 Comprehensive Plan, has allocated conservation uses and residential development at a density of 1.75 units/acre to lands adjacent to New Garden Township. These allocated land uses are in concert with the current land uses allocated by New Garden adjacent to these areas. London Britain also encompasses a portion of the White Clay Creek Preserve. This large natural preserve, of almost 2,000 acres, includes land in New Castle County, Delaware. The area included in preserves provide a large area of open space and serves some of the passive recreational needs (hiking, nature study, bird-watching).

West Grove Borough: Lying approximately three miles to the west of New Garden, West Grove Borough provides commercial and high density residential uses. The Borough adopted a Comprehensive Plan and an Urban Center Revitalization Plan in the spring of 2003. With only 2,652 residents, the second densest population per square mile (4,420), the Borough serves as a small service center for municipalities between Oxford and Kennett Square Boroughs. Due to the size of West Grove, its influence upon New Garden is minimal. Its greatest influence is its wealth of mushroom and related industries in and within the area surrounding the Borough.

West Marlborough Township: This Township forms the remaining portion of the northern border of New Garden. The low population of West Marlborough is indicative of the desire to retain the historical character of this agricultural community. The majority of land, from their Comprehensive Plan of 1972, is planned for agriculture and open space uses. Large parcels of land, such as the former King Ranch property, are protected through conservation easements, which preserve the land from development in perpetuity. A variety of land uses are provided for the portion of the Township that borders New Garden Township, including open space, agricultural, possible high density residential, and village land uses. The University of Pennsylvania's New Bolton Center, a facility for veterinary research and study, makes up a significant portion of the West Marlborough-New Garden border. The West Marlborough Comprehensive Plan was adopted in 1972. Because the Plan is outdated, a comparison was made with the Township's zoning district designations. The vast majority of the shared border is designated as either Agricultural/Conservation or Low Density Residential. The Township has begun an update to their comprehensive plan in 2004.

New Castle County, Delaware: New Castle County, containing several cities including Wilmington, Newark, and New Castle, influences New Garden Township in a variety of ways. In 2002, the New Castle County, Department of Planning prepared the "Comprehensive Development Plan Update" which established land use allocations for the county into 10 planning districts. The Comprehensive Development Plan predominantly allocates land adjacent to New Garden Township for resource protection and residential development between 1 and 3 units per acre with higher residential density and commercial uses planned for the Hockessin area along Route 41. A majority of the land in New Castle County adjacent to New Garden has been developed as single family residential housing.

Regional Agencies

There are several groups that influence the Township in a variety of ways. These include:

Delaware Valley Regional Planning Commission: The Delaware Valley Regional Planning Commission (DVRPC) was established in 1965 to provide comprehensive, coordinated planning for the orderly growth and development of the Greater Philadelphia region. This region includes Bucks, Chester, Delaware, Montgomery, and Philadelphia counties in Pennsylvania; and Burlington, Camden, Gloucester, and Mercer counties in New Jersey. DVRPC is an interstate, intercounty, and intercity agency that advises on regional policy and capital funding issues concerning transportation, economic development, the environment, and land use. Their mission is "to proactively shape a comprehensive vision for the region's future growth." They provide services to member governments through planning analysis, data collection, mapping services, and a variety of publications.

The Transportation Planning Division of DVRPC is responsible for coordinating the transportation planning process in the nine county region. Their activities include collecting and providing data for regional studies, conducting research, and developing the long range transportation plan, and short term transportation improvement program. Of particular interest to New Garden is DVRPC's responsibility for coordinating the Transportation Improvement Program (TIP). The TIP is the regionally agreed upon list of priority projects required by federal law (ISTEA and TEA-21). The TIP document must list all projects that intend to use federal funds, non-federally funded projects of regional significance, and also includes other state funded capital projects. (See: Transportation chapter of this Plan.) DVRPC recently updated their regional transportation and land use plan, *Horizons 2025* (2001).

Kennett Area Regional Planning Commission: Kennett, Pennsbury, East Marlborough, New Garden, and Pocopson Townships, along with Kennett Square Borough, form the Kennett Area Regional Planning Commission (KARPC). The organization began when the Kennett Consolidated and the Unionville-Chadds Ford School Districts initiated informal discussions on planning issues in 1983. The purpose of this advisory group is to provide a forum for sharing information between member municipalities and cooperation in future planning programs. Cooperative agreements have been made between member municipalities for the purpose of purchasing such things as road maintenance materials and road salt. The member municipalities are also considering the establishment of a Kennett Regional Council of Governments (COG) to provide for joint services between the municipalities. Studies include:

- Regional Zoning Analysis (1992): The first study produced by KARPC was a Regional Zoning Analysis that compared and analyzed the existing zoning districts in each municipality in an effort to identify conflicts.
- Highway Classification Map (1992): A Highway Classification Map was produced in 1992 in an effort to address transportation concerns by producing a single classification system for regional roads. This was also intended to help standardize road improvements.
- Kennett Area Region: Policy Plan (1998): In preparation for a regional comprehensive plan, KARPC prepared the Kennett Area Regional Policy Plan. Its purpose was to identify a common set of planning goals and objectives for the Region that would guide development of the comprehensive plan.
- Regional Comprehensive Plan (2000): The Regional Comprehensive Plan was developed to assist municipalities in coordinating land use activities and to guide regional efforts in addressing mutual goals. It sets forth a future land use plan intended to help individual municipalities to achieve the land use policies adopted by the Region. New Garden did not participate in the formation of this Plan

and is therefore was not considered in the planning area or recommendations. However, New Garden has been attending meetings and participating in KARPC activities since 2002.

- Land Use/Transportation Model (2002): As a follow-up to the regional comprehensive plan adopted by KARPC, the development of a regional transportation and land use study addressed both current and future traffic problems. The study identified improvements to the existing road system that would be needed to accommodate future traffic levels. A regional transportation simulation model was used to determine the projected conditions of 89 intersections by the year 2011.

Delaware River Basin Commission: The Delaware River Basin Commission (DRBC) was formed in 1961 by compact among the four basin states (Pennsylvania, New Jersey, New York, and Delaware) and the federal government. The creation of DRBC marked the first time the federal government and a group of states joined together as equal partners to form a regulatory agency for the purpose of river basin planning. The DRBC is a regional body with the force of law that oversees a unified approach to managing the river system without regard to political boundaries. New Garden falls within the region regulated by DRBC. Within this area, proposed well withdrawals in excess of 100,000 gallons per day must be reviewed and approved by DRBC. The purpose of these regulations is to prevent the depletion of groundwater and protect the interests and rights of lawful users of the same water resource, as well as to reconcile alternative and conflicting uses of limited water resources in the region.

Kennett Consolidated School District: New Garden Township is served by the Kennett Consolidated School District. Facilities of this District include; Kennett High School and Mary D. Lang Elementary in Kennett Square, Greenwood Elementary in Kennett Township, Kennett Middle School and New Garden Elementary in New Garden Township. Vocational education for district students is provided at the Central Chester County Technical School in Coatesville.

Avon-Grove Regional Planning Commission (AGRPC): The Avon-Grove Regional Future Land Use Plan of 1991 involved five of the surrounding municipalities discussed previously. Avondale and West Grove boroughs, along with the Townships of London Grove, Franklin, and London Britain were included in the future land use plan of the Avon-Grove Region. The plan defined seven planning environments; Conservation, Rural, Neighborhood, Village, Town Center, Highway, and Urban environments in ascending order of land use intensity. Areas adjacent to New Garden Township in London Grove and London Britain Townships are generally planned for rural and conservation uses, with a large conservation designation placed on the area included in the White Clay Creek Preserve. Around the Borough of Avondale, neighborhood development (residential uses at densities of 0.6 to 4.0 dwelling units/acre) and highway commercial/industrial uses are predominant with the Borough itself planned for urban uses emphasizing redevelopment. The Borough of West Grove has a similar future land use scenario. AGRPC also provided a Route 41 corridor study in which New Garden participated.

Guidelines for Local Economic Development: In 1989, representatives from the Township served as members of the Avondale-West Grove Area Economic Development Steering Committee involved in the drafting of the planning study entitled "Guidelines for Local Economic Development". This report was a product of the Community Economic Recovery Program (CERP) for Avondale-West Grove Area funded through the Pennsylvania Department of Commerce. The report provided a series of recommendations to the area to aid in stimulating future economic development. These recommendations included suggestions for land use planning, transportation and utilities services, industrial and business expansion and retention, and new industrial and business development.

Relationship to Landscapes, Chester County Policy Plan

The primary goal of the Chester County policy plan, adopted in 1996, is to reduce sprawling residential development by focusing new development in areas where it can best be accommodated and encouraging the revitalization of the County's urban areas. The plan stresses the importance of protecting natural and historic resources and emphasizes the need to preserve farms and prime agricultural soils.

Landscapes identifies growth boundaries around four types of landscapes, Natural, Rural, Suburban, and Urban and proposes key actions to protect and enhance the character of each landscape, see summaries, below. The majority of New Garden is located in the Rural and Natural landscapes, with a pocket of Urban landscape adjacent to Avondale Borough. Two rural centers exist including Toughkenamon and the southeastern section of the Township surrounding the interchange between Route 41 and Limestone Road (DE Route 7). Landenburg, in the southwest corner of the Township, is identified as a Village.

The County policy plan, *Landscapes* summarizes the four landscapes types as follows:

Natural Landscapes of Chester County are made up of woodlands, stream corridors, steep hillsides, ridge tops, wetlands, and marshes. These resources are permanent and essential elements of the physical environment and are the foundation for the livability of all landscapes.

Rural Landscapes include farms, farm related businesses, and villages, along with some scattered housing sites. They are predominant in the northern, western, and southern areas of Chester County. Rural Centers that contain locally oriented retail uses and community services are designated within the Rural Landscape.

Urban Landscapes are the historic population centers of the County. They traditionally serve as the focal point of employment and the commercial and cultural centers for the surrounding areas. Urban Landscapes contain extensive existing infrastructure and most of their remaining natural resources are protected in local park systems.

Suburban Landscapes include low to medium density subdivisions and related shopping centers and employment centers. They have developed rapidly and most extensively in eastern and central Chester County. Infrastructure and public services have been extended to accommodate residential subdivisions, shopping centers, office complexes and industrial parks that predominate this landscape.

Source: Chester County Planning Commission, 2002.

Because the County has no authority to mandate compliance with *Landscapes*, it seeks to partner with municipalities in implementing the Plan through the Vision Partnership Program (VPP), which provides grant funds to assist townships, boroughs, and regional planning groups to develop documents consistent with the County Comprehensive Plan.

A consistency review of the Township's planning documents to *Landscapes* was issued on March 26, 1998 and was divided into two (2) phases: Phase I concentrates on Township policy issues and Phase II examines implementation strategies. In both cases they were found to be "inconsistent" and it is one of the goals of this Plan to bring the Township into "consistency" with *Landscapes*. A full examination of "consistency" will be carried out in **Chapter 16, Land Use Plan**.

Regional Cultural Facilities

There are many regional facilities located in and around New Garden. They range from educational and health care institutions to recreational and cultural facilities. They supplement the smaller scale facilities

by offering access to a wider range of services within a reasonable proximity. (See: **Map 1-2, Regional Influences**)

New Garden lies in Chester County's Brandywine River Valley, an area long noted for its historic, scenic, and cultural attractions. This area offers a wide range of recreational and cultural offerings, and since many of them have a national, and in some cases, international attraction, offers tourism potential. Longwood Gardens, an internationally acclaimed horticultural garden and tourist destination, is located several miles from New Garden. A notable cultural attribute is Kennett Square's symphony orchestra, the smallest community in the country to have its own symphony orchestra. Other cultural and historic attractions include the Brandywine River Museum and the Brandywine Battlefield State Park. The Winterthur museum, dedicated to the collection and preservation of American decorative arts, is located just to the south in Delaware.

Regional facilities are those institutions that offer broad-based services or operate on a large scale. These include educational institutions, such as the New Bolton Center Veterinary Hospital located in East Marlborough Township, an important veterinary treatment, research, and teaching facility affiliated with the University of Pennsylvania; health care facilities, such as the Southern Chester County Medical Center; State Police barracks at Avondale and Embreeville; airports in New Garden and New Castle County; the Pocopson Home, a county-owned retirement facility and the Chester County Prison in Pocopson Township; and regional transportation facilities and public safety organizations. Other important regional facilities include the Bayard Taylor Memorial Library, a part of Chester County's library system; the Friends Home, a regional assisted living facility with skilled nursing wing; the Kennett Area Senior Center and the Kennett Area YMCA located on the east side of the Borough. New Garden offers the Brandywine Polo Club, two golf courses, and the historic area of Landenberg. More information on regional facilities can be found in the Community Facilities and Services chapter of this Plan.

Regional Transportation Resources

Several major transportation corridors are located in or near New Garden Township, providing access to the larger region. (See: **Map 1-2, Regional Influences**) Four routes provide north-south access; Route 82 to the east of the Township through Kennett Square Borough south into Delaware and north to the Coatesville area; Newark Road south into Delaware; Limestone Road (DE Route 7) south off of Route 41 into Delaware; and Route 841 to the west of the New Garden through West Grove south to Maryland and Delaware and north to the Coatesville area. These numerous connections to areas in Delaware and Maryland provide access for commuters working in New Castle County (DE) and Cecil County (MD) and living in New Garden.

Route 41, which traverses the central area of the Township, is a major transportation route from Delaware through southern Chester County and into Lancaster. Heavy truck traffic along this route has contributed to safety and congestion problems that PennDOT has been evaluating. Possible solutions include a combination of road widening and by-passes around Avondale and/or Chatham. No final decisions on the configurations or alignments have been made. Concerns among residents about these improvements have led to the initiation of a land use study that will consider land use impacts with and without the traffic improvements and how municipalities along the route can mitigate these impacts.

The major east-west transportation corridor through the region is US Route 1, which crosses the far northern section of the Township. This corridor is one of the oldest and most widely used highways in Chester County. Locally, US Route 1 serves as a connection between southern Chester County and the Philadelphia area. US Route 1 links major cities of the east coast, however, its use for interstate travel has

decreased since the construction of I-95. Old US Route 1, historically known as Baltimore Pike, serves as the main east-west commercial corridor through the Township along with Route 41.

Public Transit: Opportunities for public transit are somewhat limited in this area of the County due to the low density pattern of development that makes it more difficult to create an efficient transit system. Lower populations in the rural areas also limit the number of potential riders. However, this could change as development continues.

Since 1999, the Transportation Management Association of Chester County (TMACC) and the Southern Chester County Organization on Transportation (SCCOOT) have provided bus and enhanced paratransit service to southern Chester County. The route runs from Oxford Borough along US Route 1 to Route 202, where it connects to SEPTA bus routes. SCCOOT also provides limited service from Painter's Crossroads north on Route 202 to West Chester Borough during off-peak hours, when the SEPTA bus is not available. Due to low ridership in its early years, the SCCOOT route was significantly restructured in February 2002. The future of the route will likely be determined based on the results of this restructuring.

A DART bus line across the Delaware border in Hockessin, is managed by Delaware Transit Corporation, is available along Route 41 to Wilmington where it connects to numerous transit lines throughout Delaware.

The Southeastern Pennsylvania Transportation Authority (SEPTA) provides passenger rail service from Philadelphia to Wilmington and Newark, Delaware. Amtrak has stations in Wilmington and Newark as well, providing the opportunity of nationwide rail travel.

The Chester County Paratransit System provides service throughout Chester County, but is primarily intended for use by elderly and/or disabled persons.

Railroads: The Octoraro rail line provides rail freight opportunities for southern Chester County operating between Wilmington, Delaware and Oxford Borough, ending at the Herr's facility in Nottingham village. This line traverses New Garden, roughly parallel to Baltimore Pike. The right-of-way is owned by SEPTA and is operated by contracted short-line rail operators.

Route 41 Study (2000-ongoing): The Route 41 study began in March 2000 in response to proposed changes to the roadway. The Study is being completed by McCormick, Taylor and Associates with input from multiple committees made up of representatives from community groups, municipalities, PennDOT, and the Chester County Planning Commission. Potential changes to Route 41 including roadway improvements for safety, increased capacity, and a bypass of the Borough of Avondale. There are two main objectives of the Study. The first is to supplement the Environmental Impact Study in order to look at the community wide impacts of the proposed transportation alternatives. The second objective is to develop a land use plan with a set of recommendations for each transportation alternative. Once a final roadway alternative is selected, these recommendations will assist the surrounding municipalities in the region to manage the associated changes that may occur with improvements to Route 41. The recommendations will include a number of items such as necessary changes in zoning and subdivision ordinances.

Chester County Transportation Plan (on-going): The Chester County Transportation Plan is being developed by the Chester County Planning Commission. To date, two maps addressing bicycle transportation have been endorsed by the County Commissioners. The Functional Classification map describes roadways classified in a hierarchy for various levels of cyclists. The Necessary Road Improvements map designates improvements to roadways to increase safety and functioning for cyclists.

Improvements such as shoulder improvements or re-striping of roadways are delineated. The remainder of the Transportation Plan is underway, a completion date is not designated at this time.

For additional information on transportation resources, refer to **Chapter 8, Transportation Inventory**.

Regional Natural Resources

Throughout its nearly 300 year history, the natural resources of the area have influenced the land use patterns in and around New Garden. Recognized early on for its fertile soils on low, rolling hills, abundance of water and temperate climate, the area has historically been used for agricultural purposes. As the industry evolved, the area became a center for the commercial production of flowers and nursery stock. It was this aspect that led to the establishment of the mushroom industry in the late 1800's, now the major agricultural use and a major agricultural export for Pennsylvania. The mushroom industry continues to thrive despite increasing residential development occurring throughout the region.

Water has traditionally been plentiful in New Garden and the surrounding municipalities. The area lies over the Cocksylville Aquifer and within two watershed drainage sub-basins, the White Clay (western portion of the Township) and the Red Clay (the eastern), both of which empty into the Christina River, and ultimately into the Delaware River.

White Clay Creek Preserve/Walter S. Carpenter Park: This large natural preserve of almost 2,000 acres encompasses land in New Castle County, Delaware, as well as London Britain Township in Chester County. The area provides a large area of open space near New Garden and serves some of the passive recreational needs (hiking, nature study, bird-watching) of Township residents.

White Clay Creek Study: The White Clay Creek watershed has been designated as a participant in the Federal Wild and Scenic Streams Program, except for 2.5 miles in New Garden. New Garden will pursue designation for this portion. Wild and Scenic designation under the program will have tremendous impact upon land development in the watershed and the allocation of water and sewer services.

Red Clay Creek Studies: Two studies of the Red Clay Creek basin have been undertaken in the past decade with the most recent, entitled *Red Clay Creek* (1996), describing the relationship between groundwater quality and land use. These studies have resulted in the development of groundwater flow models that will help to evaluate the impacts of proposed withdrawals. Groundwater quality and quantity are becoming critical issues throughout the area, considering the number of residents dependent on wells.

More information on natural resources can be found in **Chapter 4, Natural Resources Inventory**.

PLANNING IMPLICATIONS

The following are regional planning implications that are raised in this chapter that will be addressed in the plan chapters:

- **Regional Concerns** - New Garden Township is affected by numerous factors that exist beyond its municipal boundaries, yet have significant regional impacts. Therefore, the goals and policies of the Township need to address regional concerns and impacts beyond the control of the Township.
- **Land Use Coordination** - There are few conflicts between planned land uses along the municipal borders of New Garden. Continued dialogue with adjacent municipalities, participation in their planning programs through the 247 process and regional planning groups will aid in maintaining this compatibility and successful planning programs.
- **Transportation** - Transportation concerns are regional in perspective and therefore need to be addressed through state agencies and in cooperation with neighboring municipalities and regional groups to most effectively address these situations.
- **Land Use Planning** - Population and housing projections indicate approximately 4,600 additional residents and 1,400 new homes could be located in the region by 2020. If past growth trends continue at the same rate, an even greater amount of development is possible over the next 20 years. Reducing scattered development and focusing it in and around the urban and rural centers are sound land use policies and supports the principals of *Landscapes*. Therefore, this Plan needs to address directing projected future growth into the most appropriate areas.
- **Regional Cooperation** - Coordinating land use, transportation, natural resource protection, and municipal services can be evaluated and affected by groups of municipalities that share similar concerns or problems. The Township needs to identify issues where multi-municipal, regional, and interstate cooperation is necessary to achieve increased results from planning efforts and implementation agreements.
- **Resource Protection** - Because of the Township's location between suburban areas to the east, rural areas to the west, and development pressures to the south, planning now for the preservation of open space, protection of natural resources, and directing growth to the most appropriate areas is of great importance.
- **Agricultural Resources** - Prime agricultural soils, once developed, are lost forever for crop production. The characteristics of these soils also make them suitable for building. Measures for protecting this valuable economic and natural resource need to be implemented, particularly in areas with continued active farming.
- **Woodlands Protection** - Protecting the variety of habitats in the area is vital to maintaining the natural diversity of plants and animals. Areas of contiguous woodlands, wooded stream corridors, wetlands, fields and pastures, and hedgerows are the primary habitats that need to be protected, if the area is to continue to maintain healthy ecosystems. Actions for addressing the issues of non-native invasive plant species and white tailed deer over-population need to be considered.
- **Ground Water** - The Township's dependence on groundwater for domestic water supplies emphasizes the need to protect this valuable resource. The vulnerability of certain groundwater aquifers to contamination indicates that groundwater protection measures should be incorporated into

land use ordinances and made consistent within the region. Because water resources are shared between municipalities, there is a need for cooperation in the use of this resource. The Township needs to review its options for preventing the export of groundwater out of the area by large water companies. The extension of public water lines into areas where open space preservation is a goal needs to be addressed by this plan so as not to encourage higher intensity uses in inappropriate places.

- **Sewage Facilities** - The municipalities in the Region have relatively current sewage facilities plans (537) or are in the process of the updating their plans. Ensuring that sewage facilities planning is consistent with the identified policies of this Plan will be important in implementing future local and regional land use goals. The extension of public sewers into areas targeted for preservation should be avoided; however, alternatives for smaller community systems to allow for cluster development may be an option in areas where open space preservation is a goal and pumping stations are not practical. Coordination in the provision of public facilities needs to be considered where it is the most cost effective approach to meeting sewage facilities needs.

Chapter 2

Demographics

Demographic analysis and projections are important in the formation of this comprehensive plan. The data and information generated enhances the community's capacity to prepare for the impact of future growth on such issues as land use, transportation services, housing demand, public facilities and services, and economic development.

A clear understanding of past trends serves as the basis for projecting future population sizes. By comparing past and present population and housing trends to the influences described in the Regional Influences section, an estimation of future trends emerges. The following information provides insight into characteristics and trends of the New Garden community and residents. This change is compared with that experienced by surrounding municipalities and in some cases with Chester County to provide a regional perspective. This Chapter identifies trends using US census data, supplemented by estimates and projections where available.

POPULATION PROFILE

Age, household size, and income levels all help to depict the character of New Garden residents. The size and composition of the population within the Township has changed during the last three decades. Since planning for future land use is based, in part, on population figures, estimates are used to indicate the current level at a given time. Population projections are calculated to determine potential future population levels based on current trends. The size and composition of the population are directly related to housing, and reliable information is needed to assess housing needs and to ensure that adequate housing opportunities are available to meet those projected needs.

Historic Population Trends

According to US Census data, New Garden has grown steadily since 1910 when it was reported there was a population of 1,875 people. The early increases can be partially attributed to the development of the mushroom industry in the 1920s. Current trends show that this historic population growth more than doubled from 1970-2000 and dominated the region between 1990-2000 when an additional 3,653 people moved into the Township; an increase of 67.3 percent for the 10 year period. This later increase was due to the expansion of the Wilmington urbanized area leading to residential subdivisions that have extended across the state line into the southern portion of the Township. Kennett Square is no longer the leading population center, but is now the fourth (5,273) largest in the region according to the 2000 US Census, behind New Garden (9,083), Kennett (6,451), and East Marlborough (6,317).

Numeric increases among the municipalities bordering Delaware were very similar during the decade. When reviewing these growth rates from 1970-2000, Franklin had the highest rate with 269.1 percent, compared to 118.7 percent for New Garden and 55.8 percent for Chester County; West Marlborough experienced a loss in population of 6.3 percent for the same time period. The County average was greatly affected by the dramatic growth experienced in the central and eastern portions of the County and in turn, have resulted in a high Countywide growth rate from 1970-2000.

Migration is responsible for population changes that are not naturally caused by births and deaths. In a growing community, a net influx of residents or in-migration can be expected. The opposite, a net out-

migration would normally be the reason for slow growth or population loss. In New Garden, a net in-migration was responsible for the gain in population from 1970 to 2000, as it was in the County.

The region around New Garden consists of urban (the boroughs), suburban, and rural areas. Trends in the urban areas often differed from those in the townships. In many cases, two differing demographic trends were occurring simultaneously in the boroughs and townships; the urban areas experienced little growth in population to 2000 while the townships increased. Considering the development occurring around New Garden, the availability of public sewage treatment, available developable land, and growth pressure exerted by New Castle County, Delaware, additional growth and development within New Garden is likely to continue.

Figure 2-1: Population Growth, 1970–2000; New Garden Township and Surrounding Municipalities

Municipality	1970	1980	1990	2000	Percent Change	
					1970-2000	1990-2000
New Garden	4,153	4,790	5,430	9,083	118.7%	67.3%
Avondale Borough	1,025	891	954	1,108	8.1%	16.1%
East Marlborough	3,031	3,953	4,781	6,317	108.4%	32.1%
Franklin	1,043	1,920	2,779	3,850	269.1%	38.5%
Kennett Square Borough	4,876	4,715	5,218	5,273	8.1%	1.1%
Kennett	3,394	4,201	4,624	6,451	90.1%	39.5%
London Britain	963	1,546	2,671	2,797	190.4%	4.7%
London Grove	3,109	3,531	3,922	5,265	69.3%	34.2%
West Grove Borough	1,870	1,820	2,128	2,652	41.8%	24.6%
West Marlborough	917	941	874	859	-6.3%	-1.7%
Chester County	278,311	316,660	376,396	433,501	55.8%	15.2%

Source: US Census Bureau, 1970-2000

Population Projections

Population projections are forecasted population totals that extend existing population trends into the future. Population projections are a primary indicator of anticipated future growth, and they help determine anticipated demand for housing, facilities, services, and roads. The projection techniques used in this analysis are based on carrying past trends into the future, and therefore can be influenced by variables in future development and actions by the municipality with respect to zoning, subdivisions, and the purchase of development rights. Therefore, a single projection should not be viewed as an exact figure on which to base planning policies. The following projections should only be used as a planning tool for informational purposes. Projections have been calculated to the year 2030.

The Chester County Planning Commission (CCPC) population projections were prepared using a ratio-share method. This is a US Census Bureau recommended methodology for small geographic areas. The CCPC calculated the share of the County population in each municipality in 1980, 1990, and 2000, and projected the municipal shares for 2010 and 2020 based on the trend of each municipal share. These initial projections were then adjusted considering various factors affecting growth, including utility and transportation infrastructure, proposed development activity, land constraints, and County and municipal development policies.

Figure 2-2: Population Projections, 2000–2020; New Garden Township and Surrounding Municipalities

Municipality	2000	2010	2020	Percent Change CCPC 2000-2020
New Garden	9,083	11,560	13,710	50.9%
Avondale Borough	1,108	1,210	1,340	20.9%
East Marlborough	6,317	7,860	8,980	42.2%
Franklin	3,850	5,130	6,090	58.2%
Kennett Square Borough	5,273	5,360	5,540	5.1%
Kennett	6,451	7,830	8,970	39.0%
London Britain	2,797	3,220	3,510	25.5%
London Grove	5,265	6,870	8,090	53.6%
West Grove Borough	2,652	2,840	3,100	16.9%
West Marlborough	859	860	850	-1.0%
Chester County	433,501	483,500	528,000	21.8%

Source: US Census Bureau, 2000; and CCPC Population Projections 2000 to 2030

Projections calculated for New Garden, from the 2000 US Census figure indicate, according to the DVRPC figure, the population has the potential to increase by 50.9 percent to 13,710 residents by 2020. When compared to the surrounding municipalities and to Chester County, Franklin and London Grove should have the greatest increases with 58.2 percent and 53.6 percent from 2000-2020, respectively. Kennett Square should experience the lowest population growth from 2000-2020 with 5.1 percent, while West Marlborough may potentially lose some population. Chester County is projected to have an increase of 21.8 percent by 2020. The projected increases for New Garden, and for the surrounding municipalities, suggest a greater demand on municipal services, such as education, police and fire protection, road maintenance, traffic volumes, and sewer and water facilities.

Age Distribution

An analysis of age distribution provides information on what segments (age groups) are increasing or decreasing within a population. Consequently, it indicates if more services and what types of services and facilities, housing, and employment will be required. For the purposes of evaluation and to indicate the movement and distribution of age groups in New Garden from 1980 to 2000, ages for this subsection are broken down into five groups (cohorts). They are: Under 5, 5-17, 18-44, 45-64, and 65+. Generally defined as: pre-school age "Under 5"; school age "5-17"; younger worker, child-bearing, and first-time home buyer age "18-44"; older worker, "empty nesters", and second-time home buyer age "45-64"; and senior age "65 and Over".

Figure 2-3: Age Group Composition, 1980-2000; New Garden Township

Age Group	1980		1990		2000		Percent Change 1980-2000	Percent Change 1990-2000
	Number	Percent	Number	Percent	Number	Percent		
Under 5	338	7.1%	410	7.6%	726	8.0%	114.8%	77.1%
5-17*	977	20.4%	921	17.0%	2,274	25.0%	132.8%	146.9%
18-44*	2,218	46.3%	2,624	48.3%	3,634	40.0%	63.8%	38.5%
45-64	912	19.0%	1,024	18.8%	1,793	19.7%	96.6%	75.1%
65 and Over	345	7.2%	451	8.3%	656	7.3%	90.1%	45.5%
Total	4,790	100%	5,430	100%	9,083	100%	89.6%	67.3%

Source: US Census Bureau, 1980-2000

*Due to a change in counting methods, the 2000 US Census uses 5-19 and 20-44 age groups

In **Figure 2-3** for 1980, the Under 5 and 65 and Over age groups were the smallest cohorts as a percentage of the total population, 7.1 percent and 7.2 percent, respectively; and the 18-44 age group the highest percentage of the total population (46.3%). This trend of smallest and largest percentage carried through the 1990 and 2000 Census'. For planning purposes, the 5-17 group indicated a significant positive growth rate from 1980 to 2000 at 132.8 percent, including a 146.9 percent increase from 1990-2000. The Under 5 and portions of the 5-17 age groups will be entering school during the first half of this decade. This is important when considering future school enrollment, funding, and facility/program needs. New housing growth is likely to further increase the number of school age children in the Township. At the age of 18, children begin to leave home for college, job opportunities, and to join the military services, and many of this demographic, the 18-44 group, typically from families. As this trend continues, especially with the increased number of children, housing demand may increase.

Two age groups of significant importance over the coming years will be 45-64 and the 65 and Over age groups. The 45-64 group, representing the largest of these cohorts with an increase of 96.6 percent from 1980-2000, will be moving into the 65 and Over group. The 65 and Older cohort experienced a growth rate of 90.1 percent from 1980-2000. This jump is common throughout the United States with the "baby-boom" generation growing older and the death rate is decreasing. Over the life of this Plan, the effects of a continually growing senior age population and the movement of the working age population into retirement will place pressures upon the local taxpayers as they deal with a larger percentage of their citizenry living on fixed retirement level incomes. There may be a need for additional elderly housing and services and an evaluation of the impacts on funding for public facilities and services.

Median Age

Unlike the mean or average age, which can be affected by extreme values either high or low, the Median Age is significant in that it is the "middle age" of all the persons in New Garden and makes comparing community data more reliable. In 1980, New Garden's median age was 28.8 years; the youngest median age of the surrounding municipalities. By 1990, the median had increased to 32.0 years, the third youngest behind Avondale (31.3) and West Grove (31.9); and in 2000 increased again to 33.6 years, once again the third youngest median age among the surrounding communities. The population as a whole is becoming "older" and is caused by an influx of older residents or an outflow of younger people. Indicative of affordability for younger people, the townships tend to have higher median ages than the boroughs, which are more affordable for younger people.

Figure 2-4: Median Age, 1980-2000; New Garden Township and Surrounding Municipalities

Municipality	Median Age			Percent Change 1980-2000
	1980	1990	2000	
New Garden	28.8	32.0	33.6	16.7%
Avondale Borough	29.2	31.3	32.5	11.3%
East Marlborough	31.6	35.9	38.2	20.9%
Franklin	30.1	34.1	35.9	19.3%
Kennett Square Borough	31.9	34.0	34.7	8.8%
Kennett	38.5	42.6	41.1	6.8%
London Britain	31.8	35.6	40.5	27.4%
London Grove	30.7	34.0	35.1	14.3%
West Grove Borough	30.6	31.9	32.1	4.9%
West Marlborough	31.0	35.3	38.5	24.2%
Chester County	30.5	33.8	36.9	21.0%

Source: US Census Bureau, 1980-2000

The median age nationwide has been increasing due to the aging of the dominant age group, the "Baby Boom" generation. This older age group, buying homes and moving into the region, further affects the median age. Census age structure estimates indicate that the median age of the County population will continue its upward trend. As noted previously, the increasing median age and growing older age groups will have implications for the types of facilities and services needed by the residents of the Township and the region. Similarly, any increase in the younger age categories will have implications for demands on school and recreation facilities. These trends will be factored into forthcoming Plan sections.

Hispanic/Latino Population

One of the significant characteristics of the population in New Garden is the percentage of people of Hispanic/Latino heritage. This is due to the amount of Hispanics/Latinos involved in the mushroom industry. Approximately twenty-three percent (22.7%) of the 2000 Township population is Hispanic/Latino. In 1980 and 1990 New Garden had the greatest percentage of any Chester County municipality. However, by 2000 the Township had moved to third highest in the region (22.7%) behind Avondale (38.1%) and Kennett Square (27.9%). When looking at the 20 year trend, West Grove experienced an increase of 1,118.9 percent and Kennett Square 528.2 percent. While previously a large segment of the Hispanic/Latino population consisted of single males, current trends include more married men with families. A need for housing, bilingual services, school programs, and assistance with familiarity with the local culture are some of the impacts resulting from increases in the Hispanic/Latino population. It should be noted that accurate counts of immigrant groups in general can be difficult to obtain for reasons including tracking migration, non-traditional household composition, fear of government agencies, and language barriers. Therefore, counts obtained through the US Census are likely to be somewhat lower than the actual number.

Figure 2-5: Hispanic/Latino Population,* 1980 – 2000; New Garden Township and Surrounding Municipalities

Municipality	1980		1990		2000		Percent Change 1980 - 2000
	Number	Percent	Number	Percent	Number	Percent	
New Garden	729	15.2%	1,131	23.6%	2,065	22.7%	183.3%
Avondale Borough	87	9.8%	168	17.6%	422	38.1%	385.1%
East Marlborough	180	4.6%	191	4.0%	250	4.0%	38.9%
Franklin	11	0.6%	16	0.6%	49	1.3%	345.5%
Kennett Square Borough	234	5.0%	662	14.0%	1,470	27.9%	528.2%
Kennett	224	5.3%	322	7.7%	593	9.2%	164.7%
London Britain	8	0.5%	32	2.1%	47	1.7%	487.5%
London Grove	236	6.7%	203	5.7%	695	13.2%	194.5%
West Grove Borough	37	2.0%	49	2.7%	451	17.0%	1,118.9%
West Marlborough	13	1.4%	41	4.4%	74	8.6%	469.2%
Chester County	5,799	1.8%	8,565	2.3%	16,126	3.7%	178.1%

Source: US Census Bureau, 1980-2000

* Does not include temporary or seasonal employees

ECONOMIC PROFILE

Median Household Income

Median household income is the income figure of which one half of the total number of household incomes are above this figure and one half are below. By examining changes to this figure over time, the relative economic health of the residents can be determined. In addition, the median household income figure can be used to compare income levels between adjacent communities, and as one factor to determine the "standard of living" within a community. Communities "doing well" have high or steady increases in median household income.

In 1990, New Garden's median household income was \$36,521. (See: **Figure 2-6**) By 2000, this figure doubled to \$75,307, the highest median household income increase among the studied communities. (Note: comparison data prior to 1990 is unavailable. The 1980 US Census did not publish such data for communities smaller than 2,500 residents). In 1990, London Britain had the highest median household income of the studied communities at \$66,424 and Avondale the lowest at \$30,815. By 2000, East Marlborough was the highest at \$95,812, an increase of 45.4 percent; and Kennett Square was the lowest at \$46,523, an increase of 35.3 percent from 1990 to 2000. In 2000, Chester County had the highest median household income of any county in the state at \$65,295, an increase of 43.1 percent over 1990.

Differences between the percentage increases in a given year between household and per capita incomes reflects a possible change in the number of people employed within that household, usually the addition or loss of workers within a household, or a significant wage increase. Per capita income figures for New Garden for 1990-2000 reflect an increase of 95.8 percent, from \$15,508 in 1990 to \$30,364 in 2000, the highest percent increase of the studied communities. In 1990, New Garden's per capita figure of \$15,508 was in the middle of the surrounding communities; Kennett Township was highest at \$28,432 and Avondale the lowest at \$12,203. For 2000, New Garden was at \$30,364, Kennett Township was again the highest per capita income at \$46,669, an increase of 47.7 percent from 1990; and Avondale again the

lowest at \$16,794, an increase of 37.6 percent. In 2000, Chester County had the highest per capita income of any county in the state at \$31,627, an increase of 53.5 percent over 1990's figure.

Figure 2-6: Median Household and Per Capita Income, 1990-2000; New Garden Township and Surrounding Municipalities

Municipality	1990		2000		Percent Change 1990-2000	
	Household	Per Capita	Household	Per Capita	Household	Per Capita
New Garden	\$36,521	\$15,508	\$75,307	\$30,364	106.2%	95.8%
Avondale Borough	30,815	12,203	46,875	16,794	52.1%	37.6%
East Marlborough	65,880	26,695	95,812	38,090	45.4%	42.7%
Franklin	56,394	20,685	81,085	28,057	43.8%	35.6%
Kennett Square Borough	34,375	15,147	46,523	22,292	35.3%	47.2%
Kennett	58,853	28,432	85,104	46,669	44.6%	64.1%
London Britain	66,424	23,857	93,521	35,761	40.8%	49.9%
London Grove	38,667	15,575	74,337	27,654	92.2%	77.6%
West Grove Borough	35,417	14,009	56,875	19,967	60.6%	42.5%
West Marlborough	35,652	26,755	52,283	33,245	46.6%	24.3%
Chester County	45,642	20,601	65,295	31,627	43.1%	53.5%

Source: US Census Bureau, 1980-2000

Household Income

One reason to look at household income is to study the relationship between household income and home value. For example, those seeking to purchase a home generally tend to buy the highest priced house that they can afford to mortgage. Therefore, New Garden should have a diversity of housing to support the diversity of incomes. In order to maintain the diversity in household incomes in the Township, a variety of housing should be permitted, in upper as well as lower ranges. This will enable families in higher income brackets to move into New Garden and allow those currently in the Township to remain in the school district and maintain their ties to the community.

The following, **Figure 2-7**, reflects the percentage of occupied households within a range of incomes. According to the 2000 US Census New Garden had a total of 2,724 households, the most number of households of the studied communities. The largest percentage, 18.0 percent, made between \$100,000-\$149,000; followed closely with 17.7 percent of the total households with incomes of \$50,000-\$74,999. Avondale had the highest percentage of people with incomes less than \$25,000 (22.9%), 8.3 percent higher than the County figure of 14.6 percent; and East Marlborough had the highest percentage of people with salaries greater than \$100,000 at 46.7 percent. Clearly, the older more urbanized communities (the boroughs) had fewer households with incomes greater than \$100,000 and more households with incomes less than \$50,000. The more affordable housing stock available in the boroughs would be expected to attract more households with moderate incomes, particularly considering the high cost of housing in the surrounding townships.

East Marlborough had the highest median household income at \$95,812, \$30,517 higher than the County number; while New Garden was \$75,307, \$10,012 greater than the County and Avondale the lowest at \$46,875, \$18,420 lower than the County. In 2000, Chester County had the highest median household income of any county in the state at \$65,295.

Figure 2-7: Household Income as Percent of Total Number of Households, 2000; New Garden Township and Surrounding Municipalities

Municipality	Less than \$10,000*	10,000 - 14,999*	15,000 - 24,999*	25,000 - 34,999*	35,000 - 49,999*	50,000 - 74,999*	75,000 - 99,999*	100,000 - 149,999*	150,000 - 199,999*	200,000 or More*	Total Households	Median Household Income
New Garden	4.7	1.8	4.2	7.2	14.1	17.7	14.3	18.0	7.3	10.6	2,724	75,307
Avondale Borough	7.6	4.0	11.3	14.4	20.1	25.2	10.5	3.7	1.7	1.4	353	46,875
East Marlborough	1.8	0.5	3.1	6.7	7.5	18.5	15.2	25.2	7.7	13.8	2,133	95,812
Franklin	2.1	2.6	3.8	3.2	13.8	20.4	16.5	22.3	10.6	4.8	1,173	81,085
Kennett Square Borough	6.8	3.3	10.2	17.4	14.9	22.6	11.4	8.7	2.6	2.2	1,865	46,523
Kennett	2.8	2.8	6.5	4.9	8.2	17.8	13.8	19.4	8.7	15.1	2,454	85,104
London Britain	2.3	0.9	1.9	6.0	7.3	17.3	20.0	26.3	11.3	6.7	950	93,521
London Grove	1.5	1.8	4.4	10.1	11.0	22.1	23.2	18.1	3.6	4.3	1,644	74,337
West Grove Borough	4.8	3.2	7.6	11.1	13.2	33.6	15.8	7.6	2.4	0.7	872	56,875
West Marlborough	1.7	6.1	9.8	14.5	11.8	30.1	8.7	8.7	2.0	6.6	346	52,283
Chester County	4.2	3.3	7.1	8.9	13.3	20.5	15.2	15.7	5.6	6.0	158,025	65,295

Source: US Census Bureau, 2000. *Figures in these categories are percentages

Family Income

Overall, New Garden's families have a substantially higher median income than that of the County. Consistent with the housing prices in the area, the townships have a higher median family income than the boroughs. The more affordable housing stock available in the boroughs would be expected to attract more families with moderate incomes, particularly considering the high cost of housing in the townships. The following, **Figure 2-8**, reflects the number of families within a range of incomes. New Garden had 2,264 families, the most number of families of the studied communities, with the greatest number of these (21.9%) within the \$100,000-\$149,999 category. Avondale indicated the highest percentage of families with incomes less than \$25,000 at 22 percent; 13.8 percent higher than the County figure; and East Marlborough had the highest percentage of people with salaries greater than \$100,000 at 54.1 percent. East Marlborough had the highest median family income at \$104,590, followed by Kennett with \$104,097. Avondale had the lowest family median income at \$48,833, \$28,083 behind that of Chester County. In 2000, Chester County had the highest median family income of any county in the state at \$76,916.

Figure 2-8: Family Income as Percent of Total Number of Families, 2000; New Garden Township and Surrounding Municipalities

Municipality	Less than \$10,000*	10,000 - 14,999*	15,000 - 24,999*	25,000 - 34,999*	35,000 - 49,999*	50,000 - 74,999*	75,000 - 99,999*	100,000 - 149,999*	150,000 - 199,999*	200,000 or More*	Total Families	Median Family Income
New Garden	0.4	1.6	2.0	5.5	12.0	20.1	15.9	21.9	7.7	12.7	2,264	89,812
Avondale Borough	6.7	5.2	10.1	13.4	17.2	26.1	12.7	4.5	2.2	1.9	268	48,833
East Marlborough	1.3	0.0	0.8	5.3	4.7	17.2	16.7	28.1	9.1	16.9	1,749	104,590
Franklin	0.6	0.0	3.9	4.9	10.1	20.6	19.2	25.4	9.8	5.6	1,007	89,718
Kennett Square Borough	3.5	2.8	10.6	13.4	13.5	24.6	14.9	9.9	3.9	2.9	1,249	54,948
Kennett	0.9	0.8	3.2	1.8	5.9	17.3	17.0	24.1	9.6	19.3	1,799	104,097
London Britain	1.6	0.5	1.1	5.0	5.6	17.0	21.7	28.1	13.1	6.3	819	97,013
London Grove	0.7	0.0	2.3	9.8	8.7	24.8	25.9	19.6	4.3	3.8	1,381	78,635
West Grove Borough	3.4	1.5	5.7	10.4	13.8	34.5	17.0	11.0	1.8	0.9	681	60,274
West Marlborough	0.5	4.7	4.7	11.3	12.7	32.4	10.3	11.7	1.9	9.9	213	56,875
Chester County	2.0	1.6	4.6	6.9	11.5	21.7	17.9	19.2	7.0	7.6	114,091	76,916

Source: US Census Bureau, 2000. *Figures in these categories are percentages

Poverty Levels

The poverty level of a community is an indication of the general condition of that community. The poverty level is an income level, adjusted for the number of people and children within a household, established by the United States Department of Agriculture to identify how much income is necessary to provide basic food, shelter, and clothing for that household. The number of impoverished individuals is derived from the number of people living in impoverished households. A high poverty rate is an indication that many households do not earn sufficient income to ensure their health, safety, and welfare.

In 2000, New Garden had the highest number of people in poverty with 517 people or 5.7 percent of the total population. (See: **Figure 2-9**) Many of these people were non-family farm workers (individuals). On the other hand, New Garden had one of the lowest percentages of families in poverty at 0.8 percent (19 total families); only Franklin had a lower percentage at 0.6 percent (6 families). Of the 517 people in poverty in New Garden, 93.4 percent were over 18 years of age and 14.9 percent were 65 or older. Avondale had the highest percentage of people in poverty at 14.9 percent. Kennett Square and West Grove had the highest percentages with 9.0 percent and 8.3 percent, respectively. The boroughs also reflected the highest percentages of families in poverty with 9.7 percent, 7.5 percent, and 4.7 percent, respectively; Kennett Square had the greatest number of families in poverty with 94. This trend in poverty within the boroughs may be attributed to a decline of the mushroom industry and a subsequent drop in farm worker housing located in the townships.

The availability of affordable housing and easier access to needed services and facilities explains, at least in part, the higher poverty levels found in the boroughs. Somewhat higher poverty levels and lower median incomes in these communities, in comparison to the townships, is typical in Chester County and in many other areas of the state. The townships typically have lower poverty rates than the urban areas

because urban areas are usually more affordable for people with less income. Urban areas have higher densities of housing, which also reduces real estate costs. Transportation costs can be lower in urban areas than in suburban areas because goods and services are generally available within walking distances for those who cannot afford automobiles. Also, the greater densities within urban areas are more compatible with efficient mass transit service. In rural areas, owning an automobile is necessary to travel to work and to stores.

Although the poverty rate is static throughout the studied communities, the boroughs have a significantly higher percent and the townships a somewhat lower percent of both impoverished people and families than Chester County. A little over 5 percent (5.1%) of Chester County's residents and 3.1 percent of the families are impoverished.

Figure 2-9: Percent of Persons and Families Below Poverty Level, 2000; New Garden Township and Surrounding Municipalities

Municipality	Persons	Percent of Total Population	Families	Percent of Total Families
New Garden	517	5.7%	19	0.8%
Avondale Borough	163	14.9%	26	9.7%
East Marlborough	151	2.4%	30	1.7%
Franklin	63	1.7%	6	0.6%
Kennett Square Borough	468	9.0%	94	7.5%
Kennett	330	5.1%	48	2.7%
London Britain	48	1.7%	17	2.1%
London Grove	135	2.6%	21	1.5%
West Grove Borough	219	8.3%	32	4.7%
West Marlborough	41	4.8%	9	4.2%
Chester County	22,032	5.2%	3,529	3.1%

Source: US Census Bureau, 2000

EMPLOYMENT CHARACTERISTICS

Employment characteristics provide an overview of the types of occupations in which the residents are employed, where the residents work, and how they travel to their job. Changes in these characteristics show trends in the overall economy of an area and changes in the types of employment available.

Employment by Occupation

An analysis of the labor force by occupation examines the types of jobs that are held by the residents. This analysis identifies the diversity of the labor force, and evaluates whether most of the residents are concentrated in similar or different occupations. Occupation, shown in **Figure 2-10**, is the type of work a person does on the job.

The residents of New Garden work in a diversity of occupations similar to that of the County, except for farming where 11.1 percent of the New Garden workers are concentrated, compared to only 1.0 percent for the County. This can be attributed to the presence of the mushroom industry and to the rural nature of much of the area. The majority of the workers of both New Garden and Chester County tend to be concentrated within the white collar, managerial, service, and sales occupations, when combined. Some

occupations are closely related to certain industries such as farming and machine operations, while others, such as managerial and sales, can apply to a wide range of industries. Work force occupations also reflect the education level of the residents. The white-collar professions typically require college degrees. Blue collar occupations typically do not require as much advanced education, although practical education and experience may be necessary.

Figure 2-10: Employment by Occupation, 2000; New Garden Township and Surrounding Municipalities

Occupation	New Garden	Avondale	East Marlborough	Franklin	Kennett Square	Kennett	London Britain	London Grove	West Grove	West Marlborough	Chester County
Management, Professional, and Related	1,890	94	1,949	864	710	1,688	858	1,022	510	203	99,985
Service	537	119	211	192	528	296	82	343	243	71	24,066
Sales and Office	780	118	729	402	640	546	314	615	349	100	58,170
Farming, Fishing, and Forestry	471	62	48	14	215	162	21	227	66	38	2,267
Construction, Extraction, and Maintenance	213	53	166	176	217	161	104	196	83	37	15,208
Production, Transportation, and Material Moving	349	65	224	165	364	180	82	380	156	45	21,559
Total Employment	4,240	511	3,327	1,813	2,674	3,033	1,461	2,783	1,407	494	221,255

Source: US Census Bureau, 2000

Place of Work

Figure 2-11, reflects resident destination to their place of work in 1990 and 2000. Place of work identifies whether people are working in New Garden, the county, and state and helps to identify employment opportunities within the Township. In 1990, there were 3,202 workers in New Garden. Of those, 992 or 30.9 percent worked within the Township, and 2,210 or 69.0 percent worked outside of the municipality. Seventy-one percent worked inside Chester County and 4.5 percent outside of the County. Seven hundred and eighty two residents or 24.4 percent worked outside of Pennsylvania and 75.6 percent or 2,420 residents worked within the state. As noted previously, 149 people worked at home.

In 2000, there were 4,183 resident workers in New Garden, an increase of 30.6 percent over the 1990 figure. Of those 4,183 residents, 991 worked within the Township, virtually unchanged from the 1990 figure; 3,192 residents worked outside of the Township, an increase of 44 percent over 1990; 2,276 residents (54.4%) worked outside of Chester County, in effect unchanged from the 1990 figure; 2,694 residents worked in Pennsylvania, an increase of 11.3 percent over the 1990 number; and 215 residents worked at home, an increase of 44.3 percent over the 1990 figure. Of note, in 2000, 32 percent of

Township residents worked in New Castle County, 93 people worked in Philadelphia, and 56 worked in Maryland.

The region's commuting patterns have implications for transportation planning, which will be discussed in more detail in a forthcoming chapter. These commuting patterns also indicate that the Township continues to serve as a bedroom community, with 76 percent outside the Township, 54 percent of the people working in the County, and 36 percent working beyond Pennsylvania, primarily in Delaware or Maryland. This commuting pattern is indicative of the increasing orientation to the south towards the Wilmington and New Castle County area.

Figure 2-11: Place of Work, 1990–2000; New Garden Township

Place of Work	1990		2000		Percent Change 1990-2000
	Number	Percent	Number	Percent	
Total Workers Over 16	3,202	100.0%	4,183	100.0%	30.6%
Worked in Municipality	992	30.9%	991	23.7%	0.0%
Worked Outside Municipality	2,210	69.1%	3,192	76.3%	44.4%
Worked in Chester County	2,277	71.1%	2,276	54.4%	0.0%
Worked Outside Chester County	143	28.9%	1,907	45.6%	133.4%
Worked in Pennsylvania	2,420	75.6%	2,694	64.4%	11.3%
Worked Outside Pennsylvania	782	24.4%	1,489	35.6%	90.4%
Worked at Home	149	4.7%	215	5.1%	44.3%

Source: US Census Bureau, 1990-2000

Means of Transportation to Work

The means of transportation to work helps to identify commuting patterns. New Garden is a "bedroom" community with many employed residents commuting to jobs outside the Township and state. **Figure 2-12** shows how the residents of New Garden commute to work. In 1990, the vast majority of people (63.7%) commuted to work via a single occupant vehicle (SOV), with 14.9 percent carpooling. Six people (0.2%) used public transportation, 501 people (15.6%) walked to work (predominately farm workers), and 149 residents (4.7%) worked at home.

In 2000, these figures changed somewhat from the 1990 figures. Seventy-seven percent drove alone to work, an increase of 1,181 people or 57.9 percent over 1990; 10.1 percent carpoled, a decrease of 54 people or -11.3 percent; and 8 people used public transportation, a gain of 2 people or 33.3 percent. Surprisingly there was an 44.9 percent decrease (225) of people who walked to work (potentially a reflection of the reduction in the number of farmer workers); and 40 people found other means to get to work, an increase of 11 people over 1990 figures.

The average commuting time to work in 1990 was 17.3 minutes. Of note was the increase in travel time to work (an additional 7.4 minutes or a 42.8 percent increase in travel time) to 24.7 minutes. An indication that residents are either working further away from home or their means to work is getting slower (i.e.; more traffic congestion, more stopping, slower moving traffic, more vehicles, access management issues, sprawl, etc.) The mean travel time to work for Township residents (24.7 minutes) is lower than that of Chester County (27.5 minutes), primarily due to the Township's location to employment opportunities.

Interesting to note is the increase in people from 1990-2000 who worked at home. In 2000 this number increased to 215 people or 5.1 percent, an increase of 44.3 percent over 1990. This is a category of

residents that increased in numbers during the 1990s with the expansion of the Internet and web-access (telecommuting) and probably will continue to expand.

Figure 2-12: Means of Transportation to Work, 1990-2000; New Garden Township

Means to Work	1990		2000		1990-2000	
	Number	Percent	Number	Percent	Number	Percent
Drove Alone	2,040	63.7%	3,221	77.0%	1,181	57.9%
Carpooled	477	14.9%	423	10.1%	-54	-11.3%
Public Transportation	6	0.2%	8	0.2%	2	33.3%
Walked	501	15.6%	276	6.6%	-225	-44.9%
Other Means	29	0.9%	40	1.0%	11	37.9%
Worked at Home	149	4.7%	215	5.1%	66	44.3%
Mean Time to Work	17.3 min	-	24.7 min	-	7.4 min	42.8%

Source: US Census Bureau, 1990-2000

PLANNING IMPLICATIONS

An analysis of the population, housing, and economic data and information indicates the following planning implications for New Garden:

- **Growth Pressure** - Growth pressure from Delaware is likely to continue and further increase the demand for residential and non-residential development. The Township needs to ensure that future populations can be accommodated in terms of land area, infrastructure, and community facilities and services with development occurring in an appropriate manner that also protects the remaining open space, natural, historic features.
- **Population Projections** - Population and housing projections indicate approximately 4,600 additional residents and 1,400 new homes could be located/needed in New Garden by 2020. Reducing scattered development and focusing it in and around the rural centers of the community are sound land use policies for the Township. The Township needs to address directing projected future growth into the most appropriate areas. Site design that complements the character of the Township should be encouraged among the development community.
- **Key Demographic Cohorts** - Increases in the number of both school age children and older age groups need to be considered in terms of their impact on schools, new housing developments, types of housing, services, and facilities.
- **Agriculture Industry** - The presence of the mushroom industry and the rural nature of portions of the Township creates a higher percentage of persons in agriculture and farming than is typical of the County. The encouragement and implementation of programs and land use regulations that support farmland protection are both objectives of this Plan.
- **Commuting Patterns** - A majority of Township residents work in Pennsylvania, however the number residents working outside of Pennsylvania, predominately to the Wilmington area has grown significantly. There is a need to identify these commuter patterns and the Township should work at the regional level on transportation improvements and coordinate with the State of Delaware.

Chapter 3

Historical and Cultural Resources Inventory

New Garden has a rich and diverse heritage that is reflected in the historic and cultural resources. The preservation of these historic resources is essential to establish a community bond from past generations to future generations. Since these resources are not renewable, it is essential to recognize their value and promote a plan that is based upon fundamental principles in an effort to preserve, protect, and enhance their presence within the community.

New Garden's character is intrinsically linked to its past. The Township's history and cultural development are integrated in its landscapes, and can be seen in the village areas and neighborhoods. Many of the historic buildings remain in their original settings and contribute to the interesting historical nature of the Township. The preservation of New Garden's historic resources lends to its sense of place and unique character.

The purpose of this chapter is to evaluate the status of historic preservation in the Township. In order to develop strategies that are realistic to implement, it is necessary to first recognize the existing state of historic preservation in the community. This begins with an overview of the Township's history, a review of historic resources, the legal basis for historic preservation, and the implications of this background information. These implications are essentially the major preservation issues facing New Garden. The historic preservation plan for the township is derived from the analysis and the implications.

HISTORICAL PERSPECTIVE

Understanding the history of New Garden is vitally important to community planning for two major reasons. First, historic resources such as buildings, structures, hedgerows, and stonewalls possess a quality of historical and architectural significance and character which makes them worthy of protection and preservation. Second, the events and personalities that helped form the character of the municipality are important to obtain a complete understanding of the true heritage of the Township. This section, while by no means a complete history, focuses on aspects of the historical background of New Garden that bear a direct influence on planning for the future.

The following historical information was derived from several sources: Ann Hagerty, Once Upon a Time in New Garden Township, May 1977; Futhey and Cope, History of Chester County; Open Space, Recreation, and Environmental Resources Plan, New Garden Township, 1993; and New Garden Comprehensive Plans, 1981 and 1993. Other information may be obtained at the Chester County Historical Society, the Chester County Historic Preservation Office, or the Chester County Archives.

The first human inhabitants of the New Garden area were the Lenni-Lenape Indians. The Lenni-Lenape, whose name means "Original People", were also known as the Delawares, but only accepted this name when they learned it was that of a great white chief, Lord de la Warr. One major settlement, Minguannan, was located near London Tract Church in London Britain Township. Another lesser settlement was situated east of Toughkenamon on the hill overlooking the Toughkenamon Valley. A burial ground of this settlement is said to exist near Sharp Road, but the site has never been excavated. These settlements were well established for the time, consisting of about a half a dozen long houses, sometimes clustered and sometimes scattered, to form their central village. The Lenni Lenape migrated to hunting lands in the autumn and returned in the spring to plant crops in the small fields that adjoined their villages.

The Quakers were the first European inhabitants to the area. A good relationship existed between the Indians and the Quakers. Without the knowledge and assistance of the Indians, the Quakers might not have survived the hardships of the new land. It is also believed that Lenni Lenape are buried in the New Garden Meeting Cemetery. Therefore, below ground historic resources exist throughout the Township.

Township Formation

The lands within the Township were part of a survey of 30,000 acres conducted by Henry Hollingsworth for William Penn, the founder of Pennsylvania, in 1699. The surveyed land, about 30,000 acres was to be distributed to the children of Penn, William Jr. and Letitia. William Jr. received a patent on May 24, 1706 for 14,500 acres and Letitia received the remaining 15,500 acres. William Jr.'s land included 8,913 acres in what is today New Garden Township and 5,587 acres in Mill Creek Hundred, New Castle County, Delaware. The lands of Letitia included the area now known as Kennett Square and its surroundings. The entire holdings of William Jr. and Letitia were known as "Manor of Stenning", named after Steyning Hundred in Sussex, England. New Garden Township, before losing a corner to London Britain Township, consisted of the lands north of the "Circular Line" included in William Jr.'s land manor.

Before William Penn Jr. obtained the patent to his land, he appointed Griffith Owen, James Logan, and Robert Ashton as his attorneys. Penn was returning to England and wished that his appointed representatives sell his land. The land was not immediately taken by settlers, but after a few years several families of Friends arrived from Ireland, and upon settling there, gave the name of New Garden to the area. This became the first permanent settlement in New Garden Township and was founded in 1712. The name was most likely suggested by John Lowden, a noted minister in the Society of Friends. Lowden suggested the name in remembrance of the New Garden Meeting in County Carlow, Ireland, from which he had come.

Early Settlement Patterns

The first sale of land occurred in 1708, involving a parcel of 700 acres lying just below Toughkenamon, which was purchased by Mary Rowland. In 1712, Gayen Miller purchased 700 acres, while in 1713 conveyances of land were granted to John Miller, James Lindley, John Lowden, James Starr, Michael Lightfoot, William Halliday, Joseph Hutton, Abraham Marshall, and Thomas Jackson, and in 1714 to Thomas Garnett and Joseph Sharp. However, many of these landowners had settled on the land one or two years before receiving their titles. Of the approximately thirty (30) families who first settled in New Garden Township, twenty (20) were Irish Friends.

In 1714, John Rentfro was appointed constable for New Garden, although he probably lived in what is now London Grove Township, which was assessed with New Garden until 1723. Some of the settlers in what is now London Britain were taxed as "inhabitants adjacent to New Garden" for some years prior to 1723. By 1722, the assessment included 92 landowners and 20 "adjacent" taxpayers. In 1724, the number of taxable properties was reduced to 25, due to the tax structure being revised to include only the Township proper. By 1753, the number of taxables had grown to 57 with the first mention of freemen occurring, having 4 listed in that year. A "freeman" at that time was an unmarried male over the age of 21 that did not own property.

Fifty percent of the White immigrants and a very small number of Negroes entered the United States between 1720 and 1776 as indentured laborers, with the largest percentage found in Pennsylvania. Those few slaves who were owned by Quakers in Pennsylvania were freed by 1776. They entered through the Port of Philadelphia, and were the main source of farm help until long after the Revolution. The demand for them increased yearly and more and more people, especially Quaker farmers, steadily opposed slavery. Undoubtedly, many citizens entered the Township as indentured laborers or apprentices.

Early parcel ownership has greatly dictated the shape of the Township's current land use patterns. The Breous Farm Atlas shows property line designations, location of early farm buildings, and other important structures in 1883. Many property lines from this period still exist or are still apparent through remaining hedgerows. This is a setting that is unique to very few communities and an integral part of the heritage of the Township.

Roadways

Most roads in the Township started as trails used by the Indians, and later by settlers moving into or through New Garden. A sparse network of roads was then created along property lines to connect the early farms to one another and to more commercialized areas. This set of early roads was designed to serve farm-related traffic, and thus are comprised of winding, narrow lanes. By 1883, the current Township road network was in place.

There are several roads in the Township that are significant to past as well as current development. Gap and Newport Pike, Route-41, remains a major connecting road between Harrisburg, Pennsylvania and Wilmington, Delaware. Baltimore Pike, which brings travelers through Toughkenamon and the boroughs of southern Chester County, was the most widely used road in the Township until the new US Route-1 was completed in the mid 1960's. Before it was known as Baltimore Pike it was known as State Road and Philadelphia and Baltimore Road. The length of State Road (Baltimore Pike) between Avondale and West Grove was constructed out of stone some time before 1905 while the length in New Garden remained dirt. Newark Road, from the Mill at Doe Run to the Meeting House at New Garden was blazed in 1710, is also of historic importance. The name has changed over the years from New Ark Road. Newark Road helped to create the main intersection in Toughkenamon. It also helped to provide access to the area of the Township where Lowden and the other Friends, established the first settlement. The majority of the remaining roads were developed along early property lines and to connect areas without access to the major roads. Many of these roads bear the names of the early settlers.

Rail Lines

Mass transportation is not new to New Garden. Three rail lines and a trolley line serviced the Township during the nineteenth century. These lines helped to shape the early industrial and cultural features of the Township, and influenced the concentration of development along Baltimore Pike. The first rail service started after a public meeting in 1853 regarding the construction of railroad from Baltimore to Philadelphia by way of West Chester. The first train to Toughkenamon came through in 1860, and this line continues to function today.

The Wilmington and Western Railroad followed the White Clay Creek to Landenberg and in the beginning it was planned to connect with the Philadelphia and Baltimore Central Railroad. The railroad served the various mills along the White Clay. The Wilmington and Western Railroad was completed in 1872 and was met with much public support. The rail line did well for a few years until it fell under financial stress. It was then purchased and reorganized under the name of the Delaware Western Railroad. The Baltimore and Ohio Railroad Corporation acquired it on February 1, 1883. It was used for both passenger and freight use for many decades until it was closed for good in 1942.

The trolley line from Kennett Square to Oxford was completed in 1906, and was known as the Wilmington, Kennett, and Oxford Trolley. This line ran on the north side of Baltimore Pike and caused much anguish. In December of 1907, after a train had blocked the roadway, the Township Supervisors decided to eliminate the problem by tearing up the line. Rail workers replaced the line and the supervisors removed it the same evening again. The rail workers went to replace the lines the next day and held their position firm. The Township Supervisors rallied support from the public and took over the position.

Historic Villages

Toughkenamon: Toughkenamon sprang from modest beginnings. The Hammer and Trowel Inn that operated under several different names, was built sometime prior to 1745. The building was located along the Philadelphia and Baltimore Road that was built in 1737, known as Baltimore Pike. A store was built in 1836, and then a house, for years these were the only buildings at the crossroads of Newark Road and the Baltimore Pike. Toughkenamon's hey day was from about 1835 to 1880 and the boom was owed to the Philadelphia & Baltimore Central Railroad.

Isaac Slack, the "father of Toughkenamon" knew that the proposed route for the railroad lay through the Toughkenamon Valley, although no stop was planned. Nevertheless he began to buy land and even before the railroad came, built two factories, a spoke mill and a lumber mill. Because his business depended on a railroad stop, he built a station and donated the surrounding land to the Railroad. His persuasion finally prevailed; and the railroad which began to operate in 1855, adding Toughkenamon as a regular stop in 1863. By 1870, the population was close to 300. In addition to Slack's factories, a boys and girls boarding school was established, industries included a casket-maker's shop, a wheelwright's, a feldspar mill and in 1882, a creamery. Isaac Slack invested in the Village, shepherded fledgling business, and promoted Toughkenamon for over 25 years; all this despite his own financial reverses.

After its initial manufacturing phase, Toughkenamon became a center for dairy products, and greenhouse culture of tomatoes and carnations. After 1920 and to the present time, however, a majority of businesses became related to the mushroom industry.

Chandlerville: This village originated in approximately 1820 by Enoch Chandler who was a forefather of the milling operations in Chandlerville (now Landenberg). Enoch Chandler owned and probably operated a grist and sawmill within the village of Chandlerville. Chandler owned a series of mills and after his death ownership changed many times. Chandlerville Post Office was established in 1848. The earliest mill was located in nearby Laurel in 1811.

Landenberg: The village came about when Martin Landenberger bought three woolen mills; the Chandlerville mill from Joseph Ripka, the Laurel mill from Joseph Fisher, and the Nobleville mill. All of these mills were located along the White Clay Creek in the southwestern corner of the Township. Under the direction of Landenberger, the mills flourished and Chandlerville experienced growth like it had never seen before. Landenberger built many houses for his employees in Chandlerville. In 1869, it had a population of 1000 people and was one of the largest places in the county. It was at that time considered a major industrial center of Chester County. In 1904 the name was changed to Landenberg. The 1880's were difficult times for Landenberger. The year started fine, but soon because of an economic slowdown, it was necessary to slow mill operations down and in September the main mill burnt to the ground. Following that, Martin Landenberger went and sold his properties to James Lund in November of 1880. Lund's operation ran sporadically in the mid 1880s and closed for good in 1912 and burnt down in 1917. This forced many people out of the community to look for work elsewhere.

New Garden Village: Although the New Garden Friends Meeting was established in 1715, the village of New Garden did not develop for some years later. The establishment of the New Garden Road by 1847 contributed to the development of the village. The first reference to a store in the village was in 1845. Additional business started, such as blacksmiths, brickyards, general stores, and a post office. New homes sprung up around these businesses, establishing New Garden as one of the more picturesque communities in the Toughkenamon Valley.

Kaolin: Kaolin derived its name from the Clay Works located in the area in the 1800s. The clay works, including 2 brickyards, 2 blacksmiths, 2 stores, a school, and meeting grounds, had become a thriving business by the late 1850s, and it was around this operation that the little community developed. The

earliest inn at Kaolin, the Allen Tavern at Sharp Road and Route 41, was constructed in the early 1700s and was operated as a successful business through most of the centuries that followed.

Education

The first school building erected within the Township was of log construction built by New Garden Friends near their Meeting House in 1777. The Society of Friends were pioneers in education in Chester County. The Yearly Meeting from time to time gave earnest and practical advice relative to establishing schools, and in 1778, a year after the New Garden School was established, advised that land should be provided within the scope of each Monthly Meeting with sufficient space for a garden, orchard, grass for a cow, etc., plus a suitable house and stable be provided for a teacher of staid character and proper qualifications. It also recommended that funds be collected for establishing and supporting schools. Within the buildings, desks were provided for older children; benches without backs for the younger. A desk for the teacher, a bucket, and what was called a "pass" comprised most of the furnishings. The latter was a small paddle with the words "in" and "out" written on its opposite sides. The New Garden building had, in lieu of the large stove usually provided in the buildings, a large fireplace to furnish heat. Schools were conducted upon a subscription plan whereby parents and guardians of those who attended paid the teachers' salaries. Public schools were established in 1837 and the original subscription school continued to function until 1856.

Historic Industry of Prominence

As described earlier, milling was an important industry in the early history of New Garden, particularly along the White Clay Creek. Along with the milling industry, agricultural activities were a major aspect of the Township economy. Greenhouses and dairy farming were the most important agricultural activities, and continued to be until the 1940s. Since then, the number of dairy farms has dwindled until only two currently exist in the Township, Wilkinson Farms, Inc. and Highpoint Acres owned and operated by C. Barclay Hoopes, Jr. and family.

Many businesses opened in Toughkenamon, only to close shortly thereafter, and one that lasted only a few years was the rubber mill which opened in part of a sash and frame factory. This latter factory was operated then by Harvey Lang who purchased the large steam mill on February 2, 1870. He operated the sawmill section of the mill, while George M. Thompson of Oxford operated the grist mill part. Four years earlier, the "Village Record" had reported the saw mill, operated by McQuillen, Hoopes, and Company, was doing extensive business in sawing ships' timbers. Thousands of handles for axes, picks, hatchets, etc. were made and shipped to Philadelphia, New York, Boston and other markets. Lang altered part of the mill for a hard rubber factory about 1874, and it may have been the operation of Elverson and Company, of Franklin Township, that he and T. T. Worrall set up in Toughkenamon, for it had been reported that Elverson and Company had planned to move Lang's mill, and would employ a hundred hands. By October 31st, the firm known as the "Pennsylvania Hard Rubber Company," was operating under the management of Messrs. Lang, Worrall, and William Mullee.

Mushroom Industry

In the early part of the 20th century, greenhouse activities began to provide a new industrial base for the Township. This industry was spurred in large part by the number of immigrants who began to establish homes in New Garden after World War I. Charles Starr was the most well known greenhouse operator in the Township. Starr was the owner of "Pleasantville Green-houses" which were located at Starr and Penn Green Roads. He had gained state-wide recognition as a grower of tuberose and carnations.

Southeastern Pennsylvania is said to be similar to those areas where mushrooms are cultivated in Europe. The similar climate, water supply, and ample composting materials helped development of the industry. Major trade routes through the area made spawn easily acquired in the late 1800's. The scientific contributions of J.B. Swayne, the closeness of markets, and the conservative nature of the Quakers encouraged the spread of knowledge of mushroom cultivation, all aided the growth of the industry. It soon became apparent that mushrooms needed special houses in which to grow. Since fungi do not require light, the frame buildings were windowless, but an adequate ventilating system was necessary for air circulation and to provide as constant a temperature as possible. Many endeavored to make a science of mushroom culture, and a full-fledged American industry was born.

The first mushroom farms to the area were in Kennett Square. In 1890, William Sharpless and a group of others were probably the first in New Garden Township to enter the mushroom industry. They started as carnation growers and decided to try mushrooms also. They grew the mushrooms underneath the carnation beds. At first they received their spawn from England. Soon an improved brick spawn was produced in the United States. William Sharpless then entered into spawn producing in 1924. Until 1926 all mushrooms grown commercially in the United States were the brown "cream" variety in color, not the white ones to which we are accustomed today. A great event occurred in that year when a clump of white mushrooms was discovered growing in a bed of "creams". Growers immediately anticipated the commercial possibilities, for the white mushroom had more eye-appeal than previous varieties. All white mushrooms today have been propagated from this chance cluster. Mushroom farming grew into a major industry for the area in the early 1900s led by the Mushroom Supply Company in Toughkenamon. The Mushroom Supply Company was established in 1924 by Charles H. Thompson and L.F. Lambert. Another big factor that helped the growth of the industry was a new and expanded market created in 1928 by mushroom canning, particularly canning of mushroom products such as soup. About 80 percent of all mushrooms produced in the United States in the 1920s were produced in this area. The canning market, plus the increased scientific aid, helped the industry weather the Great Depression. Modern Mushroom is now the largest mushroom producer in New Garden. Originating in the early 1970s, Modern Mushroom was a fully mechanically operated facility and acted as a grower as well as a broker of mushrooms. Today, the canning market is now gone and the market is comprised of fresh mushrooms of the white and "exotic" varieties. New Garden Township produces more mushrooms than any other municipality in the United States and this has been true for many years.

Historic Resources

New Garden's historical development is reflected in both its land and its buildings. Historic resources are not only architecturally significant buildings, but include all types of resources. They are categorized at the federal level as buildings, sites, structures, objects, and districts. The National Park Service (NPS), the federal agency responsible for several historic preservation programs, categorizes resources in this manner in the administration of programs such as the National Register of Historic Places. The categories are defined by the NPS as follows:

Building: A house, barn, church, hotel, or similar construction created principally to shelter any form of human activity.

Site: The location of a significant event, a prehistoric or historic occupation or activity, or a building or structure, whether standing, ruined or vanished, where the location itself possess historic, cultural, or archaeological value.

Structure: A building used for purposes other than sheltering human activity.

Object: A form of simple construction that is primarily artistic in nature and relatively small in scale. It may be movable, but is generally associated with a specific setting or environment.

District: A significant concentration, linkage, or continuity of site, buildings, structures, or objects united historically or aesthetically by plan or physical development.

Historical surveys of locations, places of historical interest and/or architectural features need to be completed. This future planning effort will need to be a high priority since an effective historical and cultural resource plan will promote community pride, economic vitality, and tourism.

Historic Resource Surveys

The National Park Service defines a survey as the "*process of gathering data on historical and physical character of the community.*" Surveys are critical to preservation because they provide for the systematic collection and organization of available data on historic resources. The purpose of the survey and future use of the data should be defined, however, before the format is finalized to ensure that it can be used as anticipated and that the maximum value is achieved.

Most surveys are undertaken to identify properties that are historically important and have contributed to cultural development of the Township or are architecturally important and retain a certain level of architectural integrity. Surveys generally target properties that are at least fifty years of age or older. The survey data are evaluated and the resulting inventory of historic resources can then be the subject of various forms of preservation efforts. Such efforts can include nomination to the National Register of Historic Places, protection through regulatory provisions of a historic preservation ordinance, or public or private restoration or rehabilitation efforts. There are two general types of surveys, preliminary and comprehensive:

Preliminary Survey

Municipalities throughout Chester County were surveyed between 1979 and 1981. These were considered "preliminary" or "reconnaissance" surveys as they gathered general information on the location, type, and condition of historic resources within each community. Many of these initial surveys were funded with federal dollars and have largely served as the basis for the preservation activities that have been undertaken to date.

A historic site survey in New Garden was begun, but never completed, between 1979 and 1981. Volunteers were trained in identifying and recording buildings over fifty years in age. They photographed many of the buildings, described basic architectural features, and noted general building forms. The New Garden Historic Sites Survey is on file at the Chester County Historical Society and includes mainly buildings and structures. Of the 78 resources surveyed, 7 were "Eligible" for the National Register, 2 are "Listed", and the remainder are either "Ineligible" or "Undetermined".

The identification and evaluation of historic resources is a key element of a comprehensive historic preservation program. An additional effort to identify historic resources was begun in 2003. Some 396 identified historic resources in New Garden constructed more than 50 years ago were inventoried, many of which are related to its heritage. Several periods of history are represented and are reflected in these resources dating back to the early 19th century and exhibit characteristics of that time. Changes to these resources, depending on the type and degree, should be respected as part of the evolution of the resource, unless their integrity has been severely compromised. These resources will be prioritized as to their importance to the Township and for potential for state and federal recognition.

Comprehensive Survey

A comprehensive survey often takes place as part of a National Register nomination process. Along with a physical description, information on the historical and cultural associations is required as well. Comprehensive surveys are usually contracted to historic preservation professionals. The Pennsylvania Historical and Museum Commission (PHMC), the state agency responsible for preservation efforts, provides assistance in the preparation of comprehensive surveys. Procedures, forms, and a recommended survey format are found in the publication *Guidelines for Historic Resource Surveys in Pennsylvania*.

The PHMC format requires basic information along with current and historic names, construction dates, past and present uses, and a complete physical description of the property. A site plan of each property is also requested. A critical element of the comprehensive survey is the discussion of the historical or cultural relevance of the resource. This part of the survey links the individual building to the overall historical or cultural development of New Garden. A property's association with prominent persons that lived in the Township or played a role in its history is also documented in this survey.

During the winter of 2003-04 a graduate student from the Center for Architectural History and Design at the University of Delaware conducted an architectural documentation of the history of 15 houses in the Township. This project continues into the academic year 2004-2005 with 15 more houses to be studied. With the historical Commission researching the families who built and lived in these houses, eventually a comprehensive study of the domestic architecture in New Garden Township during the 18th and 19th centuries as well as of the families who peopled the Township will be compiled.

LEGAL BASIS FOR HISTORIC PRESERVATION

The legal foundation for historic preservation activities lies in federal and state laws mandating that historic resources be considered in community planning and development. Various historic preservation programs and techniques evolved out of the public mandate and an understanding of the legal foundation is necessary for the Township to identify viable preservation approaches. An understanding of the governmental obligations associated with carrying out preservation activities using federal or state funding is also necessary since protection of historic resources is both state and national policy. The legal foundation for historic preservation is described in the following narrative and includes discussion of the Township's participation in federal and state initiatives.

Federal Level

Historic preservation as federal policy formally occurred with the passage of the National Historic Preservation Act (NHPA) of 1966. This legislation responded to public outcry against the widespread loss of historic resources occurring in large and small cities alike in the name of urban renewal. The legislation was designed to create a comprehensive framework for protecting historic resources throughout the nation through a system of reviews, regulations and incentives that focused on preserving historic resources. The NHPA also encouraged cooperation among federal, state, and local governments in addressing the protection of historic resources. State Historic Preservation Offices (SHPO) were designated and assigned responsibility to coordinate preservation activities on a state-level. In Pennsylvania, this agency is the Pennsylvania Historical and Museum Commission (PHMC).

The mandates of the NHPA directly impact preservation at the municipal level. For example, it formalized the National Register of Historic Places. Section 106 of the NHPA requires that any project involving federal funds be reviewed for its impact on historic properties. The Certified Local Government program, authorized by the NHPA, provides municipalities like New Garden the opportunity

to participate directly in federal preservation programs and to access (through the state) certain funds earmarked for historic preservation activities. The following is a brief summary of key programs.

National Register of Historic Places: The National Register of Historic Places is a comprehensive listing of districts, sites, buildings, structures and objects of historical or cultural significance to the prehistory or history of the locality, the state, or the nation. Properties do not need to have national significance to be listed in the National Register. The listing is mainly honorary and does not affect the rights of property owners to use their property in any way. It does, however, impact the use of federal funds.

Benefits of designation include eligibility for certain types of federal funds designed to encourage preservation. The most important of these is an investment tax credit available to the owners of income-producing properties that rehabilitate their properties in accordance with the Secretary of Interior's Standards for Rehabilitation. These federal standards are intended to guide the treatment and preservation of the historic and architectural character of properties. Historic commercial buildings, as well as residential structures, could benefit from tax credits if used for income producing purposes. Properties determined eligible for the National Register are afforded many of the same benefits as actual listing.

In 2003, there were two resources in New Garden listed in the National Register of Historic Places:

Landenberg Bridge: The Landenberg bridge (L.R. 15017) is a 76.5' by 30' steel, lattice truss, with pin-connected members bridge over White Clay Creek in the village of Landenberg. The bridge is owned and maintained by the state and was built by Schuylkill Bridge Works of Phoenixville in 1899 and has a cantilevered sidewalk on the north side separated from the roadway by a lattice railing. The deck is timber covered with macadam. The bridge is significant because it is representative of a Pratt pony truss of moderate open length and is considered to be one of the earliest such bridges in this nomination. This bridge is also unusual in that it is one of only four bridges nominated in southeastern Pennsylvania. Most metal truss bridges, including Pratt trusses were erected in north central or southwestern Pennsylvania. The Township has been awarded a grant to rehabilitate the bridge. Once the rehabilitation is complete, the Township will assume ownership and maintenance responsibilities for the bridge.

Merestone House: The Merestone House property contains a five-unit complex, a guest house/garage that incorporates the ruins of an 1806 barn, a milk house, a stone shed, and a machinery shed with several attached sections. All of the buildings, except for the machinery shed built in 1941/1942, contribute to a Colonial Revival style and used for agricultural purposes as part of the larger farm until 1907. Today the buildings are part of a residential development. The house is actually located in both DE and PA and the outbuildings are all located in Delaware.

Section 106 Review: An important provision of the NHPA was the implementation of the Section 106 review process. This section of the Act requires that any project using federal funds be reviewed for its impact on historic resources either listed in, or determined eligible for, the National Register of Historic Places. Section 106 does not necessarily protect historic resources from demolition or alteration, but it does require that alternatives be investigated and mitigation measures be considered. All federally funded projects, programs or activities taking place in the Township are subject to this review process. This includes projects or activities funded through Community Development Block Grant (CDBG), as administered by Chester County.

Certified Local Government Program: A Certified Local Government (CLG) is one that meets certain criteria including adoption and enforcement of historic preservation regulations, establishment of a historical commission or similar body, and engaging in the survey of historic properties. The program is

intended to strengthen the preservation partnership among various governmental entities. Upon certification, local governments are given the opportunity to play a greater role in protecting historic resources by participating directly in the federal process. One of the most important incentives is increased access to federal preservation funds. Ten percent of each state's allocation of historic preservation funds must be passed through to CLGs.

Investment Tax Credits for Historic Preservation: Federal income tax credits for the rehabilitation of historic properties is an effective means of encouraging the voluntary preservation of historic buildings. Investment tax credits have been responsible for billions of dollars in the rehabilitation of historic properties. The Tax Reform Act of 1986 provides for a rehabilitation tax credit of 20 percent for the rehabilitation of certified historic structures or 10 percent for non-historic buildings constructed before 1936. A certified structure is one that is either individually listed in the National Register of Historic Places or is certified as contributing to a National Register District. The property must be used for non-residential or rental residential purposes and rehabbed in accordance with the Secretary of the Interior's Standards for Rehabilitation. The two-step certification process required is administered by the National Park Service with the assistance of the Pennsylvania Historical and Museum Commission.

State Level

The NHPA authorized the appointment of a State Historic Preservation Office to administer provisions of the Act at the state level. In Pennsylvania, the agency assigned this responsibility is the Pennsylvania Historical and Museum Commission (PHMC). This entity is responsible for maintaining and administering the State's sites and museums, managing the State Archives, and administering a wide variety of historic preservation programs.

Pennsylvania History Code: Many of the federal mandates required through NHPA are reiterated in Title 37 of the Pennsylvania Consolidated Statutes, the Pennsylvania History Code. The Code pertains to the conservation, preservation, protection and management of historical and museum resources and identifies PHMC as the responsible agency. It outlines the legal basis for historic preservation in Pennsylvania and also mandates cooperation among other State entities in the identification and protection of historic and archeological resources. Preservation is also addressed in other state legislation, supplementing the provisions of the History Code.

Pennsylvania Enabling Legislation: There are two laws in Pennsylvania that provide the legal foundation for local historic preservation ordinances. *Act 167, the Historic District Act of 1961*, authorizes municipalities to create local historic districts and protect the historic and architectural character through regulation of the erection, reconstruction, alteration, restoration, demolition or razing of buildings within the certified local historic district. Local historic districts established under the auspices of Act 167 must be formally certified through PHMC. Municipalities are also required to appoint an historic architectural review board (HARB) to advise the local governing body on building activity in the district. *Act 247, the Pennsylvania Municipalities Planning Code of 1968, as amended*, authorizes the use of municipal land use controls such as use regulations and area and bulk regulations to protect historic resources. The MPC specifically provides for the regulation of places having unique historical, architectural, or patriotic interest or value through the creation of a specific zoning classification. New Garden has not adopted a historic overlay zoning district to protect resources within the Township.

Local Level

To aid in the identification and the preservation of important historical landmarks, the New Garden Board of Supervisors formed a Historical Commission in 1991. To promote historic preservation, New Garden has established preservation as local policy. This policy provides the "authorization" to pursue preservation

activities. By first establishing preservation as a municipal policy, the Township is able to ensure that preservation goals are broadly shared and that consensus on its importance has been reached.

Municipal policy is most effectively established in local planning documents such as the comprehensive plan. In Chester County, historic preservation is also addressed in Open Space, Recreation and Environmental Resources plans. By identifying preservation as a goal, recognizing how historic preservation relates to other community development objectives, and emphasizing the need for preservation activities, New Garden is stating that protection of historic resources is important in the community and that future municipal actions, and land use decisions in particular, will support preservation.

Implementation of the policy is the undertaking of those actions and activities determined to support preservation goals and objectives. New Garden will continue to implement a preservation policy in a number of ways. The continued efforts of the New Garden Historical Commission and the adoption of a historic overlay district in the Township's zoning ordinance are key implementation actions. Other ways in which the Township can implement its policy is by consistently seeking input from the Historical Commission on subdivision and land development proposals, adopting demolition delay wording within the zoning ordinance for historic resources, seeking National Register designation for key resources, when appropriate, and by providing information and education on the importance of local history and preservation. A preservation program should include a wide variety of actions designed to meet those goals associated with historic preservation and each action or strategy should be tailored to community objectives.

New Garden Comprehensive Plan (1993): The topic of historic preservation was addressed in the previous New Garden Comprehensive Plan (1993). The history of New Garden was presented in Section 3 entitled *Township History*. There were five issues identified:

- A need for the Township to inventory potential historic resources.
- Although the hands of progress are always moving forward, it is necessary to hold onto the past. Resource protection is needed as development occurs.
- Currently there are a number of programs that are available to the Township for registering resources that merit preservation. The National Historic Landmark and National Register programs are only two of the many available.
- An organized process should be instituted to assure proper treatment of these cultural resources. Steps for this process should include:
 1. Formal creation of an Historical Commission, Board of Historic Architectural Review (HARB) or both, to establish a stewardship body for the historical and cultural resources that will have input into the overall planning efforts for the Township.
 2. Identification, through field survey and research, of all structures built prior to 1950.
 3. Creation of an overlay map of the Township that shows all the identified cultural resources with their designations as either a Class I (National Register listed or eligible for the National Register of Historic Places) or a Class II (locally important) resource.
- Protection of historical and cultural resources can and should be a dynamic process that does not preclude development per se, but sets sensible design parameters for conscientious treatment of those resources. Adherence to such parameters also can provide economic benefits for developers in some circumstances (via the Federal Historic Preservation Investment Tax Credit Program for certified rehabilitation of historic structures).

Conclusion

New Garden contains a wealth of historic resources that span over two centuries, among these are various individual historic buildings scattered throughout the Township and the villages of Toughkenamon, Chandlerville, Landenberg, New Garden, and Kaolin. Many of these resources have retained some of their historical integrity, and can contribute to the overall character of the community and region, but are in need of additional protection. The Township can attribute much of its historical development to the role of agriculture and localized industry.. From a historical aspect, the local roads serve as a link to the past. They Local roads represent old property lines, farm lanes, or trails that connected local properties and many bear the names of the early settlers. New Garden recognizes the importance of preservation and has begun to undertake activities to identify and preserve remaining resources. Integrated with that goal should be the formation of partnerships with other municipalities, the Region, both Pennsylvania and Delaware, and the private sector, for the purpose of preserving and interpreting the history and development of New Garden and assisting with financing the dissemination of historic information. By first identifying specific preservation strategies, the Township can create a preservation program aimed at protecting unique historic qualities and showcasing its role in the historic development of the region. Without an effective historic preservation strategy in place, this character will be lost forever.

PLANNING IMPLICATIONS

The historic resources analysis of this chapter indicates the following planning implications for New Garden:

- **Preservation Strategies** - The preservation of New Garden's historic buildings, villages, and sites lends to its sense of place and unique character. The Township needs to undertake specific protective strategies to retain these historic resources.
- **Protection and Reuse** - Township historic resources are being lost to development. There is a need to prioritize and protect historic resources from development pressure, whenever feasible, while providing a range of appropriate use options to property owners.
- **Integrated Approaches** - New Garden's unique historic character stems from its agricultural, industrial, and transportation heritage. Preservation efforts and activities should not focus on just one aspect of its history, but should address all significant aspects by integrating strategies and related educational and interpretive efforts.
- **Agricultural Preservation** - The Township developed initially as an agricultural community. There is a need for regulatory measures that protect the remaining historic and cultural resources, as these are not only historic preservation objectives, but open space objectives as well.
- **Community Awareness** - The success of historic preservation programs directly relates to the degree to which preservation is supported by the community. Although residents appear to be aware of the community's history and development, more education is needed. There is a need to identify innovative ways of educating residents about local history and the relationship between historic resources and community character.
- **Funding** - As preservation strategies are developed, financial resources will need to be identified in order to better facilitate implementation.

- **Local Coordination** - Community groups, service organizations, cultural associations, and the school district can all be called upon to assist in preserving the Township's history by disseminating information, providing education, and generating a volunteer base for preservation. There is a need to expand efforts to increase coordination between the Township, local organizations, historic preservation agencies, and the school district in order to create a stronger local foundation for preservation efforts.
- **Partnerships** - The historic resources in New Garden are diverse in type, location, and association. Consequently, a coordinated preservation effort is needed to ensure that the overall fabric of the Township is conserved. New Garden will strive to partner with the private sector, especially the development community, at both the local and regional level to protect remaining resources.
- **Heritage Tourism** - The White Clay Creek watershed is the focus of state preservation efforts and along with the Red Clay Creek presents a heritage tourism opportunity. During the mid-1800s several mills were located along the banks of White Clay Creek. Today, many of these buildings lie in ruins and offer a glimpse at the Township's past. The Township will need to recognize the importance of these resources in generating tourism and a sense of community while building upon this concept as it develops local strategies.
- **Open Space** - Several historic resources provide opportunities for open space and recreation preservation, as well as links between resources. The Township needs to identify these opportunities and develop strategies for how these resources can both be preserved, as well as function as additional resources in terms of open spaces, trails, and recreation.

Chapter 4

Natural Resources Inventory

Natural resources greatly influence land use in New Garden. This chapter provides an overview of the major natural resources, their importance to the Township, and a summary of municipal regulations currently in place for their protection. A major goal of this chapter is to inventory these resources and examine potential gaps in existing protection measures to determine the best course of action for their protection. Natural resources should serve as a primary determinant in what types and intensities of land uses are appropriate in each area of the Township. As such, they will provide important guidance for the development of the land use plan.

LAND RESOURCES

New Garden Township lies entirely within the Piedmont Province of the Appalachian Highlands, a band of rolling topography that stretches from New York to Georgia. The "fall line" marking the transition between the Piedmont Province and the Coastal Plain Province to the east passes just to the south of New Garden through northern Delaware. Within the Piedmont, most topographic features (ridgelines, rock outcrops) tend to be oriented in a northeast to southwest pattern while the slope of the land and drainage patterns generally dip in a southeasterly direction toward the Coastal Plain. This pattern is evident within Chester County and within the Township.

Within Chester County, New Garden is part of the southern Chester County Lowland, a large band of the Piedmont that is characterized by lower elevations and less alignment of topographic features due to the more complete weathering of the area geology.

Climate

Climate can be defined as the aggregate of day-to-day weather such as precipitation, temperature, humidity, and wind over an extended period of time. Chester County is classified as an area of modified humid continental climate.

The climate is influenced primarily by the prevailing winds that carry many of the major weather systems eastward across the country. Fluctuations in the day-to-day weather are sometimes frequent. Because of the protection of the various mountain ranges through the central portion of the state, temperatures in Chester County are milder than in most parts of the state.

A prime requirement for industry, agriculture, and the general public is an adequate and dependable water supply. New Garden has both, provided by moderate precipitation distributed rather evenly throughout the year. Amounts of precipitation normally total about 45 inches annually. From May through September rainfall is produced principally from rain showers and thunderstorms. These weather occurrences tend to be somewhat localized and may not effect the entire County. During the cooler half of the year, precipitation is produced primarily from more extensive storm systems and infrequent snowstorms.

The growing season is generally about 190 days in length in Chester County, usually falling between April 16 and October 23. This period also receives over 55 percent of the annual rainfall, thereby reducing the need for irrigation and increasing the effectiveness of the land for agricultural production. In most years rainfall is ample for crop growth, but occasionally there are extended periods of drought.

Geology

The type and composition of geologic formations underlying New Garden influence what activities are best suited to take place on the surface. In planning for future land use allocations, geologic information must be considered. Geology influences foundation support, excavation, and stability.

New Garden is underlain by six major rock types: Setter's Quartzite, Cockeysville Marble, Wissahickon Schist, Felsic Gneiss, Mafic Gneiss, and Pegmatite. Each of these formations vary in composition and character, thereby imparting different planning implications. The acreage and percentage of Township land underlain by these formations are shown on **Figure 4-1**, while their locations are shown on **Map 4-1**.

Setter's Quartzite is characterized by a light-gray metamorphic quartzite. This rock is typically coarse grained with thin layers of mica often present. The Setter's Quartzite (a metamorphosed quartz sandstone) is a particularly hard rock, thereby making it highly resistant to weathering and conventional excavation. Stability for foundations and cut-slopes is excellent, but should be excavated to a depth of solid material. Due to its hardness, it was often used in furnace lining and other uses where hardness and resistance properties were valuable. Setter's Quartzite has also seen limited use as crushed stone for a variety of purposes. Setter's Quartzite is found in the northern section of the Township and forms the ridges along the Toughkenamon Valley. Within New Garden, approximately 982 acres representing 9.4 percent of the Township land area is underlain by this formation.

Cockeysville Marble is a white to blue-gray colored metamorphosed limestone. The marble is a pre-cambrian rock formation and is probably one of the oldest rock types in the County. This rock is highly resistant to physical weathering, but moderately susceptible to chemical weathering, therefore occurring generally in low, rolling areas. The stability of this formation for foundations and cut-slopes is good, but investigations for subsidence potential are necessary. Much of the Toughkenamon Valley is underlain by Cockeysville Marble. It has been widely used in the past for buildings and monuments and underlies approximately 957 acres (9.2%) of the Township.

Wissahickon Schist is a moderately hard rock with a low to moderate resistance to weathering. These mica schists were derived from shale that underwent intensive metamorphism. Often, weathered zones in Wissahickon Schist may run as deep as 50 feet before solid bedrock is reached. Due to the susceptibility to weathering, areas underlain by this formation must be studied for foundation stability, especially for heavy structures. The Wissahickon Schist has been frequently used locally as a building stone, especially in the Philadelphia area. The weathered portion of Wissahickon formations has some possible value as a future source of low grade mica for insulation products such as transformers. Most of New Garden is underlain by this formation, with 6,539 acres (62.7%) of the Township.

Felsic Gneiss includes a series of metamorphic rocks with similar properties; granodiorite, Baltimore Gneiss, and quartz monzonite. The rocks of this formation are light buff to light pink in color with a fine to medium grain. Resistance to weathering, abrasion, and rupture is high, but variable. All but the heaviest structure foundations can be accommodated by this rock. In New Garden, erosion and weathering of these rocks have produced a rolling terrain of medium relief in the northern tier of the Township, north of the Toughkenamon Valley. The rocks of the Felsic Gneiss formation are somewhat valuable for use as crushed stone due to their hardness. The Baltimore Gneiss has also been sometimes used as a building stone. Felsic Gneiss rocks occupy approximately 1,104 acres (10.6%) of the Township.

Mafic Gneiss are very similar to the rock types within the Felsic Gneiss formation, the major difference being that Mafic Gneiss formations are mafic in composition and darker in color, being composed chiefly of basalts, while the Felsic Gneiss rocks are felsic and of a lighter color. These formations are highly resistant to weathering, rarely weathering greater than about eight feet in depth. Due to a high degree of hardness, Mafic Gneiss are excellent for foundations involving all but the heaviest construction. Valued for their

hardness and toughness, gneiss is often mined for use as crushed stone. This formation occupies 759 acres (7.3%) of the Township. They are generally found in long bands south of Baltimore Pike.

Pegmatite is essentially an igneous intrusion; small flows of magma that cool and form longitudinal dikes. Pegmatite is often solidified in a fluid-rich environment, thereby forming large crystals of quartz, feldspar, and muscovite that are several centimeters or even a few meters in length. Due to the hardness and coarse grain of the rock, pegmatite weathers somewhat irregularly. They are usually found in areas of rolling topography and because of irregular weathering, soils above these formations can range in depth from a few inches in higher elevations to several feet in valleys. Foundation stability for most construction is good and excavation is generally not difficult. Due to the process of formation and mineral composition of pegmatite, it is often a valuable geologic commodity, especially as a source of feldspar that has several applications in electronics. Pegmatite has been mined in Chester County for feldspar and also for kaolin just over the PA state line in Delaware. Pegmatite only accounts for a small percentage of the geology in New Garden, occurring in only 0.8 percent of the Township (representing 82 acres) and appears mainly in the northwestern and southeastern corners of the Township.

Figure 4-1: New Garden Township Geology

Geologic Formation (Abbreviation)	Acreage of Township Land	Percentage of Township Land
Setter's Formation (Xsq)	982	9.4%
Cockeysville Marble (Xc)	957	9.2%
Wissahickon Schist (Xw)	6,539	62.7%
Felsic Gneiss (gn)	1,104	10.6%
Mafic Gneiss(g)	760	7.3%
Pegmatite (Xpg)	82	0.8%
Total	10,424	100%

Source: Chester County Geology, Chester County Planning Commission, 2004, Chesco GIS.

Slopes

New Garden generally exhibits characteristic topography of the Piedmont Province; broad, rolling terrain with undulating hills of low to moderate relief. The land gently falls in a southeasterly direction, with few areas of sudden changes in relief. The highest point in the Township is just east of the Route 1 and Newark Road interchange with an elevation of 483 feet above sea level, while the lowest point is 140 feet above sea level, occurring in the extreme southern tip of the Township.

The most pronounced areas of abrupt change in topography occur in the vicinities of Landenberg and Toughkenamon villages. In the Landenberg area, the White Clay Creek Valley quickly narrows and becomes quite steep. Slopes here are greater than 25 percent over a considerable area along the White Clay Creek. There is also a steep ridge on the north side of Walnut Run, southeast of Landenberg. North of Toughkenamon, a steep ridge that runs from Avondale to Kennett Square parallel with Baltimore Pike defines the Toughkenamon Valley.

The topography of the Township is shown on **Map 4-2**. Areas are shown with slopes between 15 and 25 percent and areas with slope greater than 25 percent. Slope is a measure of steepness, expressed as a percentage of the ratio between the vertical and horizontal distance between two points. Slopes under 15 percent are suitable for almost all types of land use, contingent upon the presence of other natural constraints.

Topography is an important resource to consider when determining future land use of an area. Development of steep slopes can result in hazardous road conditions, costly excavation, erosion and sedimentation and stormwater runoff problems. These slopes are quite prone to erosion, and protection of them is particularly important for water resource protection when watercourses are nearby, as is often the case in New Garden. Areas between 15 percent and 25 percent slope are generally suitable for low intensity development. Areas in excess of 25 percent slope are best suited for open space uses. Very low density residential development is possible on these steep slope areas, but careful planning and alternative construction methods are necessary to ensure proper development, especially the consideration of sewage disposal, erosion, and stormwater runoff. Intensive development of high density residential, commercial, and industrial uses should be restricted from being built in these slope areas. Problems encountered when areas of steep slope are illogically developed upon include an increase of stormwater runoff, soil erosion, on-site sewage disposal problems, site access, destruction of scenic vistas, vegetation removal, and increased development costs.

Soils

The composition and attributes of soil are important criteria for determining potential land uses. Agricultural and development potential are determined by a number of factors associated with the characteristics and physical properties of the various soil types. Factors to be considered include the depth of the soil, drainage, height of water table, and susceptibility to erosion. Fertility of the soils in New Garden are on average moderate to high, a condition that is accentuated if organic matter is also low. Where adequately fertilized, the soils can be highly productive. Soils found in the Township are suitable for a wide range of crop plants, some of the more typical being corn, tobacco, and small grains.

Within New Garden, the soils are broken down into 22 separate soil types. These soil types have been mapped and studied in the *Soil Survey, Series 1959, No. 19, issued May 1963, Chester and Delaware Counties, Pennsylvania*. Each of the defined soil types share common characteristics and parent materials. Rather than attempting to describe all of these soil types, this section will present a general discussion of soil characteristics.

All of the soils in New Garden have two special classifications assigned by the United States Department of Agriculture and the Pennsylvania Department of Agriculture: an Agricultural Land Use Capability Unit classification and an Development Suitability Unit classification, both of which are shown on **Figure 4-2**.

Prime Agricultural Soils

The Agricultural Land Use Capability Unit classification is a designation for soils concerning suitability for regular agricultural cultivation. It is based upon a number of physical and chemical soil properties including structure, tilth, composition, and acidity (pH). There are eight Agricultural Land Use Capability classes, with Class I through Class IV most suitable for cultivation. Classes at the lower end of the scale are generally not suitable for agricultural cultivation. Of major importance in New Garden are Class I through Class III soils, which are deemed as Prime Agricultural Soils by the United States Department of Agriculture, Soil Conservation Service.

There are 6,260 acres of Prime Agricultural Soils in New Garden, comprising approximately sixty percent of the total soils (10,423.7 acres). Prime Soils produces the highest yields with minimal inputs of energy and economic resources, and farming it results in the least damage to the environment. Class I soils have few limitations that restrict their use for farming. They are deep well drained soils and are level areas found on uplands and silty soils on deep plains. They can be cultivated safely without special conservation treatment. Class II soils have some limitations that reduce the choice of plants or require moderate conservation practices. The soils are found on gently sloping areas, are deep to moderately deep, and well

drained to moderately well drained. There are also shallow soils in this class that are well drained and found on nearly level areas. Class III soils have more severe limitations that reduce the choice of plants, require special conservation practices, or both. A list of Class I through Class III soils is found in **Figure 4-2** and can be viewed on **Map 4-3**. Soils not classified as I, II, or III are generally in areas of floodplains, wetlands, or steep slopes and are not considered suitable for agricultural use. Because Class I, II, and III soils are also often the most suitable for building, many areas of prime soils have already been developed.

Development Suitability of Soils

The Development Suitability Unit classification is a measure of a soil's suitability for building sites and sewage disposal systems. There are seven classifications with varying degrees of suitability. Basic soil properties such as texture, depth to bedrock, depth and variation in water table, slope, and drainage are the more important factors considered in making these interpretations. The seven Development Suitability Units may be subdivided into three development suitability categories; slight development constraints, moderate development constraints, and severe development constraints. Those soils that fit into the slight development constraints category are those of Class 1 and 2 of the Development Suitability Classification and are generally suitable for development and on-site sewage disposal. These soils are generally deep, well drained soils with slight slope (8 percent or less). Soils that may be considered part of the moderate development constraints category, Class 3 and 4 of the Development Suitability Classification, may be categorized as having moderate slopes of 8-15 percent with shallow soils. Generally, development is suitable on soils in this group, but there may be some restrictions concerning on-site sewage disposal because of possible ground water contamination. Soils that are considered as having severe development constraints have an Development Suitability Classification of 5, 6, and 7. These soils may be alluvial or hydric and are often located within floodplain areas or in areas with slope greater than 15 percent. These soils are normally not suitable for any type of development. In order to meet two goals of the Township, Prime Agricultural Soils (Agricultural Suitability Classes I through III) and Severe Developmentally Constrained Areas (Development Suitability Classes 5, 6, and 7) need preservation.

Figure 4-2: New Garden Township Soil Data

Symbol	Soil Type	Slope (%)	Agricultural Land Use Capability	Development Suitability	Hydric Soils	Alluvial Soil
BdA	Bedford silt loam	0-3	II	5	Yes	
BdB	Bedford silt loam	3-8	II	5	Yes	
BdB2	Bedford silt loam	3-8	II	5	Yes	
BrC3	Brandywine loam	8-15	IV	4		
BrD3	Brandywine loam	15-25	VI	7		
BrE	Brandywine loam	25-40	VI	7		
BsB	Brandywine very stony	0-8	VI	4		
BsD	Brandywine very stony	8-25	VI	7		
BsF	Brandywine very stony	25-50	VII	7		
CdA	Chester silt loam	0-3	I	1		
CdB	Chester silt loam	3-8	II	1		
CdB2	Chester silt loam	3-8	II	1		
Ch	Chewacla silt loam	Level	II	6	Yes	Yes
CmA	Conestoga silt loam	0-3	I	3		
CmA2	Conestoga silt loam	0-3	II	3		
CmB2	Conestoga silt loam	3-8	II	3		
CmC2	Conestoga silt loam	8-15	III	3		
CrA	Croton silt loam	0-3	IV	5	Yes	
GeA	Gleneg channery silt	0-3	I	2		
GeA2	Gleneg channery silt	0-3	II	2		
GeB	Gleneg channery silt	3-8	II	2		
GeB2	Gleneg channery silt	3-8	II	2		
GeB3	Gleneg channery silt	3-8	IV	2		
GeC	Gleneg channery silt	8-15	III	2		
GeC2	Gleneg channery silt	8-15	III	2		
GeC3	Gleneg channery silt	8-15	IV	2		
GeD	Gleneg channery silt	15-25	IV	7		
GeD2	Gleneg channery silt	15-25	IV	7		
GeD3	Gleneg channery silt	15-25	VI	7		
GeE	Gleneg channery silt	25-35	VI	7		
GeE3	Gleneg channery silt	25-35	VII	7		
GgA3	Gleneg silt loam	0-3	IV	2		
GgB3	Gleneg silt loam	3-8	IV	2		
GnA	Glenville silt loam	0-3	II	5	Yes	
GnB	Glenville silt loam	3-8	II	5	Yes	
GnB2	Glenville silt loam	3-8	II	5	Yes	
Gu	Guthrie silt loam	Level	IV	5	Yes	
HaB2	Hagerstown silt loam	3-8	II	3		
LaA	Lawrence silt loam	0-3	III	5	Yes	
LaB	Lawrence silt loam	3-8	III	5	Yes	
Ls	Lindside silt loam	Level	II	6	Yes	Yes

(continued)

Symbol	Soil Type	Slope (%)	Agricultural Land Use Capability	Development Suitability	Hydric Soils	Alluvial Soil
MgB2	Manor loam	3-8	II	4		
MgB3	Manor loam	3-8	III	4		
MgC	Manor loam	8-15	III	4		
MgC2	Manor loam	8-15	III	4		
MgC3	Manor loam	8-15	IV	4		
MgD	Manor loam	15-25	IV	7		
MgD2	Manor loam	15-25	IV	7		
MgD3	Manor loam	15-25	VI	7		
MhE	Manor loam and	25-35	VI	7		
MhE3	Manor loam and	25-35	VII	7		
MkF	Manor soils	35-60	VII	7		
MmB	Manor very stony loam	0-8	VII	4		
MmD	Manor very stony loam	8-25	VII	7		
MmF	Manor very stony loam	25-60	VII	7		
Mn	Melvin silt loam	Level	VI	6	Yes	Yes
NaB2	Neshaminy gravelly silt	3-8	II	2		
We	Wehadkee silt loam	Level	VI	6	Yes	Yes
WoA	Worsham silt loam	0-3	V	5	Yes	
WoB	Worsham silt loam	3-8	VI	5	Yes	
WoB2	Worsham silt loam	3-8	VI	5	Yes	

Source: Soil Survey of Chester and Delaware Counties, USDA, 1963

Clean And Green Areas

Pennsylvania Act 319 of 1974, commonly known as *Clean and Green*, is designed to preserve farmland, forestland, and open space by taxing land according to its current use value rather than at its market value for development. There are 127 parcels of land within New Garden enrolled under the Clean and Green tax program, comprising 2,502 acres.

Agricultural Security Districts

The Agricultural Security Area Program, Act 43 of 1981 as amended, is a state program created to help farmers keep their land in agricultural use. Landowners are protected from nuisance lawsuits and certain applications of eminent domain. Agricultural security areas are voluntarily established in a cooperative effort between the Township and farmers within the Township. While indicating an interest of the owners in preserving these areas for agricultural uses, the land can be taken out of agricultural uses by the owners, so it offers no permanent protection for farmland. The program requires no land use restrictions. It is a prerequisite for eligibility in the State and County Agricultural Conservation Easement Purchase Programs. Under Act 43, local government units may create Agricultural Security Areas consisting of at least 250 acres upon petition of interested landowners. These areas comprise over 132,000 acres within Chester County. New Garden adopted its Agricultural Security Area on October 10, 1989. As of 2004, approximately 40 landowners in the Township were included in the District, comprising roughly 2090 acres. (See: Map 4-3)

Agricultural Easement Program

The Chester County Agricultural Easement Program purchases the development rights of farms in exchange for permanent agricultural easements. Participation in the program is voluntary. The competitive program is overseen by the Chester County Agricultural Preservation Board and is administered in conjunction with the State Program. Farms applying to be in the program are evaluated using the Land Evaluation Site Assessment developed by the USDA. This system considers soil type, slope, and other features. Farms must also be located within an Agricultural Security District (see above). The program has proven so successful that in most years it is not possible to purchase the easements of all eligible participants. As of April 2004, New Garden Township had two farms preserved under this program. (See: Map 4-3)

WATER RESOURCES

Due to the interconnection of surface and subsurface water sources, a review of the total water system is necessary to adequately evaluate the water resource characteristics of an area. The creeks, rivers, and streams throughout Chester County have influenced settlement patterns since before the first colonial settlers arrived. Proper management of this resource to meet growing demands, while protecting water quality and quantity from degradation and depletion, is necessary. (See: Map 4-4)

Surface Water Resources

New Garden Township lies within two watersheds, the White Clay Creek Watershed and the Red Clay Creek Watershed. Sixty-five percent of the land area of New Garden drains into the White Clay Creek Watershed while the remaining 35 percent is drained by the Red Clay Creek Watershed. Both watersheds drain into the Christiania River in Delaware, and eventually drain into the Delaware Bay near Wilmington. Each watershed is further divided into minor basins.

In Pennsylvania, water quality standards for all streams and their drainage areas are established by Chapter 93 Water Quality Standards, of the Department of Environmental Protection (DEP). DEP has established mandated standards for all surface waters, regardless of stream classification, which includes 12 specific parameters, including levels of certain metals, nitrates, pH, and total dissolved solids. All streams must also be suitable for the following water uses: aquatic life, water supply for domestic, agricultural, and industrial uses, fishing, and swimming. Included in Chapter 93 are listings of special water uses to be protected for streams as well as specific water quality criteria necessary to protect these uses. The water quality standard for a stream is then determined by the combination of the protected water use and the water quality criteria that matches that use. Special water quality designations are also applied to waters with very high quality.

In New Garden, there are three protected water use designations for surface streams. These designations include the following:

Aquatic Life

- CWF Cold Water Fishes - Maintenance and/or propagation of fish species including the family Salmonidae and additional flora and fauna which are indigenous to a cold water habitat.

- TSF Trout Stocking - Maintenance of stocked trout from February 15 to July 31 and maintenance and propagation of fish species and additional flora and fauna that are indigenous to warm water habitat.

Special Protection

EV Exceptional Value Waters - A stream or watershed that constitutes an outstanding national, state, regional, or local resource, such as waters of national, state, or county parks or forests, or waters which are used as a source of unfiltered potable water supply, or waters of wildlife refuges or state game lands, or waters which have been characterized by the Fish Commission as "Wilderness Trout Streams," and other waters of substantial recreational or ecological significance.

The majority of streams in New Garden are designated as CWF or TSF. The CWF designation is the second ranking in the classification scheme, thereby indicating the stream meets the minimum state criteria and has several additional criteria applied to it for discharges. The TSF designation is a higher designation than the CWF ranking, with additional quality criteria above the CWF classification required.

There are two areas in New Garden for which the Exceptional Value Waters (EV) designation has been applied. These areas are along the White Clay Creek in the northwestern corner of the Township. Existing water quality in EV streams must be maintained and protected because of their outstanding ecological and/or recreational values. Development in the vicinity of EV streams is not prohibited, but additional levels of regulations create more stringent requirements on types and intensity of uses in addition to issues such as sewage storm water discharge.

WHITE CLAY CREEK

The White Clay Creek watershed is located in southern Chester County and northern New Castle County and is in the western portion of New Garden Township. It consists of ten sub-basins covering about 108 square miles. The White Clay Creek is an inter-state stream, because thirteen municipalities of Pennsylvania and Delaware, and unincorporated areas of New Castle County, Delaware, are located within the watershed. The White Clay Creek is part of the Christina River Basin, which flows into the Delaware River Estuary at Wilmington, Delaware. White Clay Creek has three predominant land uses: agriculture (35%), residential (26%), and wooded (24%).

A 16 percent increase in growth is projected for the watershed by 2020, raising concerns about stormwater and pollutant runoff problems and increased flooding. In 1998, estimated impervious cover in the watershed was 15 percent and is estimated to increase to over 16 percent by 2020 due to population growth. Agricultural operations (including mushroom operations) have been a major land use, resulting in non-point source pollutant runoff in several areas of the watershed. On-going efforts by numerous agencies and agricultural operators have made significant progress in reducing agricultural runoff in the watershed, but much more reduction is needed. The watershed serves as a major source of drinking water supplies with an in-stream intake located near the confluence with Red Clay Creek that provides water supply to much of New Castle County. Collectively, the priority management needs and actions must provide source water protection throughout the watershed.

A watershed-wide inter-agency effort is underway to develop estimates of non-point source pollutant loadings that can be assimilated by the streams in the watershed while still achieving the states' designated uses of each stream segment. The development of these loadings (referred to as Total Maximum Daily Loads, or TMDLs) are under development by US Environmental Protection Agency (USEPA), Pennsylvania Department of Environmental Protection (PADEP), Delaware Department of Natural Resources and Environmental Control (DE-DNREC), Delaware River Basin Commission (DRBC), and US Geological Survey (USGS) in conjunction with county agencies, conservation districts, conservation organizations, and other entities, to reduce nutrients and bacteria levels.

In addition to the problems identified, the White Clay Creek watershed has many significant resources that provide benefits to the community and environment that must be protected and preserved. White Clay Creek and its tributaries are afforded federal protections as a Federal Wild and Scenic River. The watershed also has areas that contain or may contain rare and endangered species as noted in the Pennsylvania Natural Diversity Index (PNDI). The headwaters of the East Branch are designated as Exceptional Value. Numerous historic resources dot the watershed, evidence of the economic development of the 18th and 19th centuries as mills were built to utilize the extensive water power found in high gradient streams of the watershed.

Water Quality

The data used for the water quality analyses came from three sources, the Chester County Health Department (CCHD), the USGS, and USEPA's STORET database. Generally, both groundwater and surface water in the White Clay Creek watershed within New Garden have issues with Nitrate/nitrite, lead, zinc, and in some cases, dissolved phosphorus is high. This problem can be attributed to the historical presence of manufacturing, mushroom farming, and other agricultural farming practices.

Federal Wild and Scenic River Designation

In the fall of 2000, a majority of the streams and tributaries of the White Clay Creek were designated as a Federal Wild and Scenic River. The Wild and Scenic River program was established by Congress twenty-six years ago to encourage cooperation between state, local, and federal agencies, non-government organizations and private citizens to protect rivers in a way that is sensitive to the needs and concerns of local people. Presently, 140 rivers have been designated under the program in 33 states.

The process to have the White Clay Creek designated as a Wild and Scenic River began in January 1992 when the initial Study Task Force was established. Later that year, the National Park Service held public meetings to describe the study process and build the foundation for the Task Force. The Task Force then began the preparation of the Watershed Management Plan, which is the first time that the management plan has been developed before the watershed was designated Wild and Scenic by Congress and the President. By developing the management plan first, the Task Force has developed guidelines and management tools to make certain that the first stages of watershed protection are in place.

A total of 191 miles, 24 classified as scenic and 167 miles classified as recreational, of the White Clay Creek and its tributaries received designation into the National Wild and Scenic River System. All portions of the East Branch of the White Clay Creek and its tributaries except for the main stem of the east branch and the Egypt Run and its tributary in the southwest corner of the Township received the National Wild and Scenic River designation.

First Order Streams

First order streams are the "roots" of a watershed. They typically comprise over half of the total stream miles and drainage areas of any watershed. Individually they exhibit very small flows and are highly vulnerable to impacts of pollutants, stormwater flows, and ground water withdrawals. Of the 225 stream miles in the watershed, 45 percent or 101 miles are first order streams. New Garden is within 2 sub-basins of the White Clay Watershed, the Lower East Branch of White Clay Creek and the Upper East Branch of White Clay Creek. First order streams consist of 64.2 percent of the 26 total stream miles for the Lower East Branch while 64.0 percent of 31.5 total stream of the Upper East Branch are first order streams. Over 56 percent of the land area within the White Clay Creek watershed contribute to drainage areas of first order streams. The Upper East Branch has 9,167 total acres of which 5,867 acres or 63.9 percent of the total acres

are first order stream acres. The Lower East Branch has 12,184 total acres of which 7,354 acres or 60.4 percent of the total acres are first order stream acres.

Sources of Water Supplies

Substantial groundwater resources exist within the vast majority of the watershed to serve as a significant source of water supplies to help meet future needs, such as the Cockeysville Aquifer. However, new proposed withdrawals for community water supply systems should be reviewed to mitigate potential impacts to existing users and environmental resources, and be evaluated to maintain the recommended groundwater withdrawal management targets. In addition, several water supply systems exist within the watershed that may represent viable options for meeting future water needs, including:

- Avondale Borough Authority, PA (groundwater supplies).
- London Grove Municipal Authority, PA (groundwater supplies).
- Philadelphia Suburban Water Company, Franklin System, PA (groundwater supplies).
- West Grove Borough Authority, PA (groundwater supplies).
- City of Newark, DE (groundwater supplies).
- United Water Co., DE (surface water supplies).

In addition, Artesian Water Company acquired a groundwater supplied community water supply system in southern New Garden Township.

Non-Point Source Pollutant Loads

A key tool used for looking at surface water quality impacts across the watershed is a pollutant loading model called the Watershed Management Model (WMM). WMM helps to establish an overall "framework" for assessing pollution loading rates under existing and future land use scenarios, and to develop conceptual approaches for control strategies within the watersheds, sub-basins, and municipalities. WMM is also the primary tool used for estimating the percent impervious of each sub-basin and watershed, and for estimating annual average runoff.

White Clay Creek has low total phosphorus (TP) loading, with all the other parameters within normal ranges for all model scenarios. White Clay Creek is one of the watersheds with high levels of mushroom farming. The nutrient loading (nitrites and nitrates (No_{2,3}), total kjeldahl nitrogen (TKN), and total phosphorus (TP)) from these farms can be high since the compost piles impact runoff. Applying the model to project runoff conditions in 2020, yields the following projected changes in pollutant loadings for the watershed (presented as loadings projections for conditions without BMPs, and loadings projections with BMPs, respectively): No_{2,3} (1%, -0.3%), TKN (5.5%, -10%), and TP (7%, -21%).

Biological Diversity Monitoring

Biological diversity in streams is an excellent indicator of the cumulative impact of watershed influences on stream quality. Since 1969, the USGS, in cooperation with Chester County, has conducted a program to annually evaluate stream ecology and water quality conditions using benthic macroinvertebrates and stream water chemistry. The Stream Conditions of Chester County Program has sampled Chester County streams every fall for over 30 years. The initial goals of the program were to evaluate stream water quality and to further the understanding of changes in the stream ecosystem in response to urbanization. The current goals of the program are to use the data to continue to monitor current conditions in response to changing land uses and to determine long-term trends.

There are two long term sampling sites and one flexible (periodically monitored) site located in the White Clay Creek watershed. Sampling has occurred between the years 1970 and 1997 on an annual basis, except for 1996 when no samples were collected. In order to present a year by year snapshot, the diversity index for all the stations has been averaged on an annual basis. The index indicates that conditions in the White Clay Creek watershed have steadily improved since 1974. Diversity index values have been inconsistent due to the large number of midge larva, which is an indication of organic pollution. Overall the biological community indicates good water quality in the White Clay Creek watershed.

Results of the 1998 and 1999 biological diversity monitoring program indicate that:

- Overall the biological community indicates good water quality in the East Branch White Clay Creek at Avondale, but there are indications that the macroinvertebrates are slightly stressed and that some organic pollution is affecting the benthic macroinvertebrate community.
- Overall the biological community indicates good water quality in West Branch White Clay Creek near Chesterville, but there are indications that some organic pollution is affecting the benthic macroinvertebrate community.
- Overall the biological community indicates good water quality in Middle Branch White Clay Creek near Avondale, but there are indications that some organic pollution is affecting the benthic macroinvertebrate community.

White Clay Creek Priorities

The White Clay Creek watershed has several primary characteristics that lay the foundation for the priority management needs:

- The land use of the watershed is approximately equally represented by wooded, developed, and agricultural lands.
- The watershed is a major source of public drinking water supplies for much of northern New Castle County, Delaware.
- In several areas, surface and ground water quality suffers from current and historic pollutant runoff from developed and agricultural lands, resulting in 136 miles (77% of the total stream miles in the watershed) listed by Delaware and Pennsylvania as "impaired" waters.
- Extensive growth (16% population increase) is projected within the watershed over the next 20 years.
- This is the first watershed to receive protection through Federal Wild and Scenic River designation for the main stem and its tributaries.

Collectively, the priority management needs and actions must provide source water protection throughout the watershed. Priority management objectives for the watershed include:

- Engage and educate individuals, communities and governments in watershed stewardship.
- Enhance recreational and cultural resources.
- Preserve natural resources.
- Improve water quality.
- Reduce stormwater runoff and flooding.
- Protect watershed water balances.
- Integrate utility and municipal planning to meet future water supply and wastewater needs.

RED CLAY CREEK

The Red Clay Creek watershed is located in the northeast portion of New Garden. The watershed covers approximately 54 square miles and flows into the White Clay Creek a few miles upstream from the confluence with the Christina River. The Red Clay Creek is part of the Christina River Basin that flows into the Delaware River at Wilmington, Delaware. Six municipalities of Pennsylvania and unincorporated areas of New Castle County, Delaware, are within the watershed. Land use within the Red Clay Creek watershed includes a mix of agricultural (34%), developed (36%), and wooded (24%) uses. In 2020, the projected population in the watershed is expected to be 50,000 people, an increase of 16 percent. The total length of streams in the watershed is 102 miles, with 61 miles consisting of first order (headwater) streams. The Red Clay Creek is also subject to DEP Water Quality Regulations and, because it is an interstate stream, it is subject to the water quality regulations defined by Delaware River Basin Commission (DRBC).

The US Geological Survey Study for the Red Clay Creek indicated that between 1970 and 1974 stream quality conditions degraded. A Chester County Water Resources Inventory Study for the Clay sub-basin indicated that more recent studies concluded that water quality had shown some improvement, and that in general the biological condition was good.

The East and West Branches of the Red Clay Creek are classified by DEP as trout stocking streams to their confluence. The main stem of the creek is classified as a cold water fish stream. Under the COWAMP/208 Study, the West Branch from Kennett Square and the main stem were designated as water quality limited stream segment, necessitating greater than secondary treatment for discharges.

In calculating the water supply "budget", the Chester County Water Resources Inventory Study indicated that a reserve supply of available water existed, but that the availability of water in the future would depend upon such variables as rate and density of urban development, water consumption, patterns of water supply, and methods of wastewater management. The study concluded that in many cases, concern for water quality imposes limits to urban growth prior to levels where the reserve water supply approaches zero.

The DRBC indicated that the West Branch should be protected for public water supplies, after reasonable treatment, industrial water supplies after reasonable treatment, and agricultural water supplies; maintenance and propagation of resident game fish and other aquatic life, maintenance and propagation of trout, and wildlife; and recreation. The DRBC has established standards for dissolved oxygen, temperature, pH, phenols, threshold odor number, synthetic detergents, radioactivity, fecal coliform, total dissolved solids, turbidity, and effluent quality requirements.

A 16 percent increase in growth is projected for this watershed by 2020, raising concerns about additional stormwater and pollutant runoff problems and increased flooding. In 1998, estimated impervious cover in the watershed was 12 percent and is estimated to increase to 14 percent by 2020 due to population growth. Agricultural operations have been a major land use, resulting in non-point source pollutant runoff in several areas of the watershed. On-going efforts by numerous agencies and agricultural operators have made significant progress in reducing agricultural runoff in the watershed, but much more reduction is needed. The watershed serves as a source of drinking water supplies with one reservoir and several public water supply wells that provide water supply to parts of Chester and New Castle Counties.

A watershed-wide inter-agency effort is currently underway to develop estimates of non-point source pollutant loadings that can be assimilated by the streams in the watershed while still achieving the states' designated uses of each stream segment. The development of these loadings (referred to as Total Maximum Daily Loads, or TMDLs) are under development by US Environmental Protection Agency (USEPA),

Pennsylvania Department of Environmental Protection (PADEP), Delaware Department of Natural Resources and Environmental Control (DE-DNREC), Delaware River Basin Commission (DRBC), and US Geological Survey (USGS) in conjunction with county agencies, conservation districts, conservation organizations, and other entities, to reduce nutrients and bacteria levels.

In addition to the problems identified, the Red Clay Creek watershed has many significant resources that provide benefits to the community and environment that must be protected and preserved. The one reservoir, Hoopes Reservoir, is a regional public drinking water supply reservoir for Northern New Castle County. Four (4) surface water intakes and numerous wells are located within the watershed for commercial and community water supplies. The watershed also has areas that contain or may contain rare and endangered species as noted in the Pennsylvania Natural Diversity Index (PNDI). Burrows Run is designated as cold water fish waters. A number of historic resources dot the watershed, evidence of the economic development of the 18th and 19th centuries.

Water Quality

The data used for the water quality analyses came from three sources, the Chester County Health Department (CCHD), the USGS, and EPA's STORET database. Generally, both groundwater and surface water in the Red Clay Creek watershed within New Garden have issues with Nitrate/nitrite, lead, zinc, and in some cases, dissolved phosphorus is high. This problem can be attributed to the historical presence of manufacturing, mushroom farming, and other agricultural farming practices.

First Order Streams

Of the 102 stream miles in the watershed, 66 percent or 67 miles are first order streams. New Garden is within one sub-basin of the Red Clay Watershed, the West Branch of Red Clay Creek. The West Branch has 32.1 total stream miles, of which 21.2 miles or 66.2 percent of the total miles are first order stream miles.

Over 56 percent of the land area within the White Clay Creek watershed contribute to drainage areas of first order streams. The Upper East Branch has 9,167 total acres of which 5,867 acres or 63.9 percent of the total acres are first order stream acres. The Lower East Branch has 12,184 total acres of which 7,354 acres or 60.4 percent of the total acres are first order stream acres. Over 56 percent of the land area within the Red Clay Creek watershed drains to first order streams. The West Branch has 11,277 total acres, of which 6,367 acres or 56.0 percent of the total acres are first order stream acres.

Sources of Water Supplies

Substantial ground water resources exist within the watershed to serve as a significant source of water supplies to help meet future needs. Groundwater is used as the source for several community water supply systems.

In addition, one surface water intake for public supplies exists in the Red Clay Creek watershed and is used to maintain Hoopes Reservoir as part of the City of Wilmington's water supply system. This is the intake for Hoopes Reservoir (City of Wilmington, DE; current average daily withdrawal volume is approximately 1 MGD).

The Chester Water Authority system also traverses Red Clay Creek Watershed as it extends from the Octoraro Reservoir and provides service to some areas in the watershed. Such sources may offer opportunities for future supplies both within and adjacent to their corresponding sub-basins. Typically,

these systems are designed and permitted with specific planning areas and needs in mind. However, as new needs arise, they should be evaluated to determine if they can be used or expanded to help meet those needs.

Similarly, the collection areas for wastewater treatment plants connect areas from various watersheds and sub-basins for transport, treatment, and disposal. Numerous municipalities and municipal authorities collect wastewater for treatment and disposal at a central location. Near the mouth of the Red Clay Creek watershed, the City of Wilmington's wastewater system collects wastewater from areas within the watershed for treatment and disposal into the Delaware River estuary. In addition, two community wastewater systems (Kennett Square Borough and New Garden Municipal Authority) are in operation within the watershed.

Surface Water Withdrawals and Discharges

The Red Clay Creek watershed has four surface water withdrawals for public water supply, commercial, and industrial uses. A total of four surface water withdrawals are inventoried in the watershed, and in 1998, it was estimated that there were approximately 1 million gallons withdrawn from the watershed.

There are nine known discharges with NPDES permits in the watershed as of 1998. The total volume discharged to the watershed in 1998 is estimated to be 1.1 billion gallons.

Non-Point Source Pollutant Loads

A key tool used for characterizing surface water quality impacts across the study area is a pollutant loading model called the Watershed Management Model (WMM). WMM helps to establish an overall "framework" for assessing pollution loading rates under existing and future land use scenarios, and to develop conceptual approaches for control strategies within the watersheds, sub-basins, and municipalities. WMM is also the primary tool used for estimating the percent impervious of each sub-basin and watershed, and for estimating annual average runoff.

Red Clay Creek has a high percentage of land in agriculture (34%), wooded (24%), and residential – single family (36%). For this reason, in the 1998 WMM calculations, the chemical oxygen demand (COD) and biological oxygen demand (BOD) loadings were relatively low, and in the 2020 worst case scenario these increased by 4 percent and 3 percent, respectively. In all three scenarios of the model run, all other parameters are within the normal loading ranges. For the 2020 scenario, with Best Management Practices (BMPs), all parameters decrease with total suspended solids (TSS) having the greatest drop of 81 percent.

Biological Diversity Monitoring

Biological diversity of streams is an excellent indicator of the cumulative impact of watershed influences on stream quality. Since 1969, the USGS, in cooperation with Chester County, has conducted a program to annually evaluate stream ecology and water-quality conditions using benthic macroinvertebrates and stream-water chemistry. The Stream Conditions of Chester County Program has sampled Chester County streams every fall for the past 32 years. The initial goals of the program were to evaluate stream-water quality and to further the understanding of changes in the stream ecosystem in response to urbanization. The current goals of the program are to use the data to monitor conditions in response to changing land uses and to determine long-term trends.

There are two long term sampling sites and one flexible (periodically monitored) site located in the Red Clay Creek watershed. Sampling has occurred between the years 1970 and 1997 on an annual basis, except for 1974 when no samples were collected. In order to present a year by year snapshot, the

diversity index for all the stations have been averaged on an annual basis. The index indicates that conditions in the Red Clay Creek watershed steadily improved between 1980 and 1997, and have been holding steady since then. Brillouin's diversity values below 1 are associated with waters receiving heavy levels of organic wastes. Brillouin's diversity values between 1 and 3 are associated with waters receiving moderate levels of organic wastes and Brillouin's diversity values between 3 and 5 are associated with waters receiving little or no organic wastes. The biological community in Red Clay Creek indicates a history of organic and toxic pollution. Overall, the biological community indicates fair water quality in the Red Clay Creek watershed.

Results of the 1998 and 1999 biological diversity monitoring program indicate that:

- Overall the biological community indicates fair water quality in East Branch Red Clay Creek near Five Point with indications that some nutrient enrichment and urban influences are stressing the benthic macroinvertebrate community.
- Overall the biological community indicates very good water quality in West Branch Red Clay Creek above Kennett Square, but there are indications that some organic pollution is slightly affecting the benthic macroinvertebrate community.
- Overall the biological community indicates poor water quality in West Branch Red Clay Creek near Kennett Square with indications that nutrient enrichment and urban influences are stressing the benthic macroinvertebrate community.

Pennsylvania Natural Diversity Index (PNDI)

There are a number of sensitive natural areas that are listed in the Natural Areas Inventory of Chester County, Pennsylvania (1994 with 2000 Update). Within the Red Clay Creek watershed, there are five areas that contain or may contain rare and endangered species as noted in the PNDI. Regional land and habitat preservation efforts should be directed towards these areas, which include the Red Lion Woods in the East Branch Red Clay sub-basin. There is one PNDI location in the Red Clay Creek watershed in New Garden, Site SP 517: Bucktoe Creek Woods.

Red Clay Creek Priorities

The Red Clay Creek watershed has several primary characteristics that lay the foundation for the priority management needs:

- The land use of the watershed is approximately equally represented by wooded, developed, and agricultural lands.
- The watershed is a source of public drinking water supplies for parts of southern Chester County and northern New Castle County, Delaware.
- In several areas, surface and ground water quality suffers from current and historic pollutant runoff from developed and agricultural lands, resulting in 93 miles (or 91% of total stream miles) listed by Pennsylvania and Delaware as "impaired" waters.
- Extensive growth (16% population increase) is projected within the watershed over the next 20 years.
- The watershed includes an assembly of natural, historic, cultural and recreational features, making the watershed and all of its resources collectively a significant and important regional resource.

The overall goals for watershed management of the Red Clay Creek watershed are:

- Engage and educate individuals, communities and governments in watershed stewardship.
- Enhance recreational and cultural resources.
- Preserve natural resources.

- Improve water quality.
- Reduce stormwater runoff and flooding.
- Protect watershed water balances.
- Integrate utility and municipal planning to meet future water supply and wastewater needs.

Sub-Minor Watersheds

Sub-minor watersheds are indicated for Broad Run, Egypt Run, Bucktoe Creek, Trout Run, South Brook, and other unnamed tributaries within the White Clay and Red Clay Watersheds. The Bucktoe and South Brook sub-minor basins and several other sub-minor basins are in the West Branch of the Red Clay Creek minor basin. The Broad, Egypt, and Trout sub-minor basin, as well as additional sub-minor basins, are within the East Branch of the White Clay Creek minor basin. The sub-major basin division between the Red Clay Creek and White Clay Creek roughly bisects the Township from north to south. The entire Township is within the Clay Major Basin.

Broad Run: The Broad Run watershed covers a large area in the southern portion of the Township, roughly extending to Saw Mill Road and Walnut Run Road to the west, Laurel Heights Road, Sunny Dell Road and Sheehan Road to the north, the Township boundary to the east, and Southwood Road, the Township boundary, and Yeatmans Station Road to the south.

Egypt Run: The Egypt Run watershed is another large watershed, which is north of the Broad Run watershed in the central portion of the Township. The Egypt Run watershed extends to New Garden Road on the north and east, Sunny Dell Road on the east, Laurel Heights Road on the south, and Penn Green Road on the west.

Bucktoe Creek: The Bucktoe Creek watershed is also a substantial watershed, located northeast of the Egypt Run watershed. The Bucktoe Creek watershed is roughly bounded by Hillendale Road to the north, New Garden Road and Newport Pike to the west, Sheehan Road to the south, and the Township boundary to the east.

West Branch Red Clay Creek: The watershed of the West Branch Red Clay Creek is also substantial, and is found north of the Bucktoe Creek watershed. The West Branch Red Clay Creek watershed extends close to Newark Road to the west, near Line Road and Pemberton Road to the north, to the Scarlett Road area to the east, and to the Hillendale Road area to the south.

Trout Run: The Trout Run watershed is found west of the West Branch Red Clay Creek watershed. The Trout Run watershed extends from the New Garden Road area to near Polo Road and from east of Newark Road to Avondale Borough.

GROUNDWATER

Due to the reliance upon groundwater as the major source of water for New Garden Township, whether through private or public wells, characteristics of the local geology involving groundwater is of vital importance. Structural and chemical qualities of the rock types underlying the Township determine the quantity and quality of water drawn from these formations. Quantity of groundwater in geologic aquifers is generally a function of several physical characteristics of rock, such as permeability, porosity, fracturing properties, and position within the sequence of geologic layers underlying the earth's surface. The quality of groundwater is determined by the type and amount of substances dissolved within it. These dissolved substances may come from several sources. Precipitation may dissolve gases and solid particles in the atmosphere and carry them to the land surface, where they are transported to groundwater aquifers. Mineral

constituents may be dissolved by solution and chemical breakdown during the weathering process as water percolates through soil and rock.

The activities of man, especially in a growing area such as New Garden, may alter the natural quantity and quality of groundwater in many ways. Increasing withdrawals can reduce underground supplies. Land development and increases in impervious surface coverage reduces the amount of precipitation able to penetrate into the subsurface aquifers. Chemical elements may be added to the aquifers from fertilizers, septic tank effluent, surface and subsurface waste disposal, and surface runoff. Man may also induce changes in water quality by changing land use.

The following is a discussion of the groundwater aquifers present in New Garden Township.
(See: **Map 4-1**)

Setter's Quartzite generally holds adequate supplies of groundwater for domestic use (up to a maximum of 100 gallons per minute), but may be inadequate for large water use activities. Water drawn from Setter's Quartzite tends to be acidic, moderately hard, and low in dissolved solids.

Cockeysville Marble is generally an excellent but inconsistent aquifer with yields of a 1000 gallons a minute or more possible. When a large solution channel is tapped, very large water yields may result. Otherwise yields are average at best. Quality characteristics of water from this formation include alkalinity, hard to very hard, and a moderate amount of dissolved solids. Although the marble has the potential to be a very productive water supplier in terms of yield, the formation also carries with it several potential liabilities that require special procedures and extensive site analysis if they are to be avoided. Among the hazards is the susceptibility of subsidence in the form of sinkholes and solution channels. These hazards have a high degree of probability in carbonate rock formations, although marble is one of the strongest carbonate rocks and thereby has a lower probability for subsidence problems than pure limestone areas. New Garden Township is close to two of the most outstanding areas of sinkhole occurrence in Pennsylvania (the Valley Forge area and central Lancaster County) and has similar geology, so the Township is susceptible to these hazards. A more widespread danger experienced by this formation is the prospect of extensive groundwater pollution. Where the soil mantle is thin, underground channels and caverns can permeate the geologic strata, pollutants can reach the water table readily, becoming widely dispersed with little likelihood for self-purification. Careful analysis must be given to the acceptability of any subsurface sewage disposal system within or adjacent to areas of carbonate geology before the siting of a well and septic system on a lot are even considered. Safeguards also should be given to sludge application, spray irrigation disposal systems, and stormwater runoff infiltration over this formation.

Wissahickon Schist geology is characterized by average groundwater supplies between a few gallons up to 400 gallons per minute. The rather high yields from this formation can be credited to its weathering characteristics, which allow surface water to easily penetrate into the soil. Water from Wissahickon Schists tends to be acidic, soft, and very low in dissolved solids.

Areas of the Township underlain by Felsic Gneiss and Mafic Gneiss can generally be expected to be among the worst providers of groundwater yield, due mainly to their hardness and denseness. These formations generally provide yields in the 2-60 gallons per minute range, with an average yield usually in the 5-10 gallons per minute range. Higher yields can be found, but only where intensive weathering has occurred. In these areas, groundwater is usually acidic, moderately hard, and low in dissolved solids.

Pegmatite yields are usually very low, generally under 35 gallons per minute, with typical wells averaging between 5 and 8 gallons per minute. Groundwater tends to be acidic, soft, and low in dissolved solids. These areas should not be depended upon as reliable sources of water, except for possibly single residences.

Well data from the U.S. Geological Survey report titled *Selected Hydrologic Data Chester County, Pennsylvania, (1976)* contained well data on selected wells throughout New Garden Township. Data on wells sampled is included in **Figure 4-3** below:

Figure 4-3: New Garden Township Selected Well Data

Formation	# of Wells Sampled	Range of Yields (GPM)	Average Yield (GPM)	Range of Depth (Feet)	Average Depth (Feet)
Setter's Formation (Xsq)	6	20-110	41.6	30-343	167
Cockeysville Marble (Xc)	10	5-1800	354.6	34-260	125
Wissahickon Formation (Xw)	48	5-80	21.6	60-610	178
Felsic gneiss (gn)	4	5-40	18.0	63-124	91
Mafic gneiss (g)	6	5-30	17.5	28-135	70

Note: No wells were sampled in Pegmatite (Xpg)

Source: Selected Hydrologic Data, Chester County, Pennsylvania - U.S. Geologic Survey, 1976

In *Ground Water Resources of Chester County, Pennsylvania*, prepared by the US Geological Survey in 1977, eight generalized water quality areas were assigned countywide by three parameters, water Ph, specific conductance, and hardness. The Ph value is a measure that describes acidity or alkalinity of a substance. A measure of 7 is neutral, with lower measurements being acidic and higher measurements being alkaline. Specific conductance is a measure of the ability of a liquid to conduct an electrical current, that measure being in proportion to the amount of dissolved solids within the liquid. Measures of 0-150 signify very low dissolved solids, 151-250 low dissolved solids, 251-750 moderate dissolved solids, and a measure above 750 indicates a high degree of dissolved solids. The Pennsylvania Safe Drinking Water Act (Chapter 109) enforces the Federal standards for water quality. The Federal standards recommend a limit of 500 in total dissolved solids (TDS) for drinking water. Since a limit of total dissolved solids is mainly a degree of taste, water above this value may be safe to drink. Other factors would have to be considered to determine potability. Hardness in water is caused by the presence of alkaline minerals, chiefly calcium and magnesium. Although hard water is not generally a quality problem, it can create problems by leaving behind deposits and incrustation on plumbing hardware or other items in contact with it. Soft water generally has a value between 0 and 60, moderately hard water between 61 and 120, hard water between 121 and 180, and very hard water has a hardness value above 180.

The water quality areas generally coincide with the geologic formations of the Township. A description of the water quality areas are shown on **Figure 4-4**.

Figure 4-4: New Garden Township Water Quality Areas

Area Number	pH		Specific Conductance		Hardness	
	Range	Median	Range	Median	Range	Median
4	5.6-8.3	6.3	50-600	170	9-210	60
5	5.4-8.0	7.3	120-1100	425	30-520	210
6	4.8-7.9	6.1	20-150	120	9-420	40
8	5.7-6.0	6.0	600-980	725	210-350	260

Source: Ground Water Resources of Chester County, Pennsylvania - U.S. Geological Survey, 1977.

Water quality area designations are only generalizations of water quality based on only a few parameters. The numbers do not necessarily represent any scale or degree of quality, although areas 7 and 8 tend to be

either highly acidic or highly alkaline and generally are higher in dissolved solids. The water quality area number 8 in New Garden Township is an area in which abnormally high specific conductance has been measured in relation to the surrounding area. A well in this area was sampled and the chemical analyses showed both nitrate and dissolved solids above recommended limits.

FLOODPLAINS AND ALLUVIAL SOILS

Associated with the watersheds and drainage basins of New Garden are the areas of floodplain and wet, or alluvial soils. These areas are predominantly located along the streams that drain the Township. Floodplain and areas of alluvial soils are other factors to be considered when examining development potential.

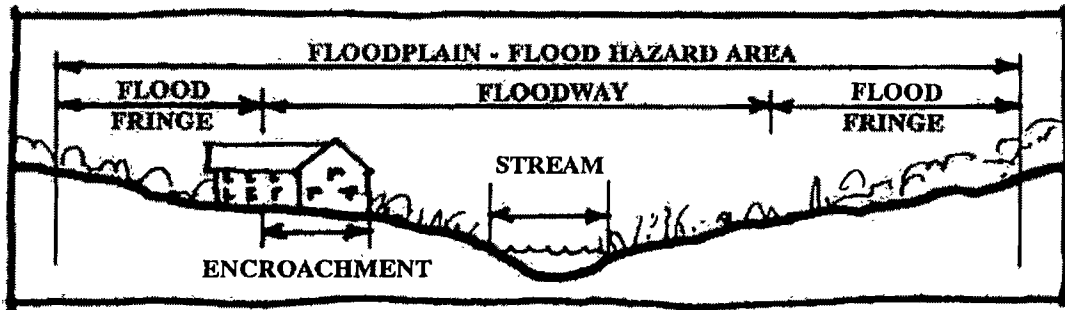
Floodplains

Floodplain areas, when undisturbed and open, not only provide for the conveyance of floodwaters with little risk of loss of life or property, but also offer temporary "storage" of floodwaters, slowing them down to further minimize downstream flood damage while promoting groundwater recharge. Naturally vegetated floodplain areas help catch and filter sediments from floodwaters and reduce the velocity of sediment laden water. The natural vegetation of floodplains also filters water runoff by collecting and holding nutrients, chemicals, and other natural and man-made pollutants. Floodplains left in their natural state provide valuable wildlife habitat.

The floodplain areas of New Garden have been mapped by the Federal Emergency Management Agency (FEMA) as part of the National Flood Insurance Program. Floodplains are areas adjacent to watercourses that are covered by flood water during times of flooding. A 100-year floodplain is the area which has a 1 percent chance of being flooded during any one year, and which is typically used for regulatory purposes. Approximate 100-year floodplains are shown from the FEMA Flood Insurance Rate Maps. Detailed studies have not been performed to establish, through calculation, the extent of the 100-year floodplains. Approximate floodplains have not been indicated for all watercourses. Because of this, any development proposed in the area of watercourses by developers would require a calculated study of the 100-year floodplain by the developer until such time as detailed studies are performed by FEMA. This program must be implemented by municipalities in order to be eligible for insurance for their flood prone citizens. The floodplains within New Garden are shown on **Map 4-5**.

Development within the floodplain may constrict the area over which flood waters flow, resulting in increased flood damage downstream because of resultant increased flood velocities downstream while land disturbance within floodplain zones cause siltation in adjacent streams and threatens wildlife habitats. Increases in impervious surfacing, a result of development, increases the danger of flooding and contributes to stream pollution since stormwater flows directly into the waterway without filtering through soil. For these reasons floodplains are regulated in order to restrict development within the floodplain. Land uses, types of agriculture, removal of vegetation, placement of and types of sewage systems, and impervious coverage are examples of items that receive more stringent regulation within floodplains.

Figure 4-5: Floodplain Cross Section



Source: Chester County Planning Commission, 2003

Alluvial Soils

Alluvial soils are soils that have been transported and deposited in an area through the action of water. Most often, alluvial soils are deposited when surface water sources such as streams overflow their banks. The sediment in the water is then deposited in the area covered by the storm overflow. Most areas of alluvial soils are narrow and found immediately adjacent to streams, largely due to the presence of very steep slopes along most of the subsequent floodways. Because few first order streams have FEMA-mapped floodplains, the presence of alluvial soils can be used to define the extent of the floodplain in these unmapped areas. While alluvial soils may fall outside defined floodplain areas, these areas are also subject to flooding and should be treated with the same care as floodplain areas. Similar land controls of floodplain areas should be considered where alluvial soils are present. Soils classified as alluvial are listed in **Figure 4-2** and shown on **Map 4-5**.

Wetlands and Hydric Soils

Wetlands

Wetlands are unique natural components of the landscape that provide special functions and values. Areas classified as wetlands can help control flooding, increase recharge of groundwater aquifers, decrease pollution of water sources, along with providing special wildlife habitat and aesthetic qualities. Due to this array of valuable functions, wetlands should be considered a valuable part of the natural environment. Wetlands are also protected under federal and state law, so their consideration is of vital importance to municipalities.

Wetlands are defined by three distinct properties; the presence of typical "wetland" soils (often referred to as hydric soils), the presence of a hydrologic condition, and the ability to support vegetation suited to life in saturated soil conditions. Due to the complexity of determining the presence of these characteristics, wetlands can only be legally delineated by a site specific survey. Because of this, actual wetlands can not be mapped in an inventory such as this. However, there are several features which only indicate the possibility of wetlands, but are still useful in determining areas where wetlands are likely to occur.

One indicator source of the presence of wetlands is the National Wetland Inventory (NWI), prepared by the US Fish and Wildlife Service. Despite the title, this series of maps is not a source of delineated wetlands, only an indicator of potential wetland areas. These maps were prepared using stereoscopic analysis of high-altitude photography and show potential wetland areas which are generally larger than 1 or 2 acres in size. Since wetlands can certainly be smaller in area than two acres, this is not a complete indicator. A detailed on the ground and historical analysis of any site may result in a revision of the wetland boundaries, and it is

possible that small wetlands and those obscured by dense forest cover may not be identified. According to the NWI maps covering New Garden, potential wetlands are fairly well scattered throughout the Township, but generally are located next to or in close proximity to surface water resources. In most cases, wetlands are confined to the area abutting the watercourse, as indicated by a linear wetland designation along Broad Run, Walnut Run, White Clay Creek, Egypt Run, Red Clay Creek, Bucktoe Creek, Trout Run, and tributaries to those streams. (See: **Map 4-5**)

Hydric Soils

Another wetland indicator source is hydric soils. These soils were formed under saturated conditions. The presence of hydric soils is a good, but not absolute indicator that an area is a wetland. They can easily be mapped and provide a preliminary indicator of possible wetland presence. Hydric soils are generally found along watercourses within the Township, though there are isolated areas of hydric soils. In some cases, the hydric soils overlap with wetlands and/or floodplains. The areas of hydric soil are more extensive than the wetland areas. Hydric soils existing in New Garden are shown in **Figure 4-2** and on **Map 4-5**. Hydric soils have been mapped from the *Soil Survey, Chester and Delaware Counties, Pennsylvania* and *Hydric Soils of Pennsylvania* by the US Department of Agriculture Soil Conservation Service, and indicate areas of potential wetlands.

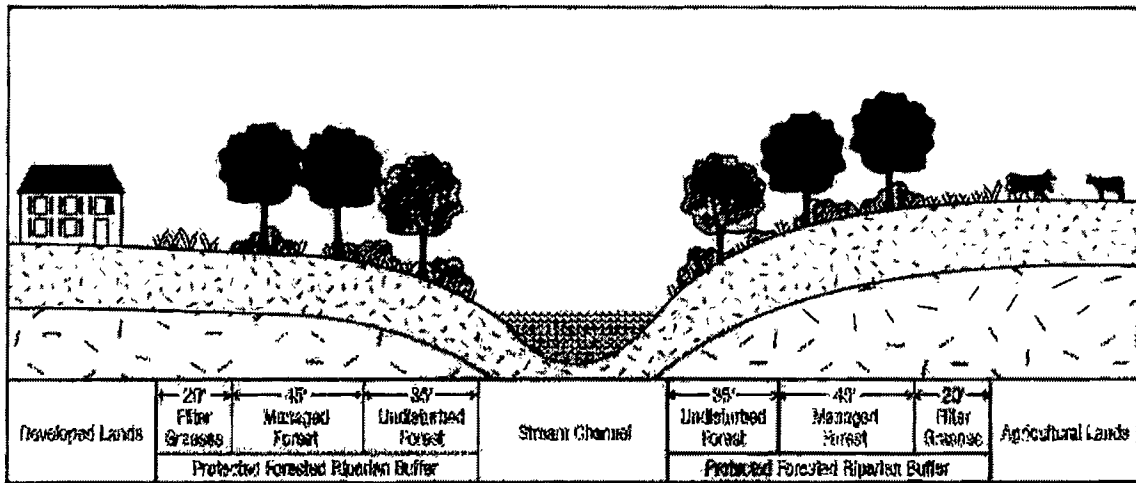
Hydric or wet soils contain high amounts of moisture, are very poorly drained, and are typically found within floodplain and wetland areas. Hydric soils are typically associated with headwater areas, are found in low-lying areas, at the fringes of floodplains, and sometimes in upland depressions. These soils have occasional standing water and a generally shallow depth to the underground water table. Lacking detailed wetlands mapping, hydric soils are an indicator of where wetlands are likely to be located. The hydric soils shown on **Map 4-5**, though generalized in nature, offer a mapped "pointer" for potential wetlands investigation sites.

Hydric soils provide a rich habitat for a diversity of plants and animals. Naturally vegetated areas with wet soils provide a critical filter for sediments and pollutants. Hydric soils are a significant indicator of locations where chronic or occasional wetness may weaken foundations or otherwise inhibit construction. Potential development problems associated with hydric soils include failed on-lot septic systems, flooded basements, poor foundation stability, disturbance of natural drainage and groundwater recharge areas, and the risk of surface and ground water contamination. With these problems in mind, development should be limited on hydric soils or precluded if a given location is determined to be a wetland. Where development is permitted, precautions should be taken to avoid negative impacts to drainage patterns on and off a development site. In addition, appropriate construction techniques should be employed that avoid damage to foundations and water seepage into dwellings.

Riparian Buffers

Riparian buffers are extremely important for protecting water quality. A continuous and inter-connected network of riparian buffers is essential to stream quality and the health of the ecosystem. Forested buffers along stream banks protect their waters from direct sunlight and resulting high temperatures, provide materials in the stream that serve as food and shelter for aquatic species, and stabilize stream banks, stream channels, and floodplains from the scour and erosion of high velocity flows. Riparian vegetation also serves to filter sediment and pollutants from overland runoff and stormwater.

Figure 4-6: Riparian Stream Buffer



Source: *Watersheds: An Integrated Water Resources Plan for Chester County*, Chester County Water Resources Authority, May 2002

New Garden does not require riparian buffers in the zoning or subdivision and land development ordinances. As part of the NPDES Phase II program, New Garden will need to consider riparian buffer protection standards within these regulations. See page 11-7 for more information.

BIOTIC RESOURCES

Biotic resources consist of the plant and wildlife of the Township and their habitats. This section discusses the importance of maintaining natural diversity and describes the major habitat areas as well as significant plants and animals that have been identified for special protection.

Woodlands

Several large expanses of woodlands occur within New Garden Township, predominantly in the southern portion of the Township. Major woodland areas are located on the southern edge of Broad Run Road and western edge of Buttonwood Road, near the Somerset Lakes development. Others are found near the intersection of Bucktoe and Sharp Road, the western side of Penn Green Road above Auburn Road, and west of Cedar Spring Road and south of Pemberton Road. Woodlands are also found along many of the stream corridors within the Township. (See: **Map 4-2**)

Woodlands perform many valuable functions important to soil, water, and climate resources. Wooded areas slow the velocity of stormwater thereby allowing water to filter into the soil and recharge groundwater supplies. Plants use water pollutants for nutrients while organic debris is caught by forest floor vegetation. Trees also help stop erosion by securing soil and reducing the impact of falling precipitation upon the earth. The micro-climate of a small localized area is immensely effected by vegetation. Trees and other vegetation act as a buffer to help diffuse extremes in temperature and moisture. Woodlands often act as transition zones between open areas and provide valuable habitat for a variety of plants and animals, as well as an aesthetic character for the overall landscape. To retain woodlands and these functions as a critical part of New Garden Township, land use controls on land disturbance and tree removal are important considerations.

Woodlands are also critical in maintaining natural diversity and provide vital habitat for native vegetation and wildlife. Large and mature forest stands, even though greatly altered by humans over time, are likely to support a considerable variety of species which would not occur in other habitats. Certain species of forest plants and wildlife depend specifically on the unique conditions of a healthy forest ecosystem. Many species of songbirds, particularly the colorful warblers, are specifically adapted to forest interior conditions and will not nest elsewhere. In addition, numerous species of wildflowers will only bloom on the rich, moist soils of the forest floor. These are only two examples of the critical role forest stands play in sustaining the natural diversity of the landscape.

Currently, two serious problems that affect the long term health and quality of woodland ecosystems are infestations of invasive, non-native plant species and high white tailed deer populations. Like much of Chester County, woodlands are being overrun by aggressive, introduced non-native species. Because of their rapid growth, adaptability, propensity to reproduce, and a lack of control mechanisms found in the environment, species such as Norway Maple, Multi-flora Rose, Autumn Olive, Oriental Bittersweet, Japanese Honeysuckle, and Mile-a-Minute Weed are out-competing many native species and becoming the dominant species of the area. While providing cover and food for some wildlife, introduced invasive species have supplanted much of the native vegetation, resulting in a reduction of plant and wildlife diversity.

Non-native species impair forest regeneration by creating such dense masses that tree species will not grow or their growth is retarded. They replace native understory species by creating such dense growth that nothing can grow underneath it. Multi-flora rose, where it grows along streams, is detrimental to the stream ecosystem because its foliage is unsuitable as a food source and it limits the amount of suitable leaf litter reaching the stream.

The white tail deer population has exploded for several reasons relating to human activities. Agriculture and suburbanization have provided excellent deer habitat in the form of "edge" conditions and browse areas. Several of the introduced, invasive plant species provide an excellent food source and natural deer predators have been eliminated. The increased deer population threatens the lands carrying capacity because of increased browsing in forests for the buds, seedlings, and shoots of native species. This browsing prevents the forest from being able to regenerate itself. While this problem will likely correct itself through the eventual starvation of deer, it presents a long term problem for forests because it favors further establishment of aggressive, non-native plant species, further reducing biodiversity.

Hedgerows

Hedgerows are one of the most important features in a farm landscape and, while decreasing in quality and quantity, they do exist. Hedgerows and thickets are often found defining property lines, lining roads, protecting small streams and drainage ways, and defining pastures or fields within a single property. Hedgerows provide important habitat areas in the form of cover and food for many small birds and mammals. Fields and meadows possessing hedgerows support a more varied and higher population of wildlife than those which do not have hedgerows. Hedgerows are also effective in moderating local climate by reducing wind speeds and interrupting wind currents. Wind-chill and quick frost problems can be significantly reduced by hedgerows. Wind reduction also slows wind erosion of soil and slows the evaporation of water from soil, crops, and landscaping. Finally, hedgerows are even more threatened by non-native invasive species than are woodlands. Because the invasive species thrive in high light conditions, the understory is almost exclusively dominated by invasive species such as multi-flora rose, oriental bittersweet, japanese honeysuckle, and mile-a-minute weed. The tree component of hedgerows remains dominated by native species such as black cherry, red mulberry, tulip poplar, and sassafras. Because of the valuable habitat and climate control hedgerows offer, the preservation of the Township's remaining hedgerows should be encouraged.

Open Lands

Open lands, including fields, meadows, and pastures, are also an important habitat for plants and animals. While these are the only habitats created through regular maintenance, they add to the overall biodiversity of New Garden. Meadows often have a variety of native grass, sedge, and wildflower species providing a source of seeds, herbaceous material, and insects for local wildlife. Where fields and meadows are situated next to woodlands, the edge between the habitat types provides a unique combination of food and cover for wildlife. Fields provide food and habitat for browsers, rodents, and many species of birds. Many species of wildlife pick over the stubble of fields in search of lost seeds and grains. This is a particularly important food source in the fall and winter when other sources of food are scarce.

PNDI Sites

The Pennsylvania Natural Diversity Index (PNDI) provides site specific information describing significant natural resources of the Commonwealth. The inventory contains information on the locations of rare, threatened, and endangered species and of the highest quality natural areas in the County. A detailed study of these sites was compiled and written by the Pennsylvania Science Office of the Nature Conservancy and published by the Chester County Planning Commission in a document entitled *Chester County Natural Areas Inventory* (1994). (See: **Map 4-2**)

Although there are several PNDI sites located in the White Clay Creek and Red Clay Creek watersheds, only one PNDI site was identified in New Garden, Site SP 517: Bucktoe Creek Woods. However, the Township does contain a number of small, but special habitats that are worthy of protection. Locally important vegetation which has been identified by the Township includes the mature hardwood woodland along Penn Green Road north of Landenberg, a beech tree located at a bend on Sharp Road, and an oak tree located at the intersection of Buttonwood Road and Newark Road. This vegetation is important as visual resources to the Township residents, who enjoy viewing the woodland and trees. The woodland along Penn Green Road also serves the functions noted above for woodland. Such habitats are both natural and historic resources and are worthy of preservation.

There are a wide variety of plants and animals specific to each of these areas. Although the habitats are not rare to Pennsylvania, the bio-diversity of species they represent make them important natural resources in the Township. Many of these special habitats can be preserved through the protection of a full range of natural resources (streams, floodplains, wetlands, woodlands, etc.) that, in combination, comprise the majority of the habitats.

SCENIC RESOURCES

Scenic resources are those areas of New Garden that offer scenic vistas or have scenic value, such as: natural or cultural features (churches, trees, fields, mountains, stream corridors, scenic roads, vista points), and parts of the community that contribute to its general character (covered bridge, cultural and historic sites). Scenic resources are important for maintaining the character, uniqueness, and local heritage of the Township. The preservation of scenic resources is closely interrelated with the protection of open space, forestland, natural resources, and cultural resources as many of these features also create the scenic quality of the Township.

Scenic Vistas

The overall impression of New Garden is one of a rural, open community composed of rolling hills. Points of high elevation provide vistas over lower areas and lower elevations provide views of the rolling hills. Roadways are the primary means of visually accessing scenic resources and open space. In the urban area of the Township, where natural features and open space are limited, scenic resources can still be found in the built environment. New Garden is a community with respect for heritage and the land. Within the valleys are enclaves of development. Many of the older homes have historical value. The open, sloping nature of much of the Township provides numerous opportunities to view areas both inside and outside of New Garden. From the ridge tops, there are panoramic views of other ridges and long vistas of distant communities. As a practical matter, not every view can be preserved, however, efforts should be made to identify the most important views and vistas for possible preservation.

A number of scenic vistas in the Township have been identified by the Township:

- Looking northward from Line Road east of Newark Road, farm fields and wooded hillsides can be viewed.
- From Church Road, near Sherwood Drive, a landscape of farm fields, fields, and wooded hillsides can be viewed to the north.
- A view of farm fields and woods is available looking west from Church Road, south of Polo Road.
- Looking west from Sharp Road, south of Hillendale Road, woodland and farm fields can be viewed.
- To the north, from Sharp Road near a bend north of Gap-Newport Pike, a view of woods, hills, and fields is available.
- Pleasing countryside of farm fields, fields, woods, and hillside can be seen to the north from Starr Road west of Newark Road.
- Wooded hillside and fields can be viewed looking west from Ellicott Road near Starr Road.
- An extensive view of wooded hillsides with interspersed farm fields is available looking to the north from Laurel Heights Road between Walnut Run Road and Skyline Drive.
- To the west, from the area of the intersection of Newark and Broad Run Roads, a landscape of farm fields, fields, hillsides, and wooded areas can be viewed.
- A landscape similar to that noted above can be seen looking south from Buttonwood Road between Broad Run Road and Newark Road.
- The final scenic vista is located along Mercer Mill Road, outside the Township. Looking northeast toward Landenberg, the village can be viewed where not blocked by trees.

Scenic Roads

Scenic roads are predominant in New Garden where they, by necessity, follow the strong natural features of the land along streams or over the hillsides. Roads derive their scenic qualities from the curves, rises, dips, adjacent natural features, and an ever-changing point of perspective of the roads that give them definition. In many instances, it is a combination of a graceful path and roadside scenery that give a road its scenic value. Scenic roads and their associated vistas should be preserved because they provide texture

to the Township, as well reflect a quality of life and sense of place. New development can easily impact or obstruct the viewshed. Development may occur in these areas, but sensitive siting and alternative lot configurations should be pursued. For example, the clearing of forested ridgelines should be discouraged, and buildings should not extend above ridge lines.

The following scenic roadways have been identified by the Township:

- Broad Run Road, a local road, between Newark Road and Southwood Road has been designated as a scenic road. Initially, attractive farm area is found along the road. Then, tree rows line the road closely. Driving the road provides a particularly pleasant rural experience.
- Penn Green Road, a local road, from Laurel Heights Road to the southern Township boundary provides a variety of views. It is bordered by mature hardwood woodland and streams south to Chesterville Road. Then one comes upon the historic village of Landenberg. South of Landenberg, woodland, streams, and meadows are viewed.
- Laurel Heights Road, a local road, between Walnut Run Road and Skyline Drive is bordered by attractive farm areas.
- Bucktoe Road, a local road, from west of Sharp Road to the eastern Township boundary presents views of woodland, stream, and meadow.
- Hillendale Road, a minor collector, from Sharp Road to Chambers Road is bordered by woodland and rural homesteads. The road is nicely paved and pleasant to drive.
- Polo Road, a local road, presents views of farmland, polo fields, and woodland, as one travels from Newark Road to Church Road.

The above-listed scenic roads provide pleasant driving experiences for people in the Township. If the woodlands, stream corridors, and farmlands along the roads can be maintained, these roads will continue as scenic roads in the future.

REGIONAL EFFORTS

Kennett Area Regional Planning Commission

The Kennett Area Regional Planning Commission (KARPC) includes the Townships of Kennett, Pocopson, Pennsbury, East Marlborough, and New Garden and the Borough of Kennett Square. Although New Garden Township is a member of the Kennett Area Region, they chose not to participate in the regional planning effort and the data presented in the plan did not include New Garden. The KARPC was formally established in 1988 to discuss common problems and foster multi-municipal cooperation. As a step towards better overall coordination of regional land use planning, the KARPC determined that a common set of regional policies was needed. To address that need, a policy plan was developed by the KARPC and endorsed by its participating members. Following the completion of that effort, the KARPC embarked on the establishment of a Regional Comprehensive Plan to look in more depth at the multitude of planning and growth management issues facing the Region and to determine how to best address those issues and achieve common goals through mutual cooperation.

Christina River Basin Study, (1998)

The Phase I and II Report of the Christina River Basin Water Quality Management Strategy was published in May 1998. The purpose of the study is to improve the water quality of the Christina Basin streams which provide drinking water for over a half-million people in Pennsylvania, Maryland, and Delaware. The Phase I and II Report includes a number of recommendations that are considered “interim” pending the completion of the 5-year water quality strategy that is expected to culminate with the completion of a watershed management plan and the adoption of “Total Maximum Daily Loads” of the major streams of the Christina River Basin. Once the Total Maximum Daily Load Model sets specific goals in point and non-point source loads, a specific strategy of Best Management Practices (BMPs) can be established and implemented in the Christina Basin.

Watersheds: An Integrated Water Resources Management Plan for Chester County, Pennsylvania and Its Watersheds, (2002)

The Chester County Board of Commissioners adopted *Watersheds: An Integrated Water Resources Management Plan for Chester County, Pennsylvania and Its Watersheds* in 2002. This plan will serve as a functional element of the County’s policy plan, *Landscapes*. The purpose of the Plan is to assist local governments and other entities in more effectively integrating water resources and land use decisions. It provides scientifically sound goals, objectives, and strategies for accommodating existing land uses and planned growth while maintaining the integrity of Chester County’s watershed resources. The Plan includes extensive background information to provide a better understanding of how watersheds work and the current state of water related issues in the County. Most importantly for New Garden, the Plan includes numerous implementation strategies for municipalities to more effectively protect and manage water resources while accommodating planned growth.

Linking Landscapes: The Plan for the Protected Open Space Network in Chester County, PA

The Chester County Commissioners also adopted *Linking Landscapes* in 2002 that serves as the Open Space Element of the Chester County Policy Plan, *Landscapes* (1996). *Linking Landscapes* provides a vision for multi-municipal open space planning on a countywide basis. It presents a set of actions to coordinate the activities of various County government departments as well as providing municipalities with general guidelines they can use to responsibly protect open space. Open spaces function best if they are linked together and do not become isolated islands surrounded by development. The Plan focuses not only on planning and protecting open spaces, but also on restoring and maintaining them so as to ensure that they will retain their ecological and recreational qualities in perpetuity. *Linking Landscapes* includes several elements that are designed specifically to assist municipalities in their local planning efforts. For example, it includes language intended to assist municipalities and local organizations in filling out applications for state and federal grant programs. The Plan also provides guidance on open space protection techniques, trail planning and development, protection of sensitive resources, municipal park planning, and many other open space and resource protection related topics.

Red Clay Creek Groundwater Studies, (1993 and 1996)

Extensive studies of the Red Clay Creek Basin have been undertaken by the US Geological Survey in cooperation with the Red Clay Valley Association and the Chester County Water Resources Authority. The first study, published in 1993, described the geohydrology of the aquifer in the Red Clay Creek basin in Pennsylvania and Delaware. The report presents a simulation of groundwater flow in the basin and summarizes water quality data. Although the results of the groundwater flow simulation from this study was questionable, the collected data can be used as a baseline for continuing assessment of groundwater quality in the basin. The second Red Clay Creek study was published in 1996 and describes the

relationship between groundwater quality and hydrogeologic and land use factors and surface water quality. The study found that concentrations of nitrate, sodium, and chloride and the frequency of pesticide detection was related to differences in land uses and human activities. For example, nitrate concentrations were generally greatest in agricultural and in industrial and commercial areas. An observed increase from 1970 to 1995 in nitrate concentration in base flow at the long-term monitoring station on the West Branch Red Clay Creek may be due to increases in nitrate concentrations in the groundwater. Because groundwater discharges to streams, the chemical composition of base flow is related to groundwater quality. The study concluded that changes in land use may result in changes to the groundwater system and ultimately in changes in base flow water quality. Based on the results of these previous studies, the Red Clay Valley Association has developed a pc-based groundwater flow model. This tool is suitable for use by local planners to evaluate the potential impacts of proposed withdrawal and land application projects.

Red Clay Valley Association

The Red Clay Valley Association, the second oldest small watershed organization in America, was founded in 1952 by a group of Delaware and Pennsylvania residents for the purpose of protection and conservation of the natural resources in the Red Clay Watershed. The Red Clay Valley, through which 43 million gallons of water flow daily, encompasses fifty-five square miles of rolling hills, woodlands, and farms in Chester County, Pennsylvania and New Castle County, Delaware. The valley is the home of nearly 50,000 people who live in small towns and suburban and rural settings, as well as to businesses, parks, recreation sites and many of the world's famous mushroom farms.

White Clay Creek Watershed Association

The White Clay Watershed Association is a non-profit community organization dedicated to the protection and improvement of the environmental quality of the White Clay Creek and valley. The Association works to improve water quality in local streams, conserve open space, woodlands, wetlands and geological features; protect rare native plant and animal species; aid in the preservation of cultural, historical and archaeological sites; increase outdoor recreation opportunities; and conducts educational programs relating to the environment. The Association encourages municipalities, through planning, zoning and innovative waste and storm water management, to minimize practices and uses of land that harm the watershed's natural resources, or reduce its environmental quality. The Association strives to increase public awareness of environmental issues in the watershed. It works with local government and community leaders to secure changes needed to maintain high standards of natural resource management in the watershed. It seeks to make the area a better place to live and work. The work of the White Clay Watershed Association is done by volunteers. Technical assistance is obtained from local experts in science, education, law and government. The breadth of the Association's work accommodates a heterogeneous membership. Generally, the common thread of interest among members is in preserving and improving the area as a desirable place to live and work.

PLANNING IMPLICATIONS

The natural resources of New Garden Township as they relate to planning have been thoroughly explored in this section of the Plan. The following are key issues that will be addressed throughout the recommendation sections of the Plan:

- **Water Resources** - Planning and management of water resources is most effectively carried out at the watershed level. New Garden will need to monitor the watershed studies currently being

conducted to determine the implications for water resource protection and follow through with recommendations where appropriate.

- **Riparian Buffers** - The regulation of riparian buffers provides a number of important functions such as storage and filtering areas for surface waters, preventing and controlling water pollution, protecting aquatic life, and protecting buildings and lands from flooding and accelerated erosion. The Township needs to develop regulations for riparian buffers along the waterways, as well as, encourage the use of conservation management practices (CMPs) on lands adjacent to waterways.
- **Headwaters** - Protection of headwater areas is important for maintaining the overall quality of the watershed. Consideration will be given to how these areas can best be protected consistently throughout the Township.
- **Floodplains and Alluvial Soils** - Because disturbance of the floodplain creates a high potential for detrimental environmental impacts and threats to life and property, floodplains and areas of alluvial soils will need to remain undeveloped to the greatest extent possible. Floodplains should also be conserved for their potential scenic, public access, habitat, and recreational value in terms of the creation of trails and greenways, and as a means to control and manage erosion, sedimentation, and stormwater.
- **Wetlands and Hydric Soils** - Wetlands and areas of hydric soils are important ecosystems, providing both wildlife habitat and storage and filtering areas for ground and surface water. While regulated at the state and federal level, local requirements for identification and protection of wetlands is the most effective method for preserving this valuable resource.
- **Cockeysville Marble** - Because of its susceptibility to contamination and its high potential for groundwater yields, special protection measures are needed for the Cockeysville Marble formation. Standards for the protection of groundwater will need to be adopted.
- **Steep Slopes** - Limiting and controlling development of steep and very steep slopes is important for preventing erosion and sedimentation of streams. Standards for limiting the disturbance of steep slopes need to be adopted into all land use ordinances.
- **Prime Agricultural Soils** - Prime Agricultural Soils (Class I, II, and III), once developed, are lost forever for production. Unfortunately, the characteristics of these soils also make them most suitable for building. Measures for protecting this valuable economic and natural resource will need to be implemented, particularly in areas with continued active farming.
- **Habitats** - Protecting the variety of habitats in New Garden is vital to maintaining the natural diversity of plants and animals found here. Areas of contiguous woodlands, wooded stream corridors, wetlands, fields and pastures, and hedgerows are the primary vital habitats that need to be protected if the Township is to continue to maintain healthy ecosystems. Actions for addressing the issues of non-native invasive plant species and white tailed deer over-population will need to be considered.
- **Resource Protection** - To most effectively protect sensitive environmental resources, resource protection standards will need to be made consistent and include specific disturbance limits. The identification and protection of natural resources should be the primary determinant for the location of appropriate development.

- **Scenic Resources** - New Garden is blessed with a wide array of scenic resources. Scenic resource protection measures have not been implemented through land use regulations. The plan needs to consider protection measures for these scenic resources.
- **Education** - Consistent enforcement of natural resource protection standards and education of the public as to their existence is an important element of effective resource protection. Efforts need to be made to ensure residents know the reasons for and the basic regulations governing the use and disturbance of natural resources.
- **Regional Coordination** - Regional coordination for resource protection is essential. There is a need to coordinate the management of natural resources on a multi-municipal basis and adoption of a full range of natural resource protection standards to maximize the benefit for all communities in the region. Areas related to natural resources, where regional coordination will need to be considered, include stormwater management, water supply planning, and sewage facilities planning.

Chapter 5

Housing Inventory

This Chapter evaluates the current housing stock within the Township. An analysis of housing trends provides an indication of the number, type, condition, and age of the current housing stock. In addition, housing trends can be projected to determine the number and type of future housing units that are necessary to support the future population of the Township. Projections of the number of housing units needed in the future will be a valuable tool for various aspects of community planning, such as estimating future traffic volumes, "fair share", school enrollments, and public water and sewer demand.

Monitoring housing opportunities and conditions is a role of the municipal government and its responsibility to maintain the health, safety and welfare of local residents. New Garden contains one large village area, Toughkenamon, and a variety of large subdivisions and trailer parks, offering a range of housing types. The Township provides or oversees many essential services used by residents, and these services, along with the availability of large tracts of land and infrastructure, have drawn development to the Township. Access to the major regional transportation routes including US Route 1, 41, 82, Limestone Road (DE Route 7), and Baltimore Pike, and proximity to employment opportunities in Delaware, make New Garden a prime location for new residential development.

Number of Housing Units

A housing unit analysis shows the existing trends in the quantity of housing units. From these trends future needs can be anticipated. A factor in considering in the growth of housing units is the decreasing average household size. According to figures shown in **Figure 5-1**, New Garden lead the region with 3,053 units at the end of 2001. Of the surrounding municipalities, London Britain had the highest percentage increase of total units from 1980-2000 at 95.4 percent, followed by Franklin and New Garden. Avondale, Kennett Square, and West Marlborough reflected the lowest percentage increase at 11.4, 7.8, and 5.6 percent, respectively. Chester County had a 48.6 percent increase. Beginning in 2000, the housing unit information was compiled from the County Tax Assessment Office of units that were created during the calendar year. Previously, housing unit data was formed using building permit data. This proved unreliable because permits were being issued and units shown on the permit may not have been constructed. Avondale had the smallest number of units with 364, followed by West Marlborough with 383 units, and West Grove with 891 units. Chester County had 171,330 total housing units.

Household Size

~~A household size analysis helps determine~~ how many housing units will be needed to serve the projected population of New Garden. A recent and common trend across the County and nation is a decreasing household size. ~~This is a result of a number~~ of causes, an increase in "non-traditional" households such as divorced individuals, single-parent families, couples waiting longer to get married and to have children, couples having fewer children, and longer life spans where senior citizens either live alone or with a spouse. As the household size decreases, the need for large houses will also decrease. In addition, as the number of "non-traditional" households increase, more demand will be created for alternative housing such as townhouses, apartments, and smaller houses. A decreasing household size will increase the number of housing units needed, infrastructure (roads, sewerage, water supply), land to accommodate the same population, and development costs per person. The decreasing household size may also indicate a change in housing needs in term of cost, size, and maintenance.

Figure 5-1: Number of Housing Units, 1980-2000 and New Housing Units 2000-2001; New Garden Township and Surrounding Municipalities

Municipality	1980	1990	2000	Percent Change 1980-2000	2000*	2001*	Total Units 2001
New Garden	1,549	1,778	2,831	82.8%	101	121	3,053
Avondale Borough	324	347	361	11.4%	0	3	364
East Marlborough	1,247	1,682	2,188	75.5%	47	31	2,266
Franklin	649	942	1,237	90.6%	55	75	1,367
Kennett Square Borough	1,824	1,984	1,967	7.8%	8	6	1,981
Kennett	1,516	1,835	2,526	66.6%	22	31	2,579
London Britain	501	901	979	95.4%	14	30	1,023
London Grove	1,115	1,310	1,698	52.3%	88	96	1,882
West Grove Borough	667	780	889	33.3%	0	2	891
West Marlborough	355	374	375	5.6%	3	5	383
Chester County	110,183	139,597	163,773	48.6%	3,345	4,212	171,330

Source: US Census Bureau, 1980-2000 and *New Residential Unit*, 2000 and 2001, CCPC, June 2002.

*Starting in 2000 the housing units data was compiled from the County Tax Assessment Office of units created during the calendar year.

According to **Figure 5-2**, the 2,700 occupied housing units in New Garden in 2000 had an average household size of 3.16 persons per household. This represents a 5.33 percent increase from the 3.00 persons per household in 1980. In 2000, New Garden had the second largest average household size among the studied communities, and is larger than the statewide average of 2.57 persons per household, and the Chester County figure of 2.65.

Figure 5-2: Average Household Size, 1980-2000*; New Garden Township and Surrounding Municipalities

Municipality	1980	1990	2000	Percent Change 1980-2000
New Garden	3.00	2.86	3.16	5.33%
Avondale Borough	2.91	2.79	3.08	5.84%
East Marlborough	3.16	2.95	2.92	-7.59%
Franklin	3.15	3.05	3.18	0.95%
Kennett Square Borough	2.67	2.67	2.77	3.74%
Kennett	2.73	2.52	2.56	-6.23%
London Britain	3.20	3.08	2.92	-8.75%
London Grove	3.07	2.94	3.12	1.63%
West Grove Borough	2.86	2.80	3.05	6.64%
West Marlborough	2.74	2.46	2.41	-12.04%
Chester County	2.90	2.73	2.65	-8.6%

Source: US Census Bureau, 1980-2000* Note: The average household size does not include persons living in institutions or group quarters and may not include many transient farm workers and illegal immigrants.

Housing Projections

Housing projections are prepared to estimate the approximate number of housing units needed to accommodate the projected population. Such projections are valuable for various aspects of community planning such as estimating future traffic volumes and public sewer demand. Housing projections in the following, **Figure 5-3**, use Chester County Planning Commission (CCPC) projections to 2020. Housing projections are calculated by subtracting the 2000 population from the projected 2020 population and dividing by the number of persons per household in 2000. New Garden is projected to need approximately 1,464 additional units by 2020 or at total of 4,295 housing units in 2020 using CCPC projections.

Figure 5-3: Actual and Projected Number of Housing Units; 2000-2020; New Garden Township and Surrounding Municipalities

Municipality	2000 Average Household Size	2000 Population	2020 Population Projection	2000 Total Housing Units	2030 Additional Projected Units
New Garden	3.16	9,083	13,710	2,831	1,464
Avondale Borough	3.08	1,108	1,340	361	75
East Marlborough	2.92	6,317	8,980	2,188	912
Franklin	3.18	3,850	6,090	1,237	704
Kennett Square Borough	2.77	5,273	5,540	1,967	96
Kennett	2.56	6,451	8,970	2,526	984
London Britain	2.92	2,797	3,510	979	244
London Grove	3.12	5,265	8,090	1,698	905
West Grove Borough	3.05	2,652	3,100	889	147
West Marlborough	2.41	859	850	375	-4
Chester County	2.65	433,501	528,000	163,773	35,660

Source: US Census Bureau, 2000 and CCPC Population Projections 2000-2020.

Housing Types

Figure 5-4 identifies the type (detached, attached, multi-family, or mobile homes) and number of residential units. This data indicates the diversity of housing and types of housing available to meet the needs of New Garden residents. Single-family dwellings, either detached or attached, have been and continue to be the dominant housing type in the community. From 1980-2000 there was an increase of 82.8 percent in the total number of housing units in the Township. Single-family detached units made up the greatest number of units in 2000 with 2,172 units or 76.7 percent of all the unit types, an increase of 114.6 percent from 1980. The second highest number of units in 2000 was single-family attached units with 77 units or 2.7 percent of the total units. Single-family attached units from 1980-2000 increased by 57.1 percent; multi-family buildings with 2-4 units increased by 86.5 percent; multi-family buildings with 5-9 units increased by 425 percent (but are few numerically); and multi-family buildings with 10 or more units decreased from 1980 to 2000 by 33.9 percent. Mobile homes increased from 230 in 1980 to 233 in 2000. In many communities, mobile homes have and will become an increasingly popular and affordable form of housing. One reason for this is their initial price, which is comparably low when compared to the cost and construction factors associated with newly constructed conventional houses.

Figure 5-4: Type of Housing Units, 1980-2000; New Garden Township

Structure	1980		1990		2000		Percent Change 1980-2000
	Number of Units	Percent	Number of Units	Percent	Number of Units	Percent	
Single-Detached	1,012	65.3%	1,177	66.2%	2,172	76.7%	114.6%
Single-Attached	49	3.2%	53	3.0%	77	2.7%	57.1%
2-4 Units	133	8.6%	146	8.2%	248	8.7%	86.5%
5-9 Units	4	0.3%	30	1.7%	21	0.7%	425.0%
10 or More Units	121	7.8%	79	4.4%	80	2.8%	-33.9%
Mobile Homes	230	14.8%	293	16.5%	233	8.2%	1.3%
Total Units	1,549	100%	1,778	100%	2,831	100%	82.8%

Source: US Census Bureau, 1980-2000

When compared to the surrounding municipalities (See: Figures 5-5 and 5a), the 2000 US Census data indicates New Garden had the most single-family detached units with 2,174 (76.7% of total housing units). For single-family attached units, New Garden had 77 units (2.7%), London Britain had no attached units; Kennett had the most attached units with 377; and West Grove had the highest percentage of attached units as a percentage of the total housing stock at 17.1 percent. For multi-family units, New Garden had 248 units (8.8%) in buildings with 2-4 units, Kennett Square had the highest number and percentage of units with 355 units (18.0%). New Garden had 21 units (0.7%) in buildings with 5-9 units, with Kennett Square having the greatest number and percentage of units with 141 units (7.2%). The Township had 80 units (2.8%) in buildings with 10 or more units, Kennett Square had the most units with 204 (10.4%). New Garden had the greatest number and percentage of mobile homes with 233 units (8.2%).

Figure 5-5: Number of Housing Units by Type, 2000; New Garden Township and Surrounding Municipalities

Municipality	Single Detached	Single Attached	2-4 Units	5-9 Units	10+ Units	Mobile Homes	Total Housing Units
New Garden	2,172	77	248	21	80	233	2,831
Avondale Borough	217	16	48	15	48	6	350
East Marlborough	1,795	269	62	27	0	35	2,188
Franklin	1,079	40	12	29	0	21	1,181
Kennett Square Borough	936	331	355	141	204	0	1,967
Kennett	1,889	377	88	22	117	33	2,526
London Britain	941	0	32	6	0	0	979
London Grove	1,451	46	63	17	6	115	1,698
West Grove Borough	581	152	80	34	39	3	889
West Marlborough	289	21	35	21	12	8	386
Chester County	101,669	27,258	8,677	5,919	15,127	5,030	163,773

Source: US Census Bureau, 2000

Figure 5-5a: Percentage of Housing Units by Type, 2000; New Garden Township and Surrounding Municipalities

Municipality	Single Detached	Single Attached	2-4 Units	5-9 Units	10+ Units	Mobile Homes	Total Housing Units*
New Garden	76.7	2.7	8.8	0.7	2.8	8.2	2,831
Avondale Borough	62.0	4.6	13.7	4.3	13.7	1.7	350
East Marlborough	82.0	12.3	2.8	1.2	0.0	1.6	2,188
Franklin	91.4	3.4	1.0	2.5	0.0	1.8	1,181
Kennett Square Borough	47.6	16.8	18.0	7.2	10.4	0.0	1,967
Kennett	74.8	14.9	3.5	0.9	4.6	1.3	2,526
London Britain	96.1	0.0	3.3	0.6	0.0	0.0	979
London Grove	85.5	2.7	3.7	1.0	0.4	6.8	1,698
West Grove Borough	65.4	17.1	9.0	3.8	4.4	0.3	889
West Marlborough	74.9	5.4	9.1	5.4	3.1	2.1	386
Chester County	62.1	16.6	5.3	3.6	9.2	3.1	163,773

Source: US Census Bureau, 2000. *Total Housing Units are total in terms of number, all other figures are percentages.

Residential Building Activity

Figure 5-6 displays residential building permits issued between 1996-2002 in New Garden and the surrounding municipalities. It should be noted the number of permits does not indicate the number of residential units constructed, only the number of permits issued. From 1996-2002, the Township issued the greatest number of building permits (814) of all the studied communities. In 1998, New Garden distributed 141 permits, the greatest number of permits within a single year. Permit activity sharply dropped the following year and has been steadily increasing since, with 96 permits in 1999, 101 permits in 2000, and 121 permits in 2001. This trend may continue as the demand for subdivision activity continues.

Figure 5-6: Residential Building Permits, 1996-2002; New Garden Township and Surrounding Municipalities

Municipality	1996	1997	1998	1999	2000*	2001*	2002*	Total 1996-2002
New Garden	138	101	141	96	101	121	116	814
Avondale Borough	1	1	1	1	0	3	0	7
East Marlborough	43	53	72	58	47	31	81	385
Franklin	37	57	65	72	55	75	14	375
Kennett Square Borough	5	6	6	4	8	6	8	43
Kennett	15	32	27	27	22	31	52	206
London Britain	9	10	15	24	14	30	17	119
London Grove	42	38	52	88	88	96	69	473
West Grove Borough	9	7	6	1	0	2	1	26
West Marlborough	3	1	3	7	3	5	2	24
Chester County	2,253	3,091	3,832	3,778	3,345	4,212	3,843	24,354

Source: Chester County Planning Commission, *Residential Building Permits, 1996-2001* *Starting in 2000 housing unit information was compiled from the County Tax Assessment Office of units created during the calendar year.

Housing Occupancy

The tenure of a housing unit is a good indicator of whether the dwelling is occupied by an owner or a renter. A high percentage of owner-occupied units can indicate a need for more rental units and a greater diversity in housing types. Occupancy refers to the number of occupied units and a comparison of homeowner occupied units to renter-occupied units. A housing unit is considered to be "owner occupied" if the owner or co-owner lives in the unit. Owner-occupied housing units generally are maintained better than renter-occupied units, because the owner has money invested in the property. Also, renters generally have no long-term commitment to the property. However, rental units can provide housing for a greater sector of the population, such as senior citizens and first-time home buyers and lower income families which may not be able to qualify for mortgages and must rent until sufficient money can be saved to buy a house.

The percentage of residents who either own or rent their homes generally corresponds to the types of housing available in a particular community. Housing occupancy can help identify if a lack of housing variety exists in the municipality. Figure 5-7 shows New Garden and the surrounding municipalities with respect to their occupied housing unit status by either owner or renter from 1980 to 2000. The number of owner occupied units increased in the Township between 1980 and 2000 by 17.8 percent to 77.3 percent, the highest percentage increase of the studied communities. Corresponding to the increase in owner occupied units is a steady decrease in the number of renter occupied units for the same time period, a 17.8 percent decrease from 1980 to 2000. Therefore, opportunity to rent a unit in the Township has been on the decline. When compared to the New Garden rates in 2000, the County figures for owner and renter are similar with 76.3 percent and 23.7 percent, respectively.

Figure 5-7: Housing Occupancy Rates of Occupied Housing Units, 1980-2000; New Garden Township and Surrounding Municipalities*

Municipality	1980		1990		2000	
	Percent Owner	Percent Renter	Percent Owner	Percent Renter	Percent Owner	Percent Renter
New Garden	59.5	40.5	66.0	34.0	77.3	22.7
Avondale Borough	61.4	38.6	66.1	33.9	58.8	41.2
East Marlborough	77.2	22.8	83.8	16.2	88.0	12.0
Franklin	85.2	14.8	88.1	11.9	91.2	8.8
Kennett Square Borough	56.3	43.7	58.8	41.2	57.2	42.8
Kennett	70.1	29.9	77.6	22.4	78.8	21.2
London Britain	90.1	9.9	93.0	7.0	94.0	6.0
London Grove	76.3	23.7	83.4	16.6	85.3	14.7
West Grove Borough	71.5	28.5	75.0	25.0	76.0	24.0
West Marlborough	44.0	56.0	47.1	52.9	54.2	45.8
Chester County	70.7	29.3	74.5	25.5	76.3	23.7

Source: US Census Bureau, 1980-2000. *All figures are percentages

Age of Housing

The age of housing in a community is important because, for example, a higher percentage of older housing will have implications such as possible adjustments to building code requirements, or greater repair costs which may place additional financial burden on residents. In addition, regular maintenance is critical to maintaining the condition of older housing, since it can more easily fall into disrepair than new construction. Concentrations of homes in disrepair have an effect on property values and overall

neighborhood stability. The urban municipalities, such as Avondale and Kennett Square, tend to have older housing, since much of the development occurred prior to the first half of the twentieth century.

New Garden is a community that has experienced a great deal of its development since 1980. Of that 53.4 percent, 41.2 percent occurred during the 1990s. **Figure 5-8** reflects the "year" housing units were constructed. Of the 2,831 total housing units in New Garden in 2000, 1,320 units were built before 1980 (449 units or 15.9 percent were built before 1939). London Britain and East Marlborough are the "younger" communities with 55.2 and 56.6 percent, respectively, of their housing being built since 1980. Avondale, West Marlborough, and Kennett Square Borough are the "oldest" of the communities with 87.7, 86.0, and 83.6 percent, respectively, of the housing being constructed prior to 1980. In comparison, Chester County had 61.5 percent of its housing constructed prior to 1980, 38.5 percent from 1980-2000.

Figure 5-8: Age of Housing Units, 2000; New Garden Township and Surrounding Municipalities

Municipality	Built Prior to 1980		1980-1990		1990-2000		Percent Built 1980-2000
	Number	Percent	Number	Percent	Number	Percent	
New Garden	1,320	46.6%	344	12.2%	1,167	41.2%	53.4%
Avondale Borough	307	87.7%	32	9.1%	11	3.1%	12.3%
East Marlborough	949	43.4%	581	26.6%	658	30.1%	56.6%
Franklin	612	51.8%	247	20.9%	322	27.3%	48.2%
Kennett Square Borough	1,644	83.6%	154	7.8%	169	8.6%	16.4%
Kennett	1,396	55.3%	268	10.6%	862	34.1%	44.7%
London Britain	439	44.8%	377	38.5%	163	16.6%	55.2%
London Grove	966	56.9%	266	15.7%	466	27.4%	43.1%
West Grove Borough	628	70.6%	86	9.7%	175	19.7%	29.4%
West Marlborough	332	86.0%	34	8.8%	20	5.2%	14.0%
Chester County	100,740	61.5%	31,267	19.1%	31,766	19.4%	38.5%

Source: US Census Bureau, 1980-2000

Median Housing Value and Rent

Figure 5-9 illustrates the increase in housing prices experienced since the 1980s when the housing market was at its peak. This rapid increase can be attributed to lower interest rates, more people moving into the area, and the construction of larger homes. In the 1990s, there was a recession early in the decade and housing sizes and prices, while still high, did not increase at the same pace as they did in the 1980s. In terms of median housing value in 1980, New Garden was in the middle of the studied communities in median value at \$61,800. This trend carried over to 1990 when the Township's median value rose to \$161,700, and then again in 2000 to \$230,500 at which time the Township reflected the third highest median value and the highest percentage increase in value at 273.0 percent. The boroughs had the lowest median values and the County wide median value was \$182,500, an increase of 187.4 percent from 1980.

With the exception of New Garden, rents increased at a faster rate than housing prices. In 1980, the median rent in New Garden was \$174, one of the lowest median rents of the studied communities. In 1990, this changed dramatically. New Garden still had one of the lowest median rents of the studied communities at \$400, London Grove was the lowest at \$384, while Kennett rose from \$269 dollars in 1980 \$1,655 in 2000, an increase of 515.2 percent. In 2000, New Garden's median rent was the lowest of

the communities at \$606. From 1980-2000, New Garden maintained a median rent that was below that of the County's. Overall, rents more than tripled and quadrupled in all municipalities and the County (218%) from 1980-2000.

Figure 5-9: Median Housing Value and Rent, 1980-2000; New Garden Township and Surrounding Municipalities

Municipality	Median Value (Dollars)			Median Rent (Dollars)			1980-2000 Percent Increase	
	1980	1990	2000	1980	1990	2000	Value	Rent
New Garden	61,800	161,700	230,500	174	400	606	273.0%	248.3%
Avondale Borough	38,200	92,800	118,800	184	421	688	211.0%	273.9%
East Marlborough	91,500	223,500	265,800	198	447	739	190.5%	273.2%
Franklin	65,300	165,100	198,700	256	547	836	204.3%	226.6%
Kennett Square Borough	46,300	110,600	122,300	209	443	642	164.1%	207.2%
Kennett	93,200	236,400	248,500	269	1,000	1,655	166.6%	515.2%
London Britain	81,100	214,200	220,800	165	416	714	172.3%	332.7%
London Grove	58,600	145,300	179,100	163	384	636	205.6%	290.2%
West Grove Borough	41,900	100,900	122,800	199	406	679	193.1%	241.2%
West Marlborough	62,500	143,100	171,600	200	422	654	174.6%	227.0%
Chester County	63,500	155,900	182,500	237	496	754	187.4%	218.1%

Source: US Census Bureau, 1980-2000

Housing Affordability

To assess the affordability of housing in Chester County, the Chester County Planning Commission prepared an affordability index. The index assesses the relationship between income and housing costs using median household income, median sales prices, average mortgage rates, tax millage, insurance costs, and closing costs. The monthly housing cost includes the mortgage payment, taxes, and insurance. The index assumes an industry standard of a 10 percent down payment and 28 percent as the maximum amount of income that should be devoted to housing. In Chester County, the median household income in 2000 was \$65,295. Using this assumption, a home price of about \$180,000 with a monthly housing cost of \$1,500 would be affordable to a household with the median income for Chester County.

Figure 5-10 displays housing affordability for New Garden and the municipalities within the region with the highest and lowest affordability, East Marlborough and Kennett Square Borough, respectively. The third column in Table 5-10 shows the amount of monthly income in each municipality that should be devoted to housing costs. Housing costs in New Garden is roughly \$300 per month (at \$1,891) above what would be considered affordable to the typical Chester County household (\$1,500). The same data determines that monthly housing costs for East Marlborough are \$674 above the average monthly cost for the County. Kennett Square (\$1,022) is the only municipality in the immediate region that would be considered affordable to households with a median Chester County income. Generally, within each municipality, there is not a wide disparity between monthly housing costs and household income. In new Garden Township, the median monthly income falls short of the monthly housing cost by \$134.

Housing affordability has several planning implications, the most important being that employees with moderate incomes including teachers, public safety personnel, and service employees may not be able to

secure suitable housing, forcing long commutes and traffic congestion, which takes a toll on the quality of life for both residents of New Garden and the larger region. Employers may also have difficulty filling lower paying positions. Limited housing choices can force younger families out of the area that reduces residential continuity and community diversity. There are many barriers to the development of affordable housing and understanding these barriers can lead to solutions.

Figure 5-10: Housing Affordability – 2000; New Garden Township and Surrounding Municipalities

Municipality	Median Housing Value	Monthly Housing Cost	28% of Monthly Household Income	Difference between Income and Housing Cost
New Garden	\$230,500	\$1,891	\$1,757	-\$134
East Marlborough	\$265,800	\$2,174	\$2,236	+\$62
Kennett Square Borough	\$122,300	\$1,022	\$1,086	+\$64
Chester County	\$182,500	\$1,500	\$1,524	+\$24

Source: U.S. Census Bureau, CCPC.

The barriers to affordable housing are the circumstances existing in a municipality that limit the construction, financing, or purchase of affordable units. The barriers can vary by municipality or region with some types of barriers more or less evident depending on location and local politics. They tend to fall into one of three categories: social, financial and regulatory. Social barriers include a community's attitude toward affordable housing. Financial barriers include such factors as the cost of land and financing while regulatory barriers refer to local ordinance requirement that might indirectly increase housing costs. Market conditions are another important consideration in affordable housing. These barriers and other issues relating to affordable housing are discussed in detail in Chapter 15, Housing Plan

Fair Share of Housing Opportunities

The Pennsylvania Municipalities Planning Code (MPC) lists as one of the purposes of zoning the need to provide for various types of dwellings, including single-family, two-family, and a reasonable range of multi-family housing (Section 604.4). Pennsylvania case law also has required that each municipality provide for all basic forms of housing and meet the housing needs of both present and future residents. The analysis of the municipality's responsibility in this regard is termed the "fair share" analysis. It attempts to assess, based on information available, whether the municipality is providing for its fair share of all housing types, particularly multi-family housing, and is indeed endeavoring to meet its obligations to accommodate future growth. The fair share principle is based on the planning premise that local governments are required to plan for and implement land use regulations that meet the housing needs of the range of people who may desire to live in the Township.

The MPC, while indicating the need to provide for a range of housing types, offers little guidance on how to address fair share requirements in local planning and zoning, and the true extent of municipal obligations. Numerous court challenges to municipal zoning ordinances have occurred throughout the last three decades and were decided on individual merits without providing direction needed by municipalities to proactively address the mandate. The concept was clear, but the implementation methodology was not. This changed in 1977 through the decision rendered in the Commonwealth Court case of Surrick V. Upper Providence Township 776 Pa. 182, 382 A2d 105. This court case differed from

others in that the decision included a three-tier analysis or "test" that could be used by municipalities in evaluating fair share obligations.

The test consists of three components, each are applied individually at the municipal level. These are as follows:

1. Is the municipality a logical area for growth and development? (i.e., is it in the path of growth?)
2. Is the municipality a developed or developing community?
3. Is the amount of land zoned for multi-family development disproportionately small, in relation to population growth pressure and present level of development?

The fair share analysis is considered to be the process of applying these three tests to a community. It can be complex because the application is not definitive and there are different ways it can be approached, however, it does provide direction and a basic frame of reference. The test is intended to prevent a municipality from directly or indirectly excluding any common form of housing, particularly if it is a developing community. Those that do not provide reasonable opportunities for various forms of housing development are considered exclusionary. Reasonable opportunity has been determined to not only apply to existing regulatory provisions, but to the actual adequacy of land available for such development.

Whether a locale is in the "path of growth and development" is not a quantifiable determination. Given the proximity of New Garden to Wilmington and to communities with steady or rapid development, it is clear that the Township could be considered to be in the "path of growth". Based on the data presented within this inventory section, it is also clear that this Plan, when implemented, would provide a means for an adequate number of housing units to satisfy the projected demand for housing in New Garden. The remaining question is whether this Plan provides for a reasonable mix of housing types. This is evaluated in the **Chapter 16, Land Use Plan**.

Farm Worker Housing

New Garden has a strong agricultural history in the production of mushrooms. This industry began in the County in the early 1900s shortly after the discovery of new production methods that were easily adapted to the area and complimented the existing agricultural uses. As it evolved, mushroom production grew into a concentrated, labor-intensive, agricultural activity that impacted land use, development patterns, and natural systems. Mushroom facilities were built and expanded throughout the area. Support industries and facilities for the production, preparation, and transportation of mushrooms developed at the same time. Compost, the medium in which mushrooms are grown, was easily accessible from the extensive agricultural operations located throughout the area. Support for the mushroom industry is a component in this Plan's goals and objectives.

One of the keys to the mushroom industry's success has been the availability of a large labor force. Mushroom farming is labor-intensive and not as mechanized as many other types of agricultural activities. The work is manual and the conditions are often unpleasant. The labor force for this industry, particularly the "pickers," have traditionally been solicited from immigrant populations that had few other employment alternatives. Over the past few decades, most mushroom farm workers have been Hispanic, originating first from Puerto Rico and more recently from Mexico. Although many of the farm workers are not permanent residents, spending only a specific number of months in this area, these circumstances are changing. Studies indicate the percentage of farm worker families (including children) living in the region is increasing. The 1990 census reported the Hispanic population in the Kennett Region to be approximately 6 percent, increasing to roughly 13 percent by 2000. Social service agencies that work with this population believe the percentage to be much higher because many farm workers were not enumerated during the census. The Multi-State Strategic Plan (1997) prepared for the Alliance for Better

Housing indicates that the farm worker population is approximately 3,000 to 4,000, for an overall mushroom farm worker related population of 10,000 to 12,000.

These unique circumstances can pose housing problems if housing is not developed to accommodate this segment of the population and its unique requirements. Most mushroom farm workers have limited financial resources, no credit history, no transportation, and a low income, intensified by the fact that a percentage of earned income is often sent back to their homes outside of the US to support other family members. A survey conducted by the Alliance for Better Housing in 1996 indicated that the household income of mushroom farm workers ranged from \$5,000 to \$60,000 per year with the range most frequently cited as between \$25,000 and \$35,000. Consequently, traditional housing options do not always meet the needs of a large percentage of the mushroom farm worker population. Homeownership is not feasible for most, the availability of rental housing is limited, and only a certain percentage of workers can reside in on-farm housing. As a result, the housing that is available becomes overcrowded, generating maintenance problems, and sometimes creating tension between neighboring residents.

Although the housing needs of most mushroom farm workers are not conventional, they can be addressed by providing for varied, affordable housing options designed for both individuals and for families. Since this target population supplies labor specifically for the mushroom industry, the industry itself must participate in addressing the housing shortage. Nearly 80 percent of mushroom growers report that they offer on-farm housing, however, the quantity and quality of the housing is questionable according to the Alliance for Better Housing Strategic Plan. Most is designed for single males and few on-farm opportunities are available for families. Leaders in the mushroom industry, in addition to improving on-farm housing, can supplement and support the housing development for families in several ways. First and foremost, growers should cooperate with municipalities, public agencies, and non-profit entities in identifying and developing housing for this population that is so critical to the economic viability of the Region.

Social service organizations, including the Alliance for Better Housing, and its parent organization La Comunidad Hispana, are committed to improving the lives of the farm workers, including addressing critical housing needs. These organizations, through the public/private partnerships they have formed, have been successful in increasing the housing stock through rehabilitation, conversion, and new construction. The Multi-Stage Strategic Plan (1997) identifies Toughkenamon, to a significant extent, and Kennett Square for housing development because of their proximity to services and utilities, as well as to mushroom farms. Redevelopment is an especially important component of the strategic plan and one that can address neighborhood concerns as well as provide quality housing.

PLANNING IMPLICATIONS

An analysis of the information presented within this Chapter indicates the following planning implications for housing in New Garden:

- **Housing Demand** - The growth rate in New Garden is due in part to the Township's proximity to Wilmington and the availability of developable land. Growth pressure from New Castle County, Delaware is likely to continue and further increase the demand for residential and non-residential development and services in the Township. Existing land uses, municipal land use regulations, and site constraints will affect future growth. The Township should make certain, through the Plan, that future populations can be accommodated in terms of land area, infrastructure, and community facilities and services, while ensuring that natural and historic features are protected.

- **Housing Projections** - Housing projections indicate approximately 1,400 new homes could be located/needed in New Garden by 2020. Reducing scattered development and focusing it in and around the rural centers of the community are sound land use policies for the Township. Therefore, the Plan needs to address directing projected future growth into the most appropriate areas. Site design that complements the character of the Township should be encouraged.
- **Housing Diversity** -The diversity of housing allowed for within the Township through regulations should be evaluated to ensure the Township meets the “fair share” of housing. A variety of housing types should be provided in the appropriate areas of the Township. Modifications to the cluster ordinance and assessment for infill and new development of housing in village areas should be evaluated. Farm worker housing related to the mushroom industry needs to be addressed with more concerted effort.
- **Household Size** - The number of persons per household continues to decrease requiring more housing units, land, and infrastructure to serve the same population and may also indicate a need for more housing choices in terms of size, cost, and maintenance demands.
- **Building Permits** - Building permit activity is cyclical and based on permits issued, residential development in the Township has been increasing since its peak in 1998 with a drop-off in 1999, and a steady increase through the end of 2001. However, the current economy and low interest rates continue to provide a climate favorable for new development indicating a need to ensure that land use regulations are in place that direct growth in ways consistent with this Plan’s land use policies.
- **Fair Share** - The majority of new homes being built in New Garden are single-family detached on large lots, generally the most expensive form of housing. A “fair share” housing analysis should be conducted to determine if, based on the most current court cases, a reasonable amount of multi-family housing is being provided in the Township in accordance with the Land Use Plan. Land use regulations and policies within New Garden need to be reconsidered, if necessary, based on the findings of this analysis.
- **Housing Ratio** - Although the percentage of owner-occupied units is growing, as compared to the number of rental units, the overall ratio appears to be within the range needed in a rural/suburban municipality to ensure that a variety of housing opportunities are available. However, should this trend continue, the Township will need to look at ways to maintain the ratio of renter-occupied units.
- **Housing Factors** - New Garden’s population can generally be characterized as well educated, affluent, and able to afford the relatively expensive housing costs typical of the area. Those residents that do not meet those characteristics are often located in areas where more affordable housing and easier access to services are available. These are factors to consider when planning for housing and community facilities and services.

Chapter 6

Community Services and Facilities Inventory

This Chapter identifies the various public services and facilities available to Township residents. The items analyzed by this section include those services and facilities provided directly by the Township and those privately owned and operated. Community facilities vary in their purpose and significance. Services such as police and fire have a direct relationship to the community health, safety and welfare, while facilities like parks and libraries contribute to the quality of life within the Township. Because not all facilities are directly provided by the Township, the amount of control over a particular facility or service may vary. See **Map 6-1** for general community facilities.

MUNICIPAL GOVERNMENT SERVICES AND FACILITIES

Administration

In New Garden Township, municipal operations are governed by a board of five supervisors, each elected to six-year terms. The Supervisors have legislative and executive responsibilities, as well as for the formation of Township policy. The Planning Commission serves as an advisory body to the Board in terms of planning and development and reviews all subdivision and land development plans before they go to the Board of Supervisors. The Township has a three-member Zoning Hearing Board, which serves as a judiciary board for zoning decisions. Each of these groups participated in the preparation of the Comprehensive Plan. In addition, other Township volunteer organizations are as follows:

- Historical Commission
- Park and Recreation Committee
- News Letter Editorial Group
- Agriculture District Committee
- Web Site Committee
- Recycling Advisory Committee
- Open Space Task Force
- Building Appeals Board
- Sewer Authority
- General Authority

Staff

The Township has established several positions for the daily administration of the community. The first Township Manager was hired in 2002 and oversees the daily operation and the budget of the Township. A full time Secretary-Treasurer assists the Manager with daily administration. A full time Zoning/Code Enforcement Officer has been assigned the responsibility of zoning administration. A consulting firm is contracted to undertake building inspections to check for building code compliance. A Road Master and five road crewmembers facilitate maintenance of approximately 50 miles of Township roads and the Township park. The Township also has an elected tax collector and auditor and contracts for planning services, legal services, and engineering. There is a potential for additional staff to be added as the Township continues to grow and develop new programs. The Township office is open to the public during weekdays and information is available to residents through the Township newsletter and website at www.newgarden.org.

Finances

The Township made a significant change in the budget format during 2003 in order to provide more information and further detail than was available in previous years. Further changes are

anticipated in coming years to the budget to adopt more modern techniques. Township expenditures for the 2002 budget were approximately three million dollars. The allocation for the Township Police Department was by far the greatest expenditure at roughly one million dollars. Township revenues for 2002 were nearly three million dollars, the greatest means of revenue was from earned income taxes of approximately one million dollars and real estate taxes nearly half that figure.

Municipal Building and Garage

The 14,000 square foot Township building, west of the intersection of Newark Road and Starr Road, was completed in the spring of 2004 at a cost of 2.7 million dollars to replace the smaller facility that was originally a state weigh station on Route 41. This new facility provides offices for the Township administration staff, meeting rooms, community room, and the potential to house the Police Department in the future, if necessary. In addition to this building, the municipality houses a variety of road maintenance equipment such as graders, trucks, and front-end loaders in a garage just north of the intersection of Route 41 and Newark Road.

Police Department

New Garden Township maintains a Police Department, the headquarters of which is located behind the weight station on Route 41 north of the intersection of Newark Road and Route 41. The 5,600 square foot facility is comprised of three interconnected trailers constructed on a permanent base with a functional basement. The facility opened for use in April 1999 and is anticipated to meet the needs of the police force for some time. In 2003, the force was comprised of a chief and nine full-time officers. The Police Chief also serves as the Townships emergency management coordinator. The force currently has eight Township patrol cars to cover the 16 square miles and 9,083 residents of the Township. The increasing population of the Township and potential for large commercial development may cause the force to modify their schedule and increase staffing.

The activities of the local police are supplemented by the Pennsylvania State Police whose barracks are located just outside the Borough of Avondale in London Grove Township. The Avondale Barracks employs approximately 35 troopers covering 22 municipalities. These municipalities have a combined 2000 population of about 80,000 people spread over an area of 210 square miles.

Open Space and Recreation Facilities

Historically, open space resources in New Garden have been limited to unprotected visual open space accommodated by large areas of open, undeveloped land. This informal approach, while effective to date, has not established permanent open space. A network of permanent open space has been created within cluster developments, such as found within the Somerset Lake development.

Recreation needs have been served by facilities provided by Kennett Consolidated School District. However, there is no guarantee that facilities at the schools will be adequate to accommodate the increasing Township population.

To help address the increasing demand for recreational facilities, the Township purchased land and constructed a Township park adjacent to the Township municipal building on Route 41. This park contains a playground, walking trails, two pavilions which can be reserved for picnics, a ball field, a soccer field, and additional facilities. In 2003, the Township Open Space Task Force began efforts to inventory, prioritize, and plan for open space and recreational facilities. The Township has secured a

grant to be used for planning services and has hired the Natural Lands Trust to begin an open space planning process. **Figure 6-1** lists recreational facilities within the Township.

Figure 6-1: New Garden Township, 2004; Open Space and Recreation Facilities

Name	Facility Type	Owner	Acres	Features
New Garden Township Park	Public Recreation Area	Township	20	Picnic Area, Sports Fields
New Garden Township	Municipal Building	Township	38/33*	Future Recreation
New Garden Township	Open Space – Cedar Springs Rd.	Township	6.5	Open Space, Wooded
New Garden Township	Open Space Limestone Rd.	Township	8.8	Open Space
Brandywine Polo Field	Recreation Club	Private	123	Polo
St. Anthony's Church	Private	Private	136	Open Space, Swimming Pool, Picnic Area
New Garden Elementary School	School Recreation Area	School District	25/9*	Playground, Multi-Use Field
Kennett Middle School	School Recreation Area	School District	79/41*	Playground, Multi-Use Field

* Acres available for recreation

Sewage Treatment Facilities

Sewage facilities planning in Pennsylvania is governed by Act 537. The Township has adopted an Act 537 Plan that was most recently updated in August 1996. A primary purpose of the plan is to determine how sewage facilities can be provided to meet anticipated future land use needs of the municipality. The plan can also be used to establish the most preferred methods of sewage treatment for new development. The recommendations of the Act 537 Plan have been closely considered as the Community Services and Facilities Plan has been developed. (See: **Map 6-2**)

Most of the Township residents rely upon on-lot systems for water supply and wastewater treatment. Public sewer facilities are provided in certain areas of the Township. These are managed by New Garden Township. At the present time, central sewage treatment facilities exist in the Township. The East End Plant on Scarlett Road just south of Baltimore Pike, is owned and operated by the Township and has the potential maximum capacity of 500,000 gallons per day, if additional lagoons and construction are completed. In the spring of 2003, the facility was permitted for 250,000 gallons per day and operated at 169,900 gallons per day during May 2003. The effluent from the system is pumped just north of the facility to a spray irrigation field along the north side of Baltimore Pike. Spray irrigation is an alternative method of discharging effluent to reduce the impact on the West Branch of the Red Clay Creek, which already receives discharge from the Kennett Square Borough sewage treatment plant.

The Township more recently purchased the Somerset facility in the southern portion of the Township which contains a private package wastewater plant. This plant has a maximum design operating capacity of 250,000 gallons per day. It was originally developed as part of the neighborhood, but was purchased by the Township. The facility had a maximum capacity of 102,000 gallons per day and was operating at approximately 105,000 gallons per day in May 2003.

The Borough of Avondale Treatment Plant has a designed operating capacity of 300,000 gallons per day and treatment is discharged into the White Clay Creek. Portions of New Garden along Baltimore Pike west of Newark Road are serviced by the Avondale facility. New Garden is allocated approximately 50 percent of the capacity of the Avondale plant from two main lines, one along Route 41 and another along the railroad. Approximately 130,000 gallons per day were sent to the plant during the month of May 2003.

There are three existing community on-lot disposal systems (COLDS) in the Township. These include several mobile home parks. Community on-lot systems involve the pretreatment of wastewater by either a package plant which discharges into a stream or septic tanks followed by discharge to underground seepage beds. COLDS that treat less than 10,000 gallons per day are permitted by the Chester County Health Department, while those over that size require a permit from the Pennsylvania Department of Environmental Protection (DEP).

In order to assure proper maintenance of on-lot sewage systems, the Township passed Ordinance #103 that requires all property owners to pump out their on-lot systems at least once every 3 years. Township residents are required to send notice to the Township administration to prove their systems have been serviced. DEP gave approval for the new East End Wastewater Plant to accept sewage in August, 1998, and they approved spraying on Township owned fields located north of Baltimore Pike in the spring of 1999. Since the plant is in full operation, a full-time employee was hired for the sewer system. Sewer Authority members meet to handle any business related to the public sewer system.

Solid Waste

The Township is a member of the Southeastern Chester County Refuse Authority (SECCRA) that provides solid waste disposal service to southern Chester County municipalities. The 79 acre landfill in London Grove Township began operations in 1986. The current facility is estimated to reach capacity by 2008. SECCRA has secured a permit to expand onto an adjacent property that will extend capacity for an additional 15 years. Hauling of refuse is contracted by residents on an individual basis. The Township is investigating the potential for managing refuse collection for residents in order to increase the efficiency of collection within the Township, reduce costs for Township residents, and provide for an additional source of income for the Township.

In 1988, the Commonwealth of Pennsylvania signed into law the Pennsylvania Municipal Waste Planning, Recycling and Waste Reduction Act (Act 101). This act contains important provisions to encourage and mandate recycling, and changes the roles of municipalities with regard to solid waste management. Mandatory recycling is required by the state when municipalities have a population of over 5,000 people. Based on the 2000 Census data, the Township has been required to implement a mandatory program. The Township had not previously incorporated any kind of recycling program and was done only on a volunteer basis by Township residents with their privately contracted waste haulers. New Garden has mandatory curbside recycling for all residents and businesses. Trash haulers provide bins and day of pickup. Mandated recycling items include newspapers, all metal cans, and clear, green and brown glass. Refuse collectors will also take #1 and #2 plastics. All businesses must recycle cardboard.

NON-MUNICIPAL SERVICES AND FACILITIES

Fire Protection

The Township currently maintains a service agreement with the Avondale Fire Company for fire protection. The Township contributes annually to the fire company. There are over thirty volunteers on

staff. The Avondale Fire Company No. 1 provides both fire and rescue service. The Avondale Fire Company No. 1 is an all-volunteer organization, funding for which is provided by municipal contracts, private contributions, donations, and money-raising events. Major equipment in 2003 consisted of one 1,500 GPM Pumper/Rescue, one 1,250 GPM Pumper, one 1,500 GPM Pumper/Tanker with 3,500 gallons of water and one 1,500 GPM Pumper/Tanker with 3,000 gallons of water along with support vehicles. Mutual Aid agreements with neighboring volunteer fire departments ensure adequate fire protection. Funding efforts began in 2003 for a new fire station that may be constructed at the border of Avondale and New Garden.

Ambulance Service

Ambulance service is provided by the Avondale Fire Company. The Avondale Fire Company Emergency Medical Service (EMS) division utilizes a combination of paid and volunteer personnel and provides emergency medical services to Avondale Borough, New Garden Township, and portions of London Grove, Franklin, and West Marlborough Townships. The Township contributes annually to the fire company.

The Southern Chester County Emergency Medical Services (SCCEMS) is a non-profit corporation governed through the collaboration of local ambulance companies and members of the community. SCCEMS provides advanced life support service to a majority of southwestern Chester County, covering more than 225 square miles and a population of nearly 60,000 people, including New Garden Township. The primary operation center is located at the Jennersville Regional Hospital in Penn Township, with a second station located within New Garden Township.

Health Care Facilities

Although there are no hospitals or other health-care centers located within New Garden, there are a number of medical facilities within a fifteen mile radius. The Jennersville Medical Center in Jennersville, Penn Township is the closest and most readily accessible acute care hospital. This hospital provides in-patient and out-patient services, an emergency room, and physical therapy. In addition, the medical complex includes an addiction recovery center and medical detoxification unit. Ambulance service is provided by the West Grove and Avondale Fire Companies. See: Regional Settings Map for facilities in the New Garden region.

Area Hospitals:

- **Wilmington Medical Center (Wilmington)** - The medical center is the largest health care facility serving the residents of New Garden. The Wilmington Medical Center is composed of three separate divisions that provide a full range of health care services.
- **Christiana Medical Center** - A division of the Wilmington Medical Center, the medical center, located approximately 15 miles from the Township in Christiana, Delaware, is one of the largest health care facilities in the area. The facility provides Township residents with a full range of health care services.
- **Chester County Hospital (West Goshen Township)** - This facility offers a full range of medical, surgical, and obstetrical services. Special programs include genetic counseling, heart first cardiac rehabilitation, lifestyle fitness center, and hospital home care. This facility is approximately twelve (12) miles from the Township.

- **Brandywine Hospital and Trauma Center (Calm Township)** - This hospital offers a medical/surgical unit, obstetrics unit, pediatric unit, psychiatric unit, detoxification unit, a mixed intensive care/critical care unit and a 24-hour trauma and emergency medical unit. This facility is approximately fifteen (15) miles from the Township.
- **Jennersville Regional Hospital (Penn Township)** - The closest and most accessible acute care hospital, approximately five (5) miles west of New Garden Township. This hospital provides in-patient and out-patient services, an emergency room, and physical therapy.

Water Facilities

A majority of properties in the Township obtain water from private wells. The primary source of public water service is from the City of Chester Water Authority (CWA) pipeline that traverses the Township in a west-east direction south of Avondale and Toughkenamon. Water for this pipeline is supplied from the Octoraro Creek Reservoir and the Susquehanna River. Approximately 470,000 gallons per day from the Chester Water Authority were supplied to New Garden Township residents and business in the spring of 2003. Artesian Water Company in Delaware provides public water service to a small selected franchise area within the Township. (See: **Map 6-1**)

The Township has experienced efforts from water companies to purchase or drill wells within the Township for large scale water extraction. In order to preserve ground water quantities for residents, the Township has adopted a groundwater withdrawal ordinance to regulate the impact of this potential use.

Public Education Facilities

The Kennett Consolidated School District (KCS D) includes the municipalities of Kennett Square Borough, Kennett Township, New Garden Township, and part of East Marlborough Township. As required by law, the KCS D provides bus service for the children in the District who attend private and parochial schools within commuting range. Special education is provided to exceptional/handicapped children through County school services. Vocational education is provided to KCS D students at the Central Chester County Vocational Technical School in Coatesville.

Recent enrollment data indicates that the number of students served by the school district is increasing. **Figure 6-2** displays information on facilities and enrollment. Enrollment continues to increase and will be a continuing issue for the District. The 1991-1992 enrollment of 2,352 listed in the previous comprehensive plan determines a growth of 60 percent in comparison to the 2002-2003 enrollment. In looking at more recent trends, the District has had a 15 percent increase in students, or 128 students per year, since the 1998-1999 school year.

Public school facilities servicing New Garden residents include Greenwood, Mary D. Lang and New Garden Elementary Schools and Kennett Middle and Kennett High Schools. The addition of the Kennett Middle School in New Garden will allow for renovation of the existing Kennett High School. The School District plans to use the old Kennett Middle School, which is adjacent to the High School in Kennett Square, to temporarily house High School students while the existing High School building is renovated and expanded. It is anticipated that this will rectify the overcrowding that exists in the High School as displayed in **Figure 6-2**, below.

Figure 6-2: Kennett Consolidated School District Education Facilities and Enrollment, 2003

Type/Name	Year Built	Student Capacity	Enrollment 1998-1999	Enrollment Spring 2002	Enrollment Spring 2003
Elementary					
Greenwood	1962	650	614	675	619
Mary D. Lang	1972	550	472	521	430
New Garden	1958	950	969	1,037	904
Middle School					
Kennett Middle	1945	604	524	562	
Kennett Middle (new)	2002	*1,100	N/a	*887 (projected)	928
High School					
Kennett High	1932	1,000	829	968	1,038
Total		3,754	3,408	3,763	3,919

Source: KCSD Superintendent Office, June 2003. *exact figures were not available at the time of printing.

Library

The Bayard Taylor Memorial Library, located in Kennett Square Borough, furnishes library service to New Garden. The library is supported through private endowments and through funding by Kennett Square Borough, New Garden, Pennsbury, East Marlborough, West Marlborough, and Kennett Townships, in addition to Chester County. Income from an endowment fund, accumulated through gifts and bequests from local residents since the founding of the library in 1896, provides a portion of the operating budget.

Additional financial assistance is received from municipalities and state aid provided to the library. The present library collection consists of approximately 32,500 volumes. The library is part of the Chester County Library system, which provides area residents access to documents within the entire network. Due to space needs and finances, the Library is planning on constructing a new 40,000 square foot facility in Kennett Township, just east of Kennett Square.

Due to the proximity of Hockessen, Delaware, many Township residents use libraries in Delaware and pay the small annual fee. Because the Bayard Taylor Library is anticipated to move into a new building in Kennett Township, east of the Borough, it is anticipated that New Garden residents will be more likely to use libraries in Hockessen and less likely to support the Bayard Taylor Library, which is an issue within the Kennett Region.

PLANNING IMPLICATIONS

Existing community facilities and services have been identified in this inventory section. The following is a list of implications raised by this section that will be addressed in the recommendation sections of the Plan:

- **Township Administration** - There is a need to periodically assess Township administrative staffing and facilities to meet the needs of the community in terms of workload, expertise, and space needs.
- **Township Finances** - There is a need to modify the budget format in order to meet the changing programs and economic development needs of the Township.

- **Police** - As the population continues to increase and additional commercial development occurs, the police department may need to make operational changes. The hours of operation and number of officers need to be evaluated to meet the needs of the Township.
- **Emergency Services** - Emergency services including police, fire, and ambulance appear to provide adequate coverage of the Township in 2003. However, these services need to be examined periodically to ensure that demand does not exceed the ability to respond efficiently.
- **Open Space and Recreation** - The demand for open space and recreation facilities will continue to increase as more people move into the Township. In order to retain the character of the Township, there is a need to identify open space resources and develop additional open space, park, and recreational facilities as residential development occurs.
- **Sewer and Water** - The Township will need to monitor changes in the water and sewage capacity of the various public and private systems within the Township, while providing direction as to where these facilities are appropriate. The Township should also encourage education of residents on the maintenance of individual on-lot septic systems and wells. Dependence upon ground water supplies dictates the need to protect both the quality and quantity of ground water resources.
- **Kennett Consolidated School District** - School enrollment is increasing. The Township and School District need to foster regular communication to determine future facilities, service, and program needs.

Chapter 7

Existing Land Use Inventory

Analyzing existing land use is an important component in the comprehensive planning process. Historic land use patterns help to define community character and the path which future development may follow. This Chapter examines land use patterns within the Township by inventorying land uses, calculating the acreage devoted to each use, and explaining planning issues. The formulation of future land use policy will take into account past land use trends. Proposed land development and building permit data is also presented to further identify trends and development pressures within the Township. This analysis is important for the formulation of the **Land Use Plan in Chapter 16**. Existing land use patterns are displayed on **Map 7-1**.

PREVIOUS LAND USE INVENTORIES

New Garden Township has experienced considerable development pressure since the early 1980's. By examining the data from the 1981 and 1993 comprehensive plans, it is evident that New Garden was an agricultural community that has evolved into a residential "bedroom community", primarily for commuters to the Wilmington, Delaware metropolitan area. The following information is a summary of the land use inventory sections from past comprehensive plans.

Land Use Pattern - 1981

The 1981 Comprehensive Plan identified key elements of the land use pattern of New Garden Township. These included:

- The majority of land in New Garden was characterized as crop and pasture lands, mushroom farms, and rural residential. The percentage of all these lands was sixty-six percent (66%) of total Township land.
- Woodland consisted of twenty-five percent (25%) of total Township land, with the largest tracts of woodland located in the southern portion of the Township.
- Medium density residential development, one or more residential units per acre, was concentrated around the villages of Toughkenamon and Landenberg, the Liberty Knoll apartments, and on several other small tracts. Medium density residential development consisted of two percent (2%) of total Township land.
- Low density residential development, less than one unit per acre, was located throughout the Township. This classification included, large estates, farmsteads, and scattered rural residences.
- Red Fox Country Club and the New Garden Flying Field were the dominant public and semi-public lands in the Township.
- Commercial and industrial activities were located throughout the Township, with the largest concentration of uses along Route 41 and Baltimore Pike. The uses were comprised of a wide range of activities from the Hewlett-Packard plant to small machine shops.

Figure 7-1: Land Use Distribution for New Garden Township, 1981

Land Use	Acreage	Percent of Township Acreage
Agriculture/Open Land/ Rural Residential	6,664	66.0
Woodlands	2,495	25.0
Waterway	53	0.5
Residential (Total)	398	4.0
Low Density	203	2.0
Medium and High Density	195	2.0
Commercial/Industrial	269	3.0
Public/Semi-Public	297	2.0
Total	10,176	100.0

Source: New Garden Township Comprehensive Plan, 1981.

Land Use Pattern - 1993

In the 1993 Plan, agriculture continued to dominate the landscape at approximately 39 percent. Residential development pressure from New Castle County, Delaware was identified as an issue primarily in the southern portion of the Township. Woodlands, while not a category recognized on the Land Use Map (Map 16-1) of that plan, were identified as encompassing 2,220 acres of Township land.

Residential land use comprised the largest developed land use category. Farmsteads were counted as residential land uses by adding two acres to the Residential Land Use category for each farmstead identified on large agricultural parcels, with the remaining land classified as agriculture. The Plan identified that residential land uses were becoming more dispersed, and that road frontage residential lots were occupying long stretches of roadways in all parts of the Township. This type of development becomes both a safety and capacity problem along more heavily traveled roadways. High density residential development was identified in the village of Toughkenamon. Residential land uses were expected to increase, particularly in the southern portion of the Township.

The mushroom Industry was the second largest developed land use and was described as concentrated within a few sections of the Township. The acreage actually devoted to the industry was seen as overly high as the actual operations typically occupied only a small portion of an individual property.

Commercial and Industrial land uses were placed in one category and located throughout the Township, with many of them located along Route 41 and Baltimore Pike. The 1993 Plan identified the completion of the Unified Development Zone in the southern portion of the Township along Route 41 and the Business Park Zoning District along Newark Road between Toughkenamon and US Route 1.

Institutional and Recreation land uses were designated as a single land use category and included the Brandywine Polo Field, the Loch Nairn Golf Club, churches, and Township facilities. The description noted the proposed New Garden Township Park as a contributor to increasing land area in this category. Commerce included the Hewlett-Packard site and the New Garden Flying Field that had office and commercial uses.

Figure 7-2: Land Use Distribution For New Garden Township, 1992

Land Use	Acreage	Percent of Township Acreage
Agriculture/Open Land	4,190	38.9
Woodlands	2,220	20.6
Residential (Total)	1,900	17.6
Low Density (less than 1.0 DU/AC)	1,250	11.6
Medium Density (between 30,000 SF - 1 AC/DU)	410	3.8
High Density (less than 30,000 SF per unit)	20	0.2
Farmstead (2 acre allocation)	30	0.3
Vacant Lots (lots approved for development)	190	1.7
Mushroom Industry	1,140	10.6
Commercial/Industrial	410	3.8
Institutional/Public	410	3.8
Transportation	290	2.7
Commerce	210	2.0
Total	10,770	100.0

Source: New Garden Township Comprehensive Plan, 1993.

EXISTING LAND USE PATTERN - 2003

Methodology

Land use data was compiled in June of 2003 from field surveys, Chester County tax assessment records, an analysis of 2000 aerial photography, revisions by Comprehensive Plan Task Force members, and by members of the public. The resulting land use configuration is displayed on **Map 7-1, Existing Land Use**, which serves as the basis for analysis throughout this chapter. Some land use categories have been changed to provide greater detail than was provided in the 1993 Plan. The additional land use categories recognize specific land use types within the Township and assist in the analysis of their inter-relationship with other land uses.

Land use category subsections contain lists of uses included in each category in order to clarify any possible confusion about whether uses are classified according to function or ownership. The analysis concludes with a description of the character of the Township and how the use will probably be affected by current trends.

Agriculture

1,436 Acres - 13.8% of total Township land

The mushroom industry represented the most prevalent agricultural land use in the Township, but several crop and two dairy farming operations remain scattered throughout the municipality. Mushroom uses are listed in a separate category below. Agricultural/Open land no longer dominates the landscape as traditional farmland has continued to be converted into residential subdivisions. Included in the Agriculture category are cropland, pasture land, and dairy farming. Farm dwellings are classified along with the agricultural use, a variation from the 1993 Plan where they were classified as residential rather than agricultural, and two acres from each farm was reassigned to the residential category to adjust the calculations. This difference is minimal and has little effect on planning implications.

Due largely to rising land and operating costs, new farms are not being established. It is increasingly difficult to operate a farm profitably, and as land values rise, farm owners face growing pressure to sell their farms for development. While the 1993 Plan noted that a majority of subdivision development was occurring in the southern portion of the Township, by 2003, it is evident that this pattern has now extended into every portion of the Township.

Woodlands 2,379 Acres - 22.8% of total Township land
Woodlands are located predominantly in the southern portion of the Township, predominantly along the White Clay Creek. The 2003 analysis determined woodland acreage by the most recent GIS (geographic information system) data available from the Delaware Valley Regional Planning Commission. This category represents the most significant change in terms of land use analysis from the previous comprehensive plans, in that the acreage of woodlands is provided, but woodlands are not counted as one of the actual land use categories. See Map 4-3 for wooded areas.

Residential 3,671 Acres - 35.2% of total Township land
Residential land use comprises the largest land use category within New Garden Township in 2003. Single family residential development is the predominate form of residential land use and continues to be the fastest growing land use within the Township.

Residential uses are broken into four categories: single family, two family, multi-family, and mobile homes. Single family residential units are the most common, with a single home on an individual lot. Two family units are commonly referred to as "twins". Typically, each side of a twin is separately owned while the structure generally has the appearance of a single family home. Twins have importance because they are generally more affordable, while having many of the same benefits as single family homes. Multi-family units include row houses, townhouses, and apartments. Mobile homes refer to semi-permanent structures that are secured to a base, but the structure has the capacity to be moved to a different location. Mobile homes are located throughout the Township and in many cases are associated with the mushroom industry.

Originally concentrated in villages such as Toughkenamon and Landenberg, residential development has become more dispersed in all parts of the Township. Many lots back onto large tracts of woods or farm land. While this development pattern is satisfactory for local roads which carry limited traffic, it can become both a safety and capacity problem along more heavily traveled roads due to the increased number of access points. The reduction of frontage along large tracts associated with this pattern limits development options.

Since the completion of the Comprehensive Plan in 1993, New Garden has experienced a significant increase in residential subdivisions throughout the Township. These developments involve low density residential development (less than 1 dwelling unit per acre) and medium density residential development (30,000 square feet to 1 acre per dwelling unit).

Commercial 509 Acres - 4.9% of total Township land
Commercial activities are located throughout the Township, with many of them located along Route 41 and Baltimore Pike. Commercial operations range from small stores, restaurants, and machine shops to large operations such as the New Garden Shopping Center.

Office 18 Acres - 0.2% of total Township land
Office uses include administrative offices for businesses and other non-retail office uses. The 1993 Plan included a commerce category that included the now abandoned Hewlett-Packard site and the New Garden Flying Field. The flying field has been incorporated into the Commercial category because it is considered a business use and the potential exists for further commercial development in and around the flying field.

Industrial 255 Acres - 2.4 % of total Township land
Industrial uses were included with commercial uses in the previous comprehensive plans. Due to the potential for more intensive environmental issues with some industrial uses, these uses have been designated as a separate category. Light industry includes less intensive uses such as warehousing, packaging, and auto repair. Many light industrial uses in New Garden are related to the mushroom industry, accounting for the many light industrial uses spread throughout the Township. Heavy industry is indicative of more traditional industrial uses such as mining and manufacturing, and only a fraction of the industrial uses in the Township are heavy industrial in nature.

Mushroom Industry 1,528 Acres - 14.7% of total Township land
Land classified as part of the Mushroom Industry category includes all land containing mushroom houses and composting operations. The total acreage in this category may seem to be high because mushroom operations usually occupy only a small portion of an individual property. The mushroom industry is spread throughout the Township with concentrations around the Penn Green, Starr, and Ellicott Road area, the Kaolin area, and lands south of Toughkenamon along Newark Road. The largest mushroom operation is Modern Mushroom, Inc., located south of the Route 1 interchange with Newark Road.

Institutional 309 Acres - 3.0% of total Township land
The lands within this category include schools, churches and related facilities, state facilities, and New Garden Township facilities. The Saint Anthony in the Hills property at the intersection of Route 41 and Route 7 in the southern portion of the Township is a large private institutional use.

Recreation / Open Space 711 Acres - 6.8% of total Township land
Open Space includes township parks and open space areas, the Loch Nairn golf course, the Brandywine Polo Fields, eased parcels, and lands owned by home owners associations as part of residential conservation subdivisions.

Transportation 550 Acres - 5.3% of total Township land
The Transportation land use category encompasses all roads in the Township, including the width of the right-of-way assigned to that road segment as per the Chester County GIS System. In some cases linear distances of all roads were calculated by an average right-of-way width of thirty-three (33) feet. Also included in this category is the Octoraro Railroad which takes an east-west route through the Township, providing limited freight service from Wilmington to the Herra plant just south of Oxford Borough.

The amount of land designated as Transportation will increase as new residential development occurs and existing roads are upgraded. The Township should periodically review road width standards in the Subdivision and Land Development Ordinance to determine whether standards are appropriate.

Utilities 211 Acres - 2.0% of total Township land
 Utilities include the township sewage treatment plants and spray fields as well as utility substations.

Vacant Land 1,226 Acres - 11.8% of total Township land
 Lands classified as vacant land consist of fallow fields that are not being used for agricultural purposes, wooded lots that have no development of any kind, and vacant lots. In some cases, owners of residential lots own an adjacent lot that has not been developed and is not farmed.

Figure 7-3: Land Use Distribution For New Garden Township, 2003

Land Use	Acreage	Percent of Township Acreage
AGRICULTURE	1,436	13.8
<i>(Woodlands)*</i>	2,379*	22.8*
RESIDENTIAL (Total)	3,671	35.2
<i>Single Family Detached</i>	3,251	31.2
<i>Two Family</i>	94	0.9
<i>Multi-Family</i>	97	0.9
<i>Mobile Home</i>	229	2.2
COMMERCIAL (Total)	509	4.9
<i>Commercial/Service</i>	467	4.5
<i>Commercial/Residential</i>	32	0.3
<i>Residential/Commercial</i>	10	0.1
OFFICE	18	0.2
INDUSTRIAL (Total)	255	2.4
<i>Light</i>	216	2.1
<i>Heavy</i>	39	0.4
MUSHROOM INDUSTRY	1,528	14.7
INSTITUTIONAL	309	3.0
OPEN SPACE (Total)	711	6.8
<i>Parks and Recreation</i>	469	4.5
<i>Home Owners Association/Open Space</i>	242	2.3
TRANSPORTATION (Total)	550	5.3
<i>Road Rights-of-Way</i>	533	5.1
<i>Railroad</i>	17	0.2
UTILITIES	211	2.0
VACANT LAND	1,226	11.8
TOTAL	10,424	100.0

Source: Acreage total for this Plan were generated by the Chester County GIS system and are slightly different from the totals in the 1981 and 1993 Plans due to changes in technology and methodology. *Woodlands are not calculated as part of total lands, and the data is for display purposes only.

PROPOSED DEVELOPMENT ACTIVITY

A review of the number and type of subdivision and land development applications helps to assess the level of development speculation in New Garden Township. Since subdivision and land development applications must be approved prior to construction, these applications indicate the potential for construction to take place in the near future. Not all applications are approved, nor do all proceed if approved, however, the Township can gain important insight into development trends by monitoring the submittals. Since land development is market driven, much can be learned from the type and form of subdivision and land development proposed.

The Pennsylvania Municipalities Planning Code, Act 247, requires that municipal subdivision and land development applications be reviewed by the county planning entity, in this case the Chester County Planning Commission. All applications submitted are tracked by municipality in order to discern county-wide development trends. The requests for review of proposals located in New Garden Township from 1993 through 2002 are illustrated in **Figure 7-4**.

Figure 7-4: Proposed Subdivision and Land Development Activity, 1993 – 2002

Year	Total Acreage	Single Family Residential	Multi-Family Residential	Mobile Home	Commercial	Industrial	Institutional	Total
1993	1,646	248	24	0	6	1	1	280
1994	461	191	0	0	2	0	0	193
1995	386	386	0	4	4	0	0	394
1996	489	123	0	0	7	0	0	130
1997	214	40	0	0	3	1	0	44
1998	432	115	0	0	4	3	3	125
1999	271	50	0	1	5	0	2	58
2000	450	249	0	12	9	0	0	270
2001	241	215	77	0	4	1	1	298
2002	293	96	0	0	4	2	0	102
Total	4,883	1,713	101	17	48	8	7	1,894

Source: Chester County Act 247 Referrals Subdivisions, Land Development, and Zoning (1993-2002)

The information in **Figure 7-4** indicates that 4,883 acres of New Garden Township were proposed for some type of development between 1993 and 2002. The proposals requested the construction of 1,713 single family units and/or agricultural lots, 101 multi-family units, 17 mobile homes, and 63 non-residential lots. The strong economy and the availability of low-cost financing in the 1990's was likely a factor in the number of development proposals submitted. These figures should be viewed only as general indicators of development activity, since some proposals submitted never reach the final approval stage. Further skewing the analysis is the fact that one application may be submitted for review on multiple occasions. It is not uncommon for a proposal to linger in the review stage for several years as the developer refines the ultimate design. Since the Pennsylvania Municipalities Planning Code determines that land development proposals that have not been initiated within five years of preliminary plan approval are subject to zoning revisions

that have occurred within that time frame, it is possible that the construction proposed in earlier applications will not be built.

Construction Activity

Though a review of proposed development activity is useful, the applications do not reflect actual construction levels. Actual construction activity is better determined through building permit data. The number of building permits issued by type from 1993 through 2002 is indicated in **Figure 7-5**.

Figure 7-5: Residential Building Permits By Unit Type, 1993-2002

Year	Single Family	Apartments	Townhouses	Mobile Homes	Total
1993	93	0	0	7	100
1994	111	0	0	5	116
1995	165	0	0	6	171
1996	133	0	0	5	138
1997	85	0	12	4	101
1998	122	0	16	3	141
1999	92	0	0	4	96
2000	94	0	-	7	101
2001	108	0	-	13	121
2002	111	0	-	5	116
Total	1,142	0	28	59	1,201

Source: Chester County Planning Commission, Residential Building Permits Planning Data Sheets #50 (1996), #51 (1997), #56 (1999), #1-00 (2000), #1-02 (2002), #1-03 (2003). Due to changes in accounting methods, after 2000 all townhouse permits were counted in the single family category.

The numbers of residential building permits issued from 1993 through 2002 were almost exclusively for single-family detached units. These figures generally correlate with **Figure 7-4**, considering the number of proposals that were never finalized or developed. The greatest number of permits was submitted in 1995 at 171, but the average has remained just above 100 permits per year. The highest number of permits issued for mobile homes (13) were in 2001 and overall the number of such permits issued each year has ranged between three and seven.

A lower number of building permits were granted during the 1990's in comparison to the number of units in development reviews. There are many reasons that a developer may not pursue actual construction (often related to financing), and even in cases where a building permit is granted, construction may not occur. Certificates of occupancy can help gauge occupancy, however, they do not always distinguish between a new and a renovated unit.

CURRENT LAND USE REGULATIONS

One of the most effective means of implementation occurs at the municipal level is through the Zoning Ordinance and the Subdivision and Land Development Ordinance. By outlining the regulations under which all development occurs, these two ordinances provide the development framework. Discussion of land use regulations is a necessary part of this Chapter since these regulations are partly responsible for the existing patterns. The following discussion is an overview of land use regulations:

Zoning Ordinance

New Garden first adopted a zoning ordinance in 1988. It was amended on various occasions and was completely updated and readopted in 1997. The ultimate purpose of the Zoning Ordinance is to designate the type, form, and location of various land uses in the Township. The New Garden Zoning Ordinance contains eight base districts: three Residential districts, a Highway Commercial district, two Commercial-Industrial districts, a Business Park district, and a Unified Development district. There are two overlay districts: Flood Hazard and Airport Hazard. The Zoning Ordinance provides for both lot averaging and cluster residential development in certain cases. This analysis is of the Zoning Ordinance with amendments through July 2003.

Residential Districts: The R-1, R-2, and R-3 Residential districts are intended to provide for development that offers a variety of housing types in varying densities, yet is sensitive to environmental features and the semi-rural nature of the Township. The R-1 District stipulates a one acre minimum lot size with cluster development offered as a use by-right, when public facilities are available, and lot averaging as a conditional use. The R-2 District allows residential development at two units per acre with both cluster development and planned residential developments offered as a use by-right. The R-2 district offers differing densities depending on whether public water and sewer service are provided, including townhouses and apartments. The R-3 District provides a variety of uses within Toughkenamon. Single family units on lots as small as 15,000 square feet, if served by public water and sewer, are the primary by-right use. A variety of commercial and institutional uses are available as conditional use in the R-3 district. A Town Development Option in the R-3 district provides for infill development to create smaller lots within Toughkenamon to encourage redevelopment and infill development in a traditional grid pattern.

Commercial-Industrial Districts: There are five commercial-industrial districts contained in the Zoning Ordinance intended to provide a variety of retail, service, and industrial uses throughout the Township. Each district emphasizes a different approach, with the Unified Development and Business Park districts incorporating a planned approach with integrated uses.

The Highway Commercial (H/C) district provides for smaller individual office and retail uses with a minimum lot size of one acre, primarily located along the western portion of Baltimore Pike with additional smaller sections along Baltimore Pike and Route 41. The Commercial-Industrial (C/I) district is located primarily along the south side of Baltimore Pike, with additional areas at the intersection of both Route 1 and Newark Road and Route 41 and Newark Road. The C/I district allows for smaller commercial uses using public water and sewer facilities with a minimum lot size of 20,000 square feet. A wide variety of office, retail, service, and institutional use are allowed by-right with additional industrial uses allowed by conditional use. The Limited Commercial/Industrial (C/I-2) district is located south of the Borough of Avondale and provides for office and industrial uses such as the assembly and fabricating of products and warehousing with a minimum lot size of two acres. Manufacturing and automobile sales and services are allowed by conditional use.

The Business Park District (BP) is located directly north of the Borough of Avondale and provides for

campus-like business centers and corporate headquarters sites developed through master plans. Uses such as professional and administrative offices, research and development uses, light industrial uses, and service and support uses for commercial uses are allowed by-right, provided there are no retail functions to such uses. All uses must be developed under a master development plan with a minimum tract size of ten acres. A number of special regulations concerning setbacks, access, buffers, lighting, and other issues are incorporated to manage the effects of these larger uses.

The Unified Development District (UD) is located along the south side of Route 41 in the southern section of the Township. The UD was created to establish an access management program for the Limestone Road and Route 41 corridors by limiting the number of direct access points onto these arterial roads. The uses that are allocated in this district include planned office development, light industrial parks, retail centers, hotel/resort and corporate headquarters. The district intends to provide an alternative to single use, parcel-by-parcel development by integrating design between developments while encouraging the retention and coordination of open space. A number of qualifying conditions, including items such as traffic impact and environmental impact studies are required to evaluate sites and determine the best location for development. A variety of uses such as office, light industrial, retail, hotel, conference facility, golf course, and residential uses are allowed and encouraged to be incorporated into a well planned and organized development on tracts of at least 100 contiguous acres in size.

Overlay Districts: Overlay districts serve to supplement the provisions of the underlying districts through provisions that seek to protect specific resources or features. There are two overlay districts contained in the Zoning Ordinance. The Flood Hazard district regulates land use and development in flood prone areas indicated on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM) within the 100 year flood plain. Land uses within the floodplain are extremely limited to prevent further flooding and to reduce insurance burdens on the Township and its residents. The Airport Hazard district regulates the height of buildings and structures within certain zones surrounding the airport located northeast of Avondale Borough.

Subdivision and Land Development Ordinance

New Garden's current Subdivision and Land Development Ordinance was adopted in 1999. The intent of this Ordinance is to define how development may occur. It contains the procedures, processes, and development standards that all applicants must meet in order to obtain the necessary development approvals. Basic elements include the application procedures, review process, and minimum plan information standards. It contains development and design standards for the physical development of a site and the specifications for public improvements. Together, the Zoning Ordinance and Subdivision and Land Development Ordinance provide the foundation for regulating land use and development in New Garden Township.

LAND DEVELOPMENT TRENDS

The analysis of development trends from 1981 to 2003 helps to explain existing land use patterns and assists in gauging future demand for different land uses. This part of the comprehensive plan helps to ensure that new development is appropriately located and integrates with existing uses in terms of use, infrastructure, and circulation. The following discussion compares existing land uses with the land use inventory and analysis contained in the 1981 and 1993 Comprehensive Plans.

Agriculture

A considerable percentage of the Township was actively farmed according to the "Existing Land Use Map" contained in the 1981 Plan, as well as a smaller, but still significant percentage in the 1993 Plan. In comparison, the 2003 land use inventory shows a significant decline in agricultural lands, with only 14 percent of the Township remaining as agricultural use. The trend displayed by development proposals and building permit data discussed above, appears to be consistent and that agricultural lands within New Garden will continue to convert to residential housing, unless a progressive effort is made to protect agriculture.

Woodlands

Woodlands are not a land use per se, but are included here for reference to prior comprehensive plans. Data indicates that the Township is not losing woodlands, although the data is partially subjective and may not be directly comparable between planning documents. In many cases, woodlands exist in the floodplain areas and on steep slopes that are not suitable for development. Large residential lots throughout the Township have significant wooded areas that, together, equate to larger wooded areas. Large agricultural and mushroom properties have wooded areas or wooded borders that contribute to visual buffers throughout the Township.

Residential

The 2003 land use inventory indicates that residential development is increasing, and the land associated with housing has almost doubled in the past decade, with single family residential subdivisions as the largest single land use within the Township. Along with new subdivisions, single family units on private roads and along rural roads continue to be constructed. This type of construction is slowly consuming a larger percentage of the Township, as illustrated by the existing land use map. Small "farmettes," often for the purpose of maintaining a recreational horse stable, are prevalent in the central and western regions. Although this is considered a residential use, the potential for subdivision exists. Some infill development appears to be occurring both in conventional subdivisions, as well as in the villages.

Attached units, typically considered to be medium-density, are found mainly in the villages and in the northern part of the Township. Little multi-family construction has occurred in recent years. Mobile homes are scattered throughout the Township. Several larger mobile home parks exist, along with single mobile homes on larger parcels. In some cases there are mobile homes along with lands classified in the Mushroom category that are not included in this total.

The continuation of residential developments is reflective of current zoning practices which require one dwelling unit per acre for lands located in the R-1 and R-2 Residential Districts. These districts encompass a majority of the Township. Those lands located in the R-2 district are allowed a density of two units per acre based on public sewer and water service for single family units and up to 6 units per acre for attached units, such as apartment houses. The R-2 district is located in the northeast portion of the Township north of Baltimore Pike, east of Newark Road between Baltimore Pike and Route 41, and in an area south of Route 41. Other lands located in the R-2 district are located south of Toughkenamon and in the vicinity of the Somerset Lake development. High density residential development can be found in the Toughkenamon where lot sizes are smaller than 30,000 square feet and zoning allows a minimum lot size of 5,000 square feet.

The Zoning Ordinance provides for residential development throughout the Township and cluster/open space development is an option. Further modifications to the land use regulations could help curb the sprawl development pattern.

Commercial

Although some new commercial land uses have developed in the Township in the past decade, there is little change in the pattern since the 1981 and 1993 Plans. The commercial pattern appears to have been established for two to three decades. Several outlying commercial uses may be associated with the mushroom industry and appeared as such in previous inventories. Commercial land uses continue to be concentrated along Baltimore Pike and Route 41, with additional concentrations along Limestone Road and in the village of Toughkenamon. Village commercial uses appear to be legal non-conforming uses. The Zoning Ordinance serves to contain commercial uses to the specific areas indicated, but could be modified in order to allow for appropriately scaled commercial development in the villages and along major road corridors. The Township seeks to increase commercial uses to increase tax rateables. However, uses should be appropriate to the character of New Garden Township, with additional focus on Toughkenamon as a center. The New Garden Airfield provides the Township with a unique opportunity to develop additional adjacent commercial uses that may be attracted by the access advantages the airfield provides.

Industrial

Little industrial development has occurred in the previous decade. Most of the land used for industrial purposes at the time of the 1981 and 1993 land use inventories continues to be used for that purpose. Classification of some of these industries appears to differ between the two inventories that could account for some discrepancies. Some light industrial uses (particularly those related to auto service and repair) are sometimes classified as commercial and some are associated with the mushroom industry.

The potential for major changes in the amount of industry in the Township is possible due to the large amount of industrially zoned land. Although providing industrial development opportunities in the Township is important, the location of the areas for industrial development should perhaps be reconsidered.

Mushroom Industry

The 1993 plan expected that the conversion of mushroom uses to residential uses would be a factor to the increase of residential housing. It is evident that this has not been a factor and the mushroom industry continues to thrive. In fact, mushroom uses increased by approximately 16 percent between 1993 and 2003.

Institutional

Institutional land uses are found throughout the Township. Because schools and churches were historically focal points in agricultural regions, they are found throughout the Township and consist of larger parcels.

Recreation / Open Space

There are a few public recreational opportunities in the Township, with the primary public uses being the Township park and school properties. The previous existing land use inventories did not specifically identify recreational land uses, however, the *Open Space, Recreation and Land Use Plan (1992)* lists the parks and recreational facilities and it appears as though little change has occurred since that time. The Township is actively working on open space and recreational planning to increase the number of recreational opportunities for Township residents.

Transportation

The transportation network in New Garden has expanded significantly in the past decade, primarily due to development that has occurred. Continued residential development will increase the number and length of roadways that the Township must monitor and maintain.

PLANNING IMPLICATIONS

The existing land use analysis indicates the following planning implications for New Garden:

- **Preservation of Rural and Scenic Qualities** - New Garden's rural-suburban character and scenic qualities, along with its proximity to the regional highway system and Wilmington, Delaware, makes it a highly desirable place to live. Development pressure has diminished this character and its qualities. The Township needs to revise existing land use regulations to increase preservation of the remaining rural character and natural resources in light of new development.
- **Subdivision Design** - Most new construction in the Township has occurred in the south and eastern regions. The rural character that remains in these areas is converting to one that is suburban in nature. The Township needs to ensure that natural and historic features on sites are integrated and that the overall development plan protects the natural and historic character of the Township.
- **Sprawl Development Pattern** - Most new construction is in the form of single family homes built in conventional subdivisions and on single lots along roadways. These development scenarios, as well as excessive commercial construction, result in sprawl patterns. Greater emphasis needs to be placed on containing future development, if the character of the Township and quality of life is to be conserved.
- **Agricultural Preservation** - As farms continue to be subdivided and converted to residential uses, there is a need to revisit measures to protect the remaining farms and develop additional strategies.
- **Mushroom Industry** - This industry has a long history in the Township and is the single largest nonresidential activity. Because of the transportation and environmental issues that are innate to the functioning of the industry, there is a need to develop a strategy to manage the impacts of mushroom uses while protecting environmental features, transportation flow, and residents quality of life.
- **Industrial Uses** - A majority of the industrial uses within the Township are associated with the mushroom industry. The Township needs to evaluate the appropriateness of locations for these facilities and of regulations to ensure compatibility with residential uses, protection of groundwater, and additional environmental factors.
- **Village Preservation** - The villages in New Garden historically served as community, cultural, and commercial centers, however, development continues to occur primarily in rural areas. In order to preserve these unique communities, the Township needs to develop a strategy to increase the viability of the villages and progressive methods of promoting village preservation.
- **Commercial, Office, and Industrial Development** - A wide variety of commercial uses exist throughout the Township, along with office and industrial uses. These uses are important to increase tax ratables to reduce the tax burden on Township residents. The Township needs to evaluate the type and location of each of these uses and formulate a strategy for the development of each uses as appropriate for particular sections of the Township.
- **Accommodation of Future Population** - The build-out analysis indicates that the Township can/cannot accommodate its projected population and that it meets/does not meet its fair share obligations for multi-family housing under current zoning. The Future Land Use Plan needs to ensure that future population and alternative housing forms can be accommodated in designated growth areas, while protecting those areas targeted for low growth.

Chapter 8

Transportation and Circulation Inventory

This Chapter analyzes the existing circulation system of New Garden Township. The inventory provides an assessment of the Township road network including the location, ownership, and condition of roadways which serve existing and projected populations. As the Township continues to grow, increases in traffic volumes and changes in traffic patterns must be monitored to mitigate congestion and hazardous conditions while maintaining the scenic character of the Township and standard of living for residents. An understanding of existing conditions including safety, traffic volumes, and function of the Township roadways allows for the development of strategies to address future transportation and circulation needs.

Planning for transportation and circulation needs provides the opportunity to maintain a safe and efficient transportation system that is sensitive to the scenic characteristics of the rural portions of the Township, while providing an effective roadway system that manages traffic volumes through the more developed portions of the Township. The needs identified by the planning implications at the end of this Chapter are addressed by the recommendations in **Chapter 14, Transportation Plan**.

CIRCULATION SYSTEM AND FUNCTIONAL CLASSIFICATION

This section provides an overview of the circulation facilities of the Township and a detailed analysis of select intersections. From this analysis, specific planning issues are identified which must be addressed within the circulation plan.

The Township circulation system is comprised of 67 miles of public roadway. Of this, 45 miles are owned and maintained by the Township. These roadways tend to be small rural roads with low vehicular capacities and limited shoulder widths. The remaining 22 miles comprise nine separate roads that are state-owned and maintained. These roadways serve as the principal routes of movement throughout the Township.

Functional Classification

Roadways are classified according to the function and purpose they serve. The Existing Highway Functional Classification System was established by the Transportation Plan from the 1993 Comprehensive Plan. The following factors are used to determine functional classification for roads:

- Volumes of traffic
- Mobility
- Accessibility
- Corridor length
- Relationship and connection to other roadways
- Truck traffic
- Road layout and design
- On-street parking
- Amount of through traffic
- Vehicle speed, and
- Bicycle and pedestrian access.

The functional classification system is comprised of the following classifications:

Expressways serve the highest volumes of traffic. Access is limited to interchanges. They service the longest trip lengths and facilitate traffic on an interstate and inter-regional basis. Expressways provide optimum mobility and provide for highest travel speeds.

US Route 1 is classified as an expressway because of the heavy, long distance volumes of traffic it carries over its four lanes. Access is very limited and there is only one access point in New Garden. This access occurs at the intersection of US Route 1 with Newark Road in the northern end of the Township. New Garden has 2.96 miles of US Route 1 running across its northern boarder, just south of the Township line.

Major Arterials serve large volumes of traffic at relatively high rates of speed. They provide higher types of services and facilitate traffic over long distances on an intercounty or interstate basis. Access points are somewhat limited and controlled.

PA Route 41 is classified as a major arterial road. The highway has two travel lanes and carries relatively high volumes of traffic. Access is a growing concern as development along Route 41 continues, and may effect traffic flow on an interstate basis between Pennsylvania and Delaware. Limestone Road intersects with Route 41 in the southeastern corner of the Township and heads south into Delaware, where it becomes Delaware Route 7. Route 7 turns into a four-lane road in Delaware and connects the Township with important employment and shopping centers in Delaware.

Minor Arterials interconnect with and augment the principal arterial system. These roads provide services to trips of moderate length and have controlled access points. Minor arterials provide greater access to adjacent land than principal arterials.

Baltimore Pike is classified as a minor arterial road. Baltimore Pike connects Kennett Square and eastern locations with Avondale and other western locations. Baltimore Pike is 3.6 miles in length through the Township and splits from a two-lane roadway to two two-lane one way divided sections east of Chambers Road.

Major Collectors connect municipalities and incorporated centers. These roads are the major feeders to arterial traffic and carry fairly heavy traffic volumes at moderate rates of speed. Access points are usually controlled and it is not uncommon for a major collector road to span the entire length of a community.

Newark Road is the primary north-south route through the Township and is a State roadway. It carries high volumes of traffic despite its two lane width and rolling nature as it connects Route 41 with the US Route 1 bypass and is a means for traffic to circumvent the Borough of Avondale.

Minor Collectors facilitate relatively low volumes of traffic at lower speeds. They gather traffic from local roads and direct it to the arterials and major collector road networks. Minor collectors often provide traffic circulation between and within residential neighborhoods.

New Garden contains two minor collectors within its boundaries, including Hillendale Road and Broad Run Road. Broad Run Road is a state owned roadway west of Newark Road, while the Township owns Hillendale Road.

Distributors provide a connection from neighborhoods to collector and arterial roadways. Local distributors provide for short distance, low speed connectivity to other principal roadways within a municipality.

The majority of distributors are found in the southern portion of the Township. These include Bucktoe Road, Laurel Heights Road, Sunny Dell Road, Southwood Road, and sections of Broad Run Road and Buttonwood Road. In addition, Line Road, Church Road, Cedar Spring Road, and Scarlett Road are local distributors found in the northern half of the Township.

Local roads provide the greatest access to individual properties within a municipality. These roadways include small rural roads and streets within a development.

The remaining Township roads in the municipality are identified as local roads. They are mainly used to handle local traffic and by individuals accessing residential or rural areas.

The functional classification of roads in the Township are displayed on **Map 8-1**.

Commuting Patterns

An understanding of the travel patterns within the Township will assist in evaluating the road network from level of service and future function perspective. Comparing 1990 and 2000 US Census data can identify important changes and patterns. A significant number of Township residents commute into Delaware, particularly the cities of Newark and Wilmington. The 2000 Census reported that 36 percent of employed Township residents traveled outside of the Commonwealth for employment. Compared to 24 percent in 1990, this demonstrates an increasing pattern of employment dependence on out-of-state employment destinations. The largest area of resident employment was in New Castle County, Delaware (32%), followed by New Garden Township (24%). Other large employers of Township residents include: Kennett Square Borough (5.4%), Kennett Township (5.2%), West Goshen Township (2.9%), and the City of Philadelphia (2.2%). Generally, the areas of New Castle County, Delaware, the Township, and neighboring municipalities can be identified as primary areas of employment. Secondary areas of employment include the municipalities along the Route 202 Corridor and Delaware County.

For a full understanding of commuting patterns, it is important to understand where those who work in the Township originate. Many workers employed in the Township also reside in the Township (24%). Other areas drawing workers to the Township include New Castle County (28%); Kennett Square (5%); and Kennett Township (5%). Notably, the strong presence of New Castle County residents infers that there is a significant amount of workers coming from Delaware for employment in the Township.

Dependency on the car is an increasing trend in the Township. The average number of vehicles per household increased slightly from 1.88 (1990) to 1.98 in 2000. In addition, the number of workers driving alone to work increased from 64 percent in 1990 to 77 percent in 2000. This increase in car dependency caused notable drops in carpooling, from 14.9 percent (1990) to 10.1 percent, and walking, from 15.6 percent (1990) to 6.6 percent in 2000. However, the percentage of carpooling and walking remains above the 2000 Chester County averages of 9.6 percent and 2.5 percent respectively. The use of public transportation as a means of getting to work remained low at 0.2 percent. Further discussion on alternative forms of transportation is located in the Alternative Forms of Transportation section of this Chapter.

Car dependency, coupled with the magnitude of development in the Township, has impacted the amount of time residents are in their cars. The average travel time it takes to get to work for Township residents has increased since 1990, from 17.3 minutes to 24.7 minutes. This increase in commute time is also impacted by the increase in the number of residents who work in Delaware. Despite its average commute time, the

Township has a high percentage of workers who get to work in less than 5 minutes (11 percent) compared to a County average of only 3 percent. This figure reinforces the observation that many Township residents work within the Township.

Overall, a trend of increased car dependency and longer commutes is prevalent within the Township. The data suggests the following trends: 1) there is a noticeable increase of low-density residential housing in the Township, which relies on vehicular commutes; and 2) there is an increasing reliance of residents to seek employment in the State of Delaware.

TRAFFIC VOLUMES AND LEVEL OF SERVICE

Intersection Counts

Specific intersections were selected for study under this plan update. In order to understand the current circulation conditions, it is necessary to have an understanding of Township traffic trends. From the data obtained at these intersections, it was possible to determine a variety of useful information. This information includes the peak traffic hours for the morning and evening, measuring the percentage of trucks that travel on the roads, and developing a capacity indicator called Level of Service.

For the purposes of this plan, four intersections were studied:

- Baltimore Pike and Newark Road
- Baltimore Pike (Eastbound) and Scarlett Road
- Baltimore Pike (Westbound) and Scarlett Road
- Newark Road and Buttonwood Road

These intersection counts, in addition to other recent traffic counts on Route 41 and Limestone Road, provided a thorough foundation for the analysis. A tube counter was placed on Hillendale Road near the intersection of Hillendale Road and Newark Road. **Figure 8-1** shows the traffic each intersection experiences during peak hours for both the morning and evening.

The morning (AM) peak figures indicate a general pattern of traffic heading east or southward. On average, the intersection counts revealed a morning peak in traffic around 7:15-8:15 AM. The dominant AM traffic flow is heading southward on Route 41. Several collector roadways, Newark Road, Sunny Dell Road, and Starr Road, serve significant amounts of traffic headed for Delaware. Traffic volumes on Route 41 reach their highest figure approaching the Limestone Road interchange where substantial amounts of traffic head south on both major roadways. As the US Census data indicated, there is a significant amount of traffic also heading north, especially from Limestone Road, into the Township.

The other major traffic pattern during the AM peak is a substantial flow heading east on Baltimore Pike and the Route 1 Bypass. Traffic on these roadways is generally headed toward the neighboring municipalities of Kennett Township and Kennett Square along Baltimore Pike or to other large employment centers such as the 202 Corridor or Delaware County using US Route 1.

An unusual pattern observed at the intersection of Newark Road and Buttonwood Road was a pattern of northbound commutes on Newark Road from Buttonwood Road. A reciprocal flow of return trips is also identifiable during the PM peak. In addition, this intersection experienced an early AM peak between 7:00 AM and 8:00 AM. This observation reiterates that residents in areas south of the Township in Delaware and Maryland are traveling to New Garden for employment.

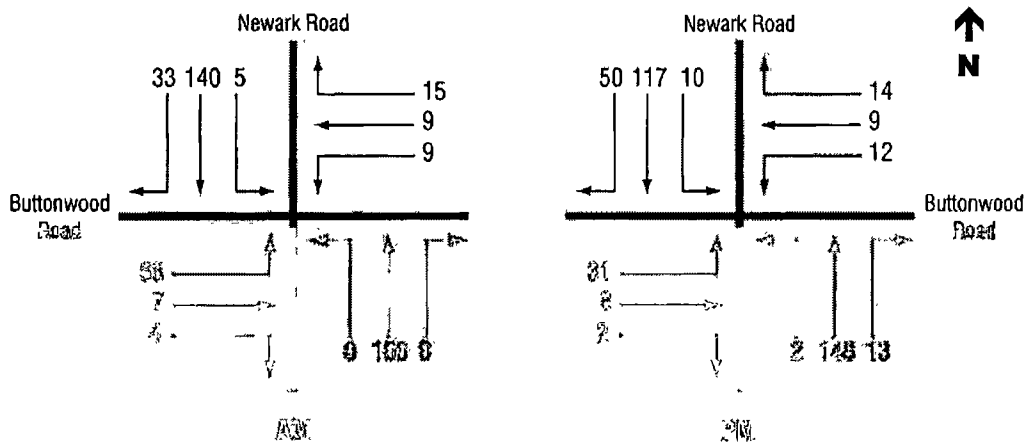
The intersection counts revealed less predictable traffic patterns during the evening (PM) peak, along with greater overall traffic volumes. Certain reciprocal movements, such as large volumes returning from

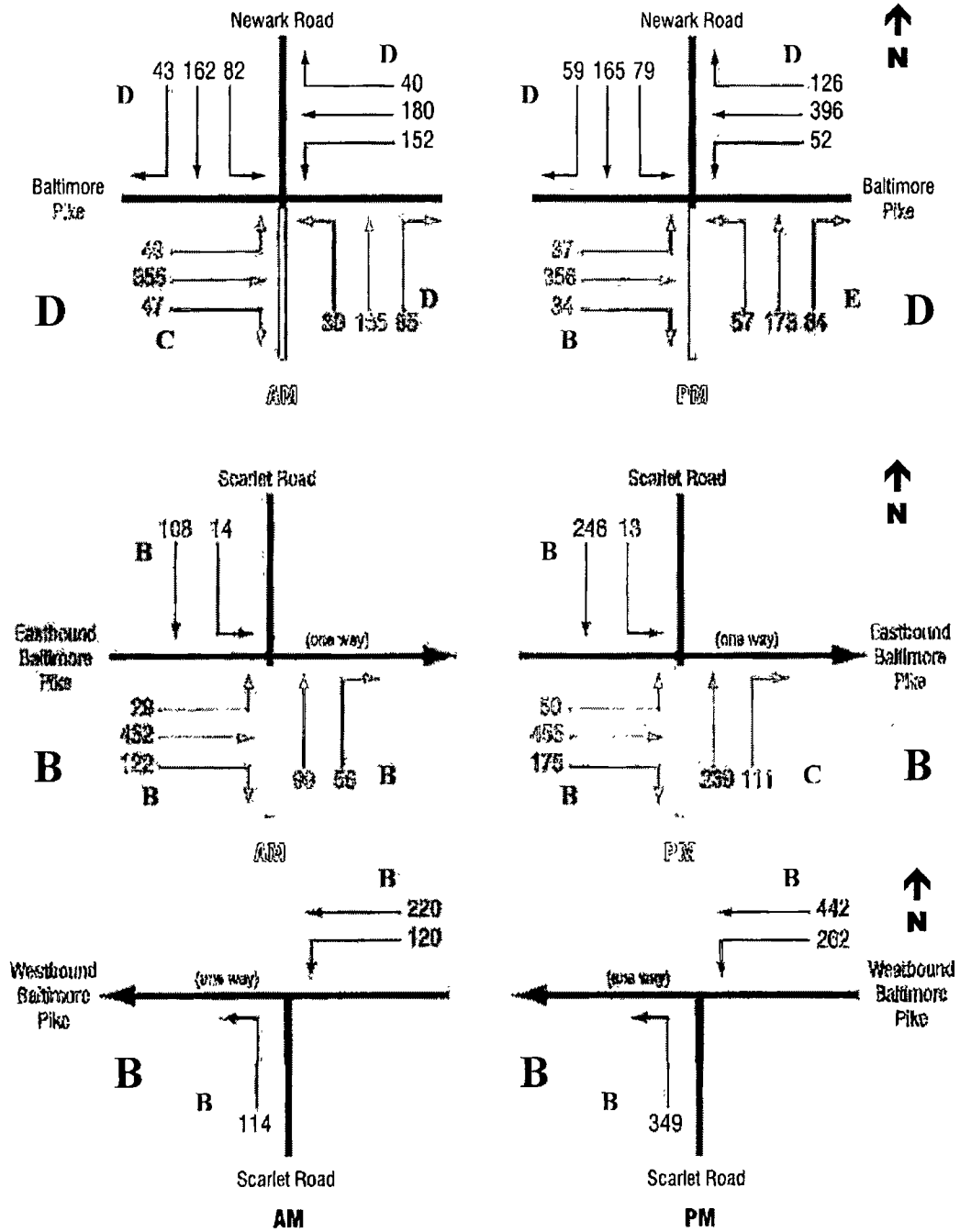
Delaware via Route 41 and Limestone Road, were evident as expected. Along Route 41, the amount of left-hand turns onto collector roadways like Sunny Dell Road and Starr Road is particularly concerning. The high-speed nature of Route 41, combined with substantial left-hand turns, yields concerns of traffic safety and congestion.

The study of the Route 41 and Limestone Road interchange revealed an unexpected pattern. While a reciprocal flow of traffic from Delaware was identified as expected, traffic counts revealed a substantial flow heading southbound on Limestone Road. Traffic volumes on the ramp from Route 41 south to southbound Limestone Road indicated that traffic volumes were higher during the P.M. peak than the A.M. peak. This pattern was confirmed by an intersection count south of the interchange at Limestone Road and Southwood Road. This pattern suggests again that the relationship between the Township and New Castle County is becoming increasingly significant. In addition, attractions such as tax-free shopping in Delaware may draw Township residents to the large areas of commercial development along Delaware Route 7.

Intersections along Baltimore Pike identified an expected reciprocal flow heading westward from Kennett Square. However, volumes throughout Baltimore Pike were noticeably higher for all turning movements during the PM peak. This noted increase can be explained by the concentration of commercial areas along Baltimore Pike and increasing residential development throughout the region. Commercial areas tend to alter commuter travel patterns during the afternoon drive home. For example, a resident living in West Grove and working in Kennett Square may take US Route 1 in the morning, but may choose to return home via Baltimore Pike in order to run various errands after work. This pattern is noticeable at the intersections of Baltimore Pike and Scarlett Road during the PM peak.

Figure 8-1: New Garden Township, Traffic Counts, 2003





Source: Chester County Planning Commission, 2004

Level of Service

Level of service analysis is used to establish the efficiency of traffic mobility on a roadway segment, intersection, or roadway interchange. Level of service (LOS) is a comparison between the volumes of traffic that use a road or intersection and the maximum capacity that the same road or intersection is able to handle. The capacity of an intersection or roadway is based on a series of criteria, including the number of lanes, the width of the lanes, the presence or absence of any turning lanes, the percentage of trucks that are present, the type of signaling device, and various other factors.

LOS is expressed using the letters A through F. A is considered to be the best possible driving situation in which a driver may move totally independent and without the influence of any other motor vehicle. With a LOS of A, a driver feels the least amount of anxiety because of the ability to drive at any desired speed without pressure from outside influences. As the LOS moves closer towards F, driving becomes more difficult. It is necessary to move at the same speed as other vehicles, and it is difficult to maneuver from one lane to another. Driving at LOS B is more difficult than A, C is more difficult than B, and so on until a LOS of F is reached. At a LOS of F, volumes of traffic become too large for the capacity of the road or intersection. Traffic at a LOS of F is forced, and heavy traffic back-ups result. **Figure 8-1**, above, shows the LOS for the signalized intersections counted in the summer of 2003. Newark Road and Buttonwood Road does not have a traffic signal so LOS was not calculated for that intersection.

The intersection of Newark Road and Baltimore Pike experienced an overall LOS of "D" for both the AM and PM peak hour. A level of service of "D" occurred at a majority of movements during both peak hours. Eastbound Baltimore Pike experienced a lower level of service "C" during the AM peak hour, partially due to the lower number of turning movements in this direction and the lower volume on westbound Baltimore Pike during the AM peak. Despite lower volumes, westbound Baltimore Pike experienced a LOS of "D", most likely because of the amount of left hand turns which conflict with the higher through volumes on eastbound Baltimore Pike. Both northbound and southbound Newark Road experienced a LOS of "D" except the LOS of "E" on northbound Newark Road in the PM peak hour. Despite the lower volume than Baltimore Pike, the tight turns and the grade of the northbound leg of Newark Road clearly cause issues resulting in a lower level of service. The amount of trucks on this road exacerbates this problem.

The intersection of Baltimore Pike with Scarlet Road occurs at two locations because of the two one-way separated sections of Baltimore Pike. All overall LOS calculations resulted in an LOS of "B" despite the relatively high traffic volumes at these two intersections. The one-way nature of Baltimore Pike reduces conflicts between turning movements, coupled with two lanes in each direction and actuated signals for Scarlet Road, resulting in intersections that function at acceptable levels.

Truck Volumes

Truck volumes are an essential part of any traffic study. Trucks pose an additional set of concerns than those associated with the passenger automobile. They reduce traffic flow and speed, cause more damage to the road surface, and create more noise problems. While the traffic volumes were counted for this comprehensive plan, trucks were counted separately from passenger automobiles. All vehicles were counted as trucks if they possessed more than two axles. This included any vehicle pulling a trailer. School buses were also counted as trucks because of the constraints they put on other motorists.

Figure 8-2 shows the overall truck volumes at each intersection for the AM peak hour, PM peak hour, and the total period studied. Data is included from traffic counts completed in 1993, 1998, and 2003 to provide a comparison and identify trends. Both Route 41 and Baltimore Pike have been designated as priority truck routes by PennDOT. This designation identifies routes that have no constraints for trucks. Because of this assignment, these roads should have higher truck percentages than the remaining roadways. Route 41 has

the highest percentage of trucks, with counts recording as high as 25 percent of traffic volumes for a 24-hour period for light trucks and 9 percent for heavy trucks. It is evident that truck traffic has risen on Route 41 over time and that these high levels of truck traffic will remain an issue due to the importance of Route 41 as the primary connection from Wilmington to central Pennsylvania and to more remote locations beyond.

The 2003 traffic count at Baltimore Pike and Newark Road shows that truck traffic continues to increase in comparison to the 1993 data. Additionally, the trend of significantly more truck traffic during the AM peak hour continued between 1993 and 2003. This trend was also identified at the intersection of Newark Road and Buttonwood Road, although volumes at that intersection were much lower.

Figure 8-2: New Garden Township; Truck Traffic Percentages, 2003 (1993)*

Intersection	AM Peak Hour	PM Peak Hour
Newark Rd. & Buttonwood Rd.	3.6%	0%
Newark Road	4.3%	0%
Buttonwood Road	1.8%	0%
Newark Rd. & Baltimore Pike	14.2% (9.9%)	6.1% (4.4%)
Newark Road	13.4% (11.8%)	4.7% (3.8%)
Baltimore Pike	14.2% (10.9%)	6.9% (4.7%)
Baltimore Pike (Westbound) & Scarlett Road	13.0%	2.0%
Baltimore Pike	12.6%	2.1%
Scarlett Road	14.0%	1.7%
Baltimore Pike (Eastbound) & Scarlett Road	11.0%	2.8%
Baltimore Pike	11.1%	4.3%
Scarlett Road	10.8%	1.1%
PA 41 and Newark Road (1993)*	(15.1%)	(9.4%)
PA 41	(18.6%)	(10.7%)
Newark Road	(8.0%)	(5.8%)
Baltimore Pike and PA 41**	20.1%	
Baltimore Pike	12.6%	N/A
PA 41	22.0%	
PA 41 and Penn Green Road***	11.5%	
PA 41 (Total for both peak hours)	12.8%	N/A
Penn Green Road (Total for both peak hours)	6.3%	
Route 41 (just north of Kaolin Road)****	25% light trucks 9% heavy trucks	-

Source: Chester County Planning Commission, 2003.

* 1993 New Garden Comprehensive Plan

** 1998 Intersection Count of AM Peak (10:00 AM – Noon) only; CCPC.

*** 2002 Traffic Impact Study for proposed Happy Harry's Pharmacy, prepared by Brandywine Valley Engineers.

**** I-95, US 202, and PA 41 South Cordon Stations and Chester and Delaware Counties, Report 2; Delaware Valley Regional Planning Commission, September 2002

Traffic Volumes and Anticipated Traffic Growth

An analysis of historical Average Daily Traffic Volumes (ADT), conducted by the Chester County Planning Commission and Delaware Valley Regional Planning Commission, can identify increases in traffic volume on major roadways within the Township. **Map 8-2** shows a summary of ADT traffic volumes in the Township. Notable increases can be identified on all of the Township's major roadways: Route 41, Baltimore Pike, Limestone Road, and US Route 1. Baltimore Pike, from Newark Road to Thompson Road experienced the most significant increase, approximately 83 percent between 1990 to 2002. The Township's growing population and an increase in commercial development activity can explain traffic increases in this area of Baltimore Pike.

While traffic volumes on Route 41 increased at a lower rate, the overall traffic volume and amount of truck traffic continues to become an increasing concern. With the exception of US Route 1, the stretch of Route 41 from Sunny Dell Road to Limestone Road has the highest ADT in the Township. The mixture of through truck traffic, local residential, and commuting traffic creates significant safety and congestion concerns. In addition, because of the substantial volume on Route 41 only minor increases in traffic volume can lead to significant problems.

Traffic volume increases on the Township's collector roadways indicates the added stress of increased residential development. Concerns over congestion in Avondale Borough and Toughkenamon have caused Penn Green Road, Newark Road, and Hillendale Road to become popular alternative routes. Increases in volume on these roadways is particularly concerning because these roadways have narrow shoulders, rolling topography, and some sharp turns which are not designed for higher speeds.

By examining past traffic volumes from historical count data and building activity, it is apparent that traffic volumes will continue to grow in New Garden Township. If the existing pattern of growth continues the Township's major roadways, Route 41, Baltimore Pike, US Route 1, Limestone Road, and Newark Road, will continue to see more significant growth in traffic volumes than the minor roads in the Township. Percentage increase from roughly 1993-2003 include 10-16 percent for Route 41, 12 percent for Baltimore Pike west of Newark Road, up to 83 percent on Baltimore Pike east of Newark Road, 22 percent on Newark Road between Baltimore Pike and Route 41, and 16 percent on US Route 1. It is expected that these trends will continue due to continued commercial development along the Route 41 and Baltimore Pike corridors, and continued residential development within the Township and in the surrounding region. Continued residential growth will also contribute to increases in volume on the Township's collector and local roads. Increased traffic volumes, as a consequence of residential growth, is concerning, because the Township's small rural roadways and bridges are not designed for high speeds or significant volumes.

Accident Data

Summary accident data from PennDOT is displayed on **Map 8-3** for 1996-2000. Summary data, compiled by PennDOT on reported accidents within the Township, was used to identify roadway areas of special concern. Frequency of Accidents is an indicator of road safety. A number of accidents at a single location may indicate problems in the physical characteristics of the roadway at that particular point, although accidents can occur due to any number of factors. Accidents are reported only when they involve injuries, fatalities, or excessive property damage. The total number of accidents that actually occurred may be higher. Data is reported on **Map 8-3** in scaled categories for both mid-block road segments and intersections.

Between 1996 and 2000 there were 113 mid-block and 213 intersection accidents for a total of 326 accidents over the five-year period. This represents an average of 65 accidents per year. Although there appear to be numerous accidents throughout the Township on **Map 8-3**, a majority of these are in the lowest category of one to three accidents over a five year time period. The few mid-block sections that

recorded significant numbers of accidents include the Baltimore Pike corridor, Hillendale Road, Scarlet Road, and the Route 41 corridor. In some cases, such as Hillendale Road, there were additional accident reports that did not specify accurate locations, yet identify potential issues on certain roads due to the number of reported incidents.

The intersection of Route 41 and Penn Green Road has one of the highest accident rates. This may be, in part, due to traffic volumes and speeds along Route 41 and the slight offset angle of the intersection affecting sight distance for motorists on Penn Green Road. The intersection of Baltimore Pike and Bancroft Road is a second intersection with high accident volumes due to high traffic volumes and speeds on Baltimore Pike. This intersection may be in the process of a signal warrant by PennDOT in the near future. The intersection of Newark Road with both New Garden Road and Bucktoe Road has a high number of accidents, potentially due to the five-point intersection, traffic volumes on Newark Road, and the tendency for speeding on Newark Road.

A number of intersections experienced moderate accident problems. The intersection of Baltimore Pike with Penn Green, Chambers, and Scarlet Roads all fall into this category, primarily due to traffic volumes and speeds along Baltimore Pike. In particular, the intersection of Baltimore Pike with Center Street in Toughkenamon is of issue. The probable reason for accidents at this location is that motorists use the local streets of Toughkenamon as a cut-through to avoid the intersection of Baltimore Pike and Newark Road. As traffic volumes increase, this may become an escalating issue for Toughkenamon.

The intersection of Newark Road and Hillendale Road falls into the moderate category. This intersection occurs both at the peak of a ridge line, as well as a curve in the roadway, thus a majority of accidents at this location occur due to poor sight distances. The intersection of Route 41 with Sharp Road and Sheehan Road is another five-point intersection that experiences problems due to confusion because of the alignment of the intersection in conjunction with traffic volume and speed on Route 41. The ramps at the intersection of Route 41 and Limestone Road experience problems, particularly with left hand turns having to cross the heavy movements along Limestone Road. The intersection of Penn Green Road and Starr Road, in the western portion of the Township, is the lone outlying intersection that experiences higher levels of accidents.

ROAD AND BRIDGE CONDITIONS

Roads

Township residents showed considerable concern for traffic and road conditions in the 2003 Public Opinion Survey. Specifically, capacity and congestion concerns were identified more often than complaints of poor road conditions. The condition of both state and Township roadways were identified as either "Excellent" or "Good" by over three-quarters of the survey respondents. Conditions and priorities are continually changing and it is imperative that these needs be met for safety as well as efficiency reasons.

The Township road network was surveyed for this comprehensive plan. Many qualities were assessed including sight distance, surface conditions, alignment problems, and access management issues. Overall, the Township has a solid circulation base. Most roads, including the local roads are sufficient in width and most are surfaced appropriately, however shoulder width is lacking on many roadways. This is a concern, particularly in terms of pedestrian traffic with both bicyclists and residents walking along roadways. It is evident that both the Township and PennDOT are meeting the expectations of Township residents with respect to maintenance, however, the continuing increase of traffic volumes and safety problems need to be addressed.

The current local road network (those roads that do not serve a higher function such as arterial or collector) has become an important part of the culture of the Township. From a historical aspect, the local roads serve as a link to the past. They represented old property lines, farm lanes, or trails that connected local properties and many bear the names of the early settlers. Now the local roads primarily serve motorists traveling within the Township, but the local roads also hold a recreational role because of the scenic qualities they possess. They provide a direct connection to the scenic fields, woodlands, and stream valleys of the Township.

These scenic qualities are an important aesthetic resource for the Township, but also create concerns. The biggest safety concern is those intersections that are located on or adjacent to steep slopes. Two examples of this are Newark Road at Baltimore Pike and Walnut Run Road at Landenberg Road. For any vehicle, especially heavy trucks, this makes stopping difficult during rainy, icy, or even normal conditions. Roadways running adjacent to steep slopes are dangerous when no guardrail is present.

Maintaining safe sight distance is a constant safety concern. Vegetation is an issue at many intersections. There is an ongoing need to ensure appropriate sight distances at all intersections. It is also necessary, at some intersections, to further grade adjacent ground for improved sight distance. The same scenic qualities that are so valued create many intersections with poor alignments, such as the intersection of Buttonwood Road and Broad Run Road.

Access to the road network has generated both safety and mobility concerns in the Township. Access management is the process of creating an efficient and safe interaction between automobiles traveling on a roadway and conflicting turning movements created by access points. Currently, there are numerous businesses and homes located directly adjacent to the most frequently used roadways in New Garden. As the number of entrances along routes such as Baltimore Pike, Route 41, or Newark Road grow, there is the potential for both reduced mobility and increased accidents. Most access problems exist along Baltimore Pike, because of the number of residential and commercial properties with individual access to the road. It is not a coincidence that this corridor has the greatest number of reported accidents. The concerns are currently not as great with access on Route 41 and Newark Road, but development along the road frontage is increasing on both of these routes. Furthermore, the higher rate of speed and traffic volumes on Route 41 increases the need to consider access management on this primary roadway through the Township.

Other problem areas are the Newark Road interchange of US Route 1 and the interchange of Route 41 and Limestone Road. Vehicles traveling at high speeds conflicting with automobiles entering and exiting the highway often cause problems at interchanges such as these.

Bridges

Within the Township, there are approximately seventeen bridges. Three of the bridges are owned and maintained by the County; the remaining fourteen are owned and maintained by PennDOT. There are no bridges that are owned or maintained by the Township. Many of the bridges found in the Township were constructed for the Route 1 Bypass.

There are two bridges in the Township which have structural limitations: Watson Mill Road over Broad Run, a County-owned bridge constructed in 1915; and Landenberg Bridge over the East Branch of the White Clay Creek. The Landenberg Bridge, a PennDOT-owned bridge constructed in 1898, was closed in 1999 until structural improvements could be made. Rehabilitation efforts are underway for the restoration of this historical landmark. Once the rehabilitation is complete the ownership and maintenance of the bridge will be taken over by the Township. Additionally, there are three bridges that are located just over the Kennett Township line. These bridges, on Chambers Mill Road, Hillendale Road, and Bucktoe Road, are all due for repairs and may temporarily alter traffic patterns.

Capital Improvements

In previous years, the Township has not generally budgeted a set amount for roadway improvements; instead, amounts were budgeted based on specific improvement projects. The Township Public Works Director is responsible for identifying necessary roadway improvements. Recently, the Public Works Director and Engineer have established a priority system for Township road improvements and regular annual allocations for roadway improvements will be implemented.

PennDOT identifies future improvement projects in the Pennsylvania Twelve Year Transportation Program. Local projects are listed in **Figure 8-3** with project description, type of improvement, and projected time frame.

Figure 8-3: New Garden Township, Capital Improvements – PennDOT 12-Year Plan

Project	Improvement Type	Phasing
Old Baltimore Pike Bikeway	Pedestrian/Bicycle Improvement	1-4 years
Route 41- Land Use Study	Study/Highway Reconstruction	1-4 years/5-8 years
Route 41 – Installment of ITS Technology Deployment	Intelligent Transportation System	1-4 years
Newark Rd at Hillendale Road	Congestion Reduction/Channelization	1-4 years
Landenburg Road Bridge over East Branch of White Clay Creek	Bridge Rehabilitation	1-4 years

Source: 2003 Pennsylvania Twelve Year Transportation Program

Scenic Roads

The Township’s 1993 Open Space, Recreation and Environmental Resources Plan identified the following road segments as containing resources that qualified them as scenic roads:

- Broad Run Road, between Newark Road and Southwood Road
- Penn Green Road, from Laurel Heights Road to the southern Township boundary
- Laurel Heights Road, between Walnut Run Road and Skyline Drive
- Bucktoe Road, from Sharp Road to the eastern Township boundary
- Hillendale Road, from Sharp Road to Chambers Road
- Polo Road, from Newark Road to Church Road

If an increase in traffic volume warrants improvements to these roadways, those improvements must consider the scenic qualities of these roadways in the improvement design. In addition, development adjacent to these roadways should be sensitive to the woodlands, stream corridors, farmland, and open space that define these roadways as scenic. Additional discussion about scenic resource preservation can be found in **Chapter 14, Transportation Plan**.

Alternative Forms Of Transportation

While the majority of Township residents utilize the automobile as their primary form of transportation, 2000 US Census data indicated a significant amount of residents walk to their place of employment. In

addition, it is important to note that children, who are also large users of alternative forms of transportation, are also omitted from Census data. The largest concentration of walking and biking is found around Toughkenamon and along Baltimore Pike. As noted in the Capital Improvements section, PennDOT has identified the need for shoulder improvements along Baltimore Pike to accommodate biking and walking demands. The only recognized trail in the Township is the Mason-Dixon Trail that follows the southern border of the Township. The County's *Linking Landscapes* proposes a trail corridor that would follow the London Grove Township/New Garden Township line into the White Clay Creek Preserve; however, there has no been significant action to begin this trail establishment.

The Southern Chester County Organization on Transportation (SCCOOT) bus route is the primary means of public transportation in the Township. This bus service provides weekday service from Oxford to Chadds Ford mainly during the morning and afternoon peak hours. The bus route has stops in the Township at the New Garden Shopping Center and the intersection of Baltimore Pike and Newark Road. Connection service at Chadds Ford allows SCCOOT riders to transfer buses onto the SEPTA 314 bus service, giving riders the opportunity to travel to West Chester. In addition, the Chester County Paratransit System is also used. Chester County Paratransit may be used by anyone for any destination within the county. It is necessary to make advanced reservations and it is advised that groups ride together for discounted rates.

The closest public transportation serving the New Castle County/Wilmington area is a transit center located in Hockessin, DE. There also is a Park and Ride lot at the Hockessin location for commuter trips. Additionally, there is a Park and Pool lot located on Delaware's Route 7, a few miles south of the Pennsylvania state line.

There is one active freight rail line in the Township that runs parallel to Baltimore Pike. Currently, the rail line is owned by SEPTA, but is being leased to another freight operator. Since the line is owned by SEPTA, it could serve as a light rail line if future demand warrants its establishment.

The New Garden Airport is the Township's only airport. The owner of this privately owned airport is creating a master plan to guide the airport's future. The airport remains a Township asset for recreation and flight training.

PLANNING IMPLICATIONS

This section has identified several planning issues relating to circulation. The implications that follow will be further considered in the recommendation section of the Plan:

- **Roadway Functional Classification** - The roadway functional classification needs to be updated to reflect the current function of roadways and to provide for projected traffic volumes, traffic movements, and roadway improvements.
- **Access Management** - Due to the proliferation of access points along many of the roads throughout the Township, there is a need to review and enhance access management techniques and strategies to reduce the negative impacts of existing access points and manage new access points, particularly on roadways of higher functional classification.
- **PA Route 41** - The high rate of speed and traffic volumes on Route 41 increases the need to consider access management on this primary roadway through the Township
- **Intersection Improvements** - There are a variety of intersections throughout the Township that are in need of improvements. These range from large realignment issues such as Newark Road just north of

the intersection with Baltimore Pike, to smaller improvements such as minor regrading and removal of vegetation to improved sight distances. There is a need to provide a strategy for the identification and prioritization for these intersections.

- **Growth and Development** - As development occurs in the Township and the surrounding municipalities, traffic volumes and congestion will become a more pressing issue on the Township's roadways. Municipal officials will need to monitor this development, work with the surrounding communities to reduce traffic volume and congestion, and seek functional reclassification and improvement of roadways according to the appropriate function and traffic volume, as needed.
- **Commercial, Office, and Industrial Development** - Non-residential development needs to be located in appropriate areas to maximize the effectiveness of the roadway system and other forms of transportation, including the railway and airport.
- **Alternative Transportation Methods** - There is a need to address the limited amount of public transportation service in order to alleviate traffic congestion and pollution problems. Pedestrian and bicycle transportation needs should also be identified through the provision of trails and sidewalks.
- **Long Range Circulation Planning** - The Township needs to a long-range planning program in order to sufficiently plan and fund transportation improvements.
- **Regional Planning** - There is a need to participate in regional transportation planning efforts and initiatives to effectively address transportation issues facing the Township.
- **Preservation of the Local Road Network** - New Garden has a series of local roads that contribute to the Township character. Measures need to be taken to insure that the current scenic and aesthetic quality of the local road network remains as a scenic and cultural resource.
- **Gateways** - New Garden has an opportunity to establish "gateways" at the main entrances along the major corridors into the Township in an effort to define the arrival point as a destination. Gateway planning will need to address landscaping, lighting, architecture, signage, and visual amenities to promote a positive image.

Chapter 9

Goals and Objectives

The goals and objectives of this Comprehensive Plan serve as guidelines for directing future planning policy in the Township. Decisions on managing growth, capital investments, and other planning activities within New Garden will be guided by these goals and objectives. These guidelines are broad enough to encompass all major planning considerations, but are also specific enough to guide and evaluate the progress of the functional elements contained within this Plan. In general, goals and objectives are defined as follows:

Goals: Goals are general statements of the intention, purpose, and commitment aimed at long-term desired conditions on the part of the community.

Objectives: Objectives are the short-term goals that, when achieved, will collectively serve to implement the long-term goals. Objectives are more specific and measurable than the overall planning goals. The plan's stated objectives should be achievable and politically, legally, and financially feasible.

Together, the goals and objectives form New Garden's vision upon which future planning decisions can be based by the appropriate authorities within the Township through the year 2020. These goals and objectives were derived from three sources: (1) they reflect the concerns of the Township's residents, as identified in the public opinion survey conducted in the winter of 2003; (2) the issues and planning implications identified in the planning implications in the Inventory Chapters, along with input from the Comprehensive Plan Task Force; and (3) a review of the goals and objectives of the New Garden Township Comprehensive Plan of 1993 and New Garden Township's Open Space Plan of 1993.

The **Overall Goal** of this Comprehensive Plan is...*to preserve, protect, and enhance the unique character of New Garden Township.*

In order to accomplish the Overall Goal, the following list of goals and objectives have been developed to set the basic direction for the Township and establish a framework for the actions that will be undertaken to realize the future vision of the Township as established by representatives of the Township's Comprehensive Plan Task Force, Board of Supervisors, Planning Commission, and Zoning Hearing Board in an effort to reflect the attitudes and concerns within the community and the region. The order of the goals and objectives herein in no way indicates that one has priority over another.

Historic Resources

The unique history of any municipality is a valuable part of that community's heritage and character. It is important for communities to remember and preserve traces of their pasts such as houses, churches, farms, grange halls, mills, villages and neighborhoods, town halls and libraries. Such buildings and sites contribute texture and richness to a community's character, bring history alive for young people, and set a standard for contributions to future generations. The goal and objectives established in this section will assist New Garden in addressing historic resource issues and needs.

GOAL:

To understand, document, and preserve historic and cultural resources.

Objectives:

1. Document the Township's historic and cultural resources.
2. Identify and designate eligible historic resources.
3. Coordinate planning efforts with local, county, and state preservation groups.
4. Adopt effective zoning and subdivision and land development ordinances that increase protection of historic resources.
5. Promote re-use and renovation of historic resources in the land development process.
6. Encourage compatible development adjacent to properties that are considered historically significant.
7. Promote public education and support private actions that encourage preservation and protection of historic resources.
8. Develop opportunities and incentives for continued use or compatible reuse of farmsteads and other structures with historic significance.

Community Services and Facilities

The Community Services and Facilities portion of the Plan includes an assessment of capital facilities and public services necessary to support future growth and development; to protect the environment, health, safety, and welfare of the residents; and to explore the costs of those facilities and services. New Garden should support suitable public facilities and services to meet the needs of the residents and to use the provision of these facilities and services as a means for guiding growth. The goal and objectives established in this section will assist New Garden in addressing community facility and service issues and needs

GOAL:

To have existing public facilities and services well maintained and functioning efficiently while planning carefully for essential new and/or expanded facilities and services that meet the needs of the community.

Objectives:

1. Promote a variety of community services and organizations by monitoring growth, development, population, age, and household trends to plan for future facilities and services.
2. Continue to plan for and support the necessary functions of the municipality.
3. Plan for the continuation and development of adequate and cost-effective public works programs, facilities, and services.
4. Improve communications between municipal officials and residents.
5. Encourage the development of advanced communication technology to enhance opportunities among businesses, government, schools, and residents.
6. Encourage a capital improvements program to anticipate and plan for future financial needs.
7. Support local and regional emergency management response services.
8. Ensure an adequate quality and quantity of public drinking water.
9. Ensure adequate public sewage disposal and encourage proper maintenance of private sewage systems.
10. Coordinate land use planning and zoning with water and sewage facilities planning to ensure that adequate infrastructure is provided to areas targeted for growth and not extended to those areas identified for preservation.
11. Continue to evaluate and monitor the recreation needs and desires of residents and consider options for improving existing facilities or providing new recreational opportunities.
12. Coordinate recreational facilities and programs with surrounding municipalities to prevent duplication of efforts and to provide a wider range of recreational options for residents.

Natural Resources

New Garden contains an important and diverse natural resource base, including streams, wetlands, floodplains, deposits of sand and gravel, fisheries and wildlife habitat, and vast and valuable acreage of prime agricultural lands. Through the development and implementation of locally driven programs and regulations, the Township can conserve and provide for greater use of its valuable natural resources, while utilizing these resources to enhance economic development opportunities for natural resource-based businesses; boost recreational and open space use; improve wildlife, fisheries, agricultural, and forestry management; while maintaining the quality of life these resources offer. New Garden should assure that the natural resources are conserved, preserved, and/or protected from activities or uses which can damage their resource value or which create threats to the public health or safety. The goal and objectives established in this section will assist New Garden in addressing natural resource issues and needs.

GOAL:

To preserve and conserve the valuable natural and scenic resources of New Garden.

Objectives:

1. Direct growth away from areas with sensitive natural resources and toward those areas most suitable for development in terms of available infrastructure (i.e. sewer, water, transportation), compatible land uses, and least impact on protected resources.
2. Encourage the use of Best Management Practices (BMPs) for controlling and regulating stormwater management in subdivision and land development activities.
3. Enforce existing zoning and subdivision ordinance standards to protect sensitive environmental resources including: stream corridors, floodplains, woodlands, steep slopes, wetlands, and groundwater.
4. Strengthen existing ordinance standards, or adopt additional measures when necessary, to ensure that natural resources are effectively protected.
5. Preserve and manage large woodland areas for their wildlife habitat, scenic values, and their contributions to groundwater recharge, improved air quality, and erosion control.
6. Develop timber harvesting and tree replacement provisions as part of the subdivision and land development process.
7. Identify, assess, preserve, conserve, and manage habitats necessary for survival of existing rare, threatened, and endangered species identified in the Pennsylvania Natural Diversity Inventory and the Chester County Natural Areas Inventory.
8. Protect and preserve land areas classified as steep slopes from earth disturbance activities relating to subdivision and land development projects.
9. Improve air quality by monitoring commercial and industrial operations in order to ensure compliance with state and federal air quality emission standards.
10. Pursue both public and private options for preserving open space, wildlife habitat, farmland, and natural landscapes, while allowing sufficient room for development in designated growth areas.
11. Pursue regional solutions for the protection of natural resources, such as streams, groundwater, and aquifers that cross municipal boundaries. Consider coordination of ordinance resource protection measures at the regional level to most effectively protect natural resources.
12. Preserve open space corridors between habitats to the greatest extent possible through the Township's land use regulations.
13. Protect prime agricultural soils and investigate regulatory and non-regulatory techniques and incentives that protect prime agricultural soils.
14. Discourage development on prime agricultural soils capable of economic production in order to protect the economic base and help maintain the rural character.
15. Encourage public/private initiatives that promote the retention of agriculture, including participation in County and State agricultural preservation programs, donation of conservation easements, participation in community land trusts, and others.

Water Resources

As the population expands, both in number and geographic area, the demand for fresh water supplies increases, the volume of pollutants available to contaminate water also increases, and the competition between nature and society for use of that finite resource of fresh water intensifies. The goal and objectives established in this section will assist New Garden in addressing water resource issues and needs.

GOAL:

To protect, enhance, and sustain the quality and quantity of water resources; and to preserve the aesthetic and recreational assets of the watersheds.

Objectives:

1. Develop requirements for comprehensive stormwater management.
2. Examine the importance of and potential threats to water resources and develop strategies to protect or conserve these resources.
3. Use all available methods to protect water resources (i.e. various municipal ordinances, alternative wastewater management, land use planning tools, land purchases, agricultural nutrient management programs, construction site erosion and runoff controls, source water protection measures).
4. Support upgrades of stream quality designations by the Pennsylvania Department of Environmental Protection.
5. Preserve and manage large woodland areas for their contributions to groundwater recharge and erosion control.
6. Work with wildlife management organizations and agencies to identify and protect waterfowl and wading bird habitat, and other protected areas.
7. Coordinate planning, facilities, and land use efforts with the Chester Water Authority, New Garden Township Sewer Authority, Chester County Planning Commission, Chester County Water Resources Authority, Delaware River Basin Commission, and other such groups.
8. Maintain an effective "On-Site Sewage Management Program" for the purposes of monitoring the utilization of existing and future on-site sewage disposal systems.
9. Consider the feasibility of initiating Wellhead Protection and Aquifer Protection programs and plans.
10. Consider a "Well Drillers Ordinance" to effectively monitor groundwater supplies and to promote acceptable potable water supply standards.
11. Develop a plan to comply with the National Pollutant Elimination Discharge System (NPDES) Phase II Stormwater Permitting Regulations.
12. Preserve and conserve water resources for recreational activities and to develop plans for recreational access.
13. Develop improved access to the various streams and brooks to provide opportunities to have low intensity access to water bodies for fishing, canoeing, birding, and similar activities.
14. Provide Code Enforcement in state and local laws and applicable Best Management Practices to protect water quality.
15. Consider coordination of ordinance resource protection measures at the regional level to most effectively protect water resources.
16. Coordinate land use planning and zoning with sewage and water facilities planning to ensure that adequate infrastructure is provided to areas targeted for growth and not extended to those areas identified for preservation.
17. Create strategies to provide public water and public sewer services to appropriate areas, with the exception of areas where public water or public sewer services are prohibitive due to environmental or physical constraints.
18. Continue to monitor the functioning of public water supply and public sewer systems, and when necessary, modernize aging infrastructure and keep pace with any need for additional capacity.

19. Consider allowing community water and sewage systems that can support a compact, more efficient land use pattern, to protect open space and water resources.
20. Where marginal soil conditions are found to exist, the Township should have flexibility to require additional measures be taken.

Recreation and Open Space

The following goal and objectives provide a vision for municipal recreation and open space planning. They provide the municipality with general guidelines to responsibly protect open space and recreational resources, since Pennsylvania law grants them the ultimate authority regarding land use.

GOAL:

To have parks, recreation programs and facilities, and open space areas, which meet the needs of the people within the community and region.

Objectives:

1. Identify and assess, and when feasible, support, maintain, and expand recreational and open space opportunities, activities, and facilities for all ages, circumstance, and interests.
2. Encourage the designation of properties within the Township park system as either "Recreational Parks" which are used for recreation, or "Non-Recreational Open Spaces" which are not used for recreation; encourage establishment of regional parks.
3. Encourage acquisition of parcels for non-recreational open space that are sites of local significance, unique properties, and sites that contain unique natural or cultural resources, or scenic views; encourage establishment of bicycle routes and bicycle parking facilities; establish trails on appropriate abandoned rail beds; and encourage protection of open spaces that are part of scenic viewsheds seen from roadways.
4. Update municipal plans and develop ordinances to encourage the establishment of trails and/or wildlife corridors.
5. Pursue cooperative municipal recreational support for programs and facilities from the surrounding communities.
6. Develop a program for the acquisition and maintenance of lands for open space and recreational activities and for raising any necessary funding to accomplish this task.
7. Encourage private landowners to maintain controlled access to open land for hunting, fishing, and other low-intensity recreational activities while encouraging users of private lands to be responsible visitors.
8. Create standards in land use regulations for the preservation and protection of all vital open space and recreational resources.
9. Preserve and conserve water resources for recreational activities and to develop plans for recreational access.
10. Work with stakeholders to develop a comprehensive local and regional trail system to link open space and recreational areas.
11. Support the development of a Comprehensive Regional Parks, Recreation, and Open Space Plan.
12. Provide for the creation of permanent open space as development occurs to ensure adequate area is available for active and passive recreation, and to maintain the rural character of the Township.
13. Expand the mission of the park and recreation commission to include administering and managing recreational facilities and programs.
14. Consider a comprehensive update to the Township Open Space, Recreation, and Environmental Resources Plan.
15. Coordinate future recreation planning endeavors with the Chester County Department of Parks and Recreation, Chester County Planning Commission, adjacent municipalities, and other public or private agencies.

16. Assure that the Township's land use regulations do not impose unnecessary burdens on the owners of large parcels, while encouraging their continued use for agriculture, forestry, and/or open space.

Housing

The issue of housing, and especially its affordability, impacts other aspects of the Plan. It affects the ability to attract business and is tied to the ability of those who work in the community to live in the community. The cost and variety of housing helps determine whether a community's population will be diverse or homogeneous. The goal and objectives established in this section will assist New Garden in addressing housing issues and needs.

GOAL:

To have a wide variety of housing opportunities, including housing for older residents and special needs groups, and to meet the needs of various types of households and income levels, while assuring that the housing is decent and safe.

Objectives:

1. Ensure land use regulations are consistent, adhered to, and enforced to meet housing needs.
2. Encourage safe, decent, and affordable housing for all residents.
3. Educate residents about various housing groups to take advantage of programs and services.
4. Allow higher densities for residential development in and around the village areas, subject to connection to public services.
5. Continue to improve the code enforcement program in an effort to meet the minimum certification requirements of the state building code.
6. Encourage future development to locate near existing and proposed water and sewer services.
7. Designate new areas for residential growth and development in keeping with the existing character of the community and providing opportunities to continue the existing mix and diversity of housing types and values, including opportunities to provide senior housing with various levels-of-care.
8. Encourage creative site design and flexible land use ordinance standards to accommodate housing that blends into the character of the surrounding landscape.
9. Protect the character of existing residential neighborhoods by ensuring land use controls do not allow incompatible uses.

Economic Development

The purpose of looking at New Garden's economic development is to help the municipality create policies and programs that can lead to steady growth over the long run. The goal and objectives provided in this section will assist the Township in addressing economic development issues and needs.

GOAL:

To have a stable, diversified economy that builds upon the community's character, public facilities, resources, and commercial and industrial base to increase employment opportunities and economic well being.

Objectives:

1. Work to retain and expand existing businesses to preserve the tax base and provide employment opportunities.
2. Enhance communications among business, government, and the public to address issues that have an impact on the retention and expansion of business and commerce.

3. Identify the needs of the business community and what it believes necessary to improve the business climate.
4. Consider infrastructure improvements, needed to retain and attract commercial and industrial uses.
5. Promote adaptive reuse and revitalization efforts for abandoned commercial and industrial sites.
6. Establish enterprise zones to attract and/or retain high-quality business, technical, and service establishments in an effort to maintain a healthy tax base.
7. Develop and/or improve the transportation network to maximize opportunities and to attract and retain business.
8. Locate business activities in areas that are consistent with land use goals and objectives.
9. Focus economic development to where there is adequate infrastructure to support such development.
10. Monitor existing commercial and industrial operations and expansion activities to determine that all uses are environmentally compliant.
11. Encourage a coordinated public/private marketing effort to target desirable industries that will have a minimal impact on the environment, match employment opportunities to job skills, and contribute to a diversified economy.
12. Communicate the needs of the Township with the Chester County Economic Development Council, Chester County Chamber of Business and Industry, Tri-County Area Chamber of Commerce and Chester County Association of Realtors in an effort to promote and retain high-quality business, technical, and service establishments.
13. Develop and maintain an economic database and community profile on the website in an effort to promote a business friendly environment.
14. Coordinate with various public and private economic development-related organizations to promote consistency with planned growth.
15. Evaluate the feasibility of creating a local or regional Chamber of Commerce in an effort to focus upon the issues and needs within the Township and surrounding municipalities.
16. Prohibit commercial uses that use, process, or store materials known to cause groundwater or surface water contamination.
17. Encourage and plan for a mixture of commercial, industrial, and residential development in areas physically and fiscally suited to broaden economic development opportunities.
18. Encourage unified economic development patterns and discourage "strip" patterns.

Land Use

The use of land within the Township is one of the most important components of the comprehensive plan. Since this Plan and its objectives are a long-range guide for the growth and development of New Garden, the Plan should not be too specific or rigid; rather, it must be flexible and able to adapt to unforeseen changes and demands. The Township's planning program will include an inventory of land uses, land use planning and regulation, agricultural and forest lands, soil types and characteristics, natural resources, transportation networks, housing needs, demographics, local economy, and public facilities and services. These inventories will then be analyzed as they relate to the various land uses and put into a Land Use Plan. Implementation of the Land Use Plan will be accomplished through the goals and objectives provided below.

GOAL:

To have orderly growth and development in appropriate areas of the Township, while protecting the community character and environment; making efficient use of public facilities, services, and infrastructure; considering existing land use; and preventing development sprawl.

Objectives:

1. Direct growth and development to areas with adequate infrastructure while protecting open space, agriculture, forest lands, scenic viewsheds, steep slopes, water resources, and environmentally sensitive areas. Discourage scattered, unplanned development.
2. Promote growth management and conservation development techniques, which endorse a balance of development and preservation strategies.
3. Encourage in-fill development.
4. Encourage innovative residential development.
5. Maintain a diversification in residential uses considering densities and housing supply.
6. Promote mixed-use residential developments containing retail, office, and recreational uses.
7. Implement regulatory and non-regulatory methods and public and private initiatives for preserving open space and farmland and protecting important or unique natural resources.
8. Encourage non-residential development that will provide a more diverse tax base, services for residents, and some local employment opportunities without over-zoning for commercial, office, and industrial uses.
9. Recognize the unique characteristics of the Toughkenamon and Landenberg areas through such methods as specialized zoning districts to maintain village character.

Transportation and Circulation

Transportation plays an important role in determining the quality of life of the Township, with transportation links, including the airfield, railroad, and trails, greatly influencing the potential for economic development and residential growth. Therefore, a safe, efficient transportation network is essential for the smooth functioning of the Township, with the location and quality of these systems having a major impact on where future growth and development are likely to occur. The goal and objectives provided in this section will assist New Garden in addressing transportation issues and needs.

GOAL:

To maintain, improve, and provide a safe, affordable, efficient, environmentally sound, and integrated transportation network that promotes expanded economic and community development and maintains a rural quality of life.

Objectives:

1. Provide and encourage development, improvement, and maintenance of alternative modes of transportation.
2. Encourage development, improvement, and maintenance of existing rail facilities and services.
3. Enhance and promote affordable public transportation.
4. Encourage sensible and intelligent land use and natural resource management decisions along the transportation systems.
5. Encourage programs that minimize air, noise, and water pollution from transportation systems.
6. Develop, improve, and maintain transportation systems that are safe and more user-friendly.
7. Maintain the functional capacity of existing and future transportation routes through appropriate land use controls and design standards.
8. Continue to prioritize needed transportation improvements in an effort to effectively address safety and maintenance issues.
9. Integrate development with transportation infrastructure so that higher intensity land uses are located in the vicinity of transportation routes with sufficient carrying capacities.
10. Ensure that new and existing roads are designed, constructed, and maintained in accordance with their functional classification.
11. Create, enhance, and protect the aesthetic and scenic qualities of local roads.

12. Coordinate efforts with the Chester County Planning Commission, Transportation Management Association of Chester County, SEPTA, AMTRAK, and Krapf's Coaches to improve the community's perception and awareness of public transportation opportunities in the region.
13. Support an affordable and accessible public transportation system that links urban centers, suburban neighborhoods, employment centers, and special uses.
14. Improve public transportation facilities and services to comply with the minimum design standards and requirements of the Americans with Disabilities Act.
15. Coordinate transportation planning efforts with the Pennsylvania Department of Transportation, the Chester County Planning Commission, the Delaware Valley Regional Planning Commission, as well as other local, state, and federal agencies.
16. Encourage access management strategies along the Township's major transportation corridors and discourage strip commercial development that creates multiple access points along these corridors.
17. Support regional efforts to create, design, construct, and maintain an integrated regional system of trails and bikeways.

Chapter 10

Historical and Cultural Resources Plan

New Garden is committed to preserving its heritage. The Township has supported historic preservation on an official basis through the New Garden Historical Commission (Commission) (<http://mercury.ccil.org/~nghc/>) that was created in 1991 and continues to review, document, and map historic and cultural resources throughout the Township. New Garden supports the preparation of National Register nominations for identified resources, an effort that should spark further interest in preserving the Township's resources. Overall, the community has a strong interest in preserving its character and historic resources, and should support increased levels of preservation activities. Public participation and education will be the key to generating needed support.

The villages of Toughkenamon, Landenberg, and New Garden have unique identities due to their individual role in the history and cultural development of New Garden. These areas, because of their location and historical value, contain an interesting mix of buildings, styles, and resources. These qualities, in conjunction with their environmental settings, cultural heritage, and circulation patterns, give the areas their own character. Because of their location, these neighborhoods continue to serve as a community focal point. The homes and businesses in these neighborhoods vary in terms of integrity. Protecting both the buildings and the development pattern should be routinely incorporated into both short and long term planning efforts.

The Historic and Cultural Resources Plan emphasizes the Township's need to continue to develop and enhance a comprehensive approach to historic resource identification and preservation. This Plan contains a series of recommendations, such as, encouraging preservation of historical resources, evaluating potential resources through a survey and analysis, and the development of a historic resources database. Many of the recommendations are voluntary, as opposed to regulatory, requiring an educational component and community support in order to be successfully implemented. The recommendations provide for historical preservation policies, program administration, village area protection, and public participation and education. These recommendations should not be considered independently of the others contained in this Comprehensive Plan, but should instead be integrated with the recommendations contained in the other chapters of this document.

New Garden's goal and objectives for the protection of historic resources are as follows:

Goal:

To understand, document, and preserve historic and cultural resources.

Objectives:

- Document New Garden's historic and cultural resources.
- Identify and designate eligible historic resources.
- Coordinate planning efforts with the local, county, and state preservation groups.
- Adopt effective zoning and subdivision and land development ordinances that increase protection of historic resources.
- Promote re-use and rehabilitation of historic resources in the land development process.
- Encourage compatible development adjacent to properties that are considered historically significant.
- Promote public education and support private actions that encourage preservation and protection of historic resources.

- Develop opportunities and incentives for continued use or compatible reuse of structures with historic significance.

The following recommendations pertain to establishing a strong base for achieving the goal and objectives for historic preservation in New Garden.

Identification and Evaluation of Historic Resources

Identification of local historic resources is the foundation of historic resources preservation. Without sound documentation, it is difficult to develop and implement preservation strategies. Survey work should be completed in order to have an adequate knowledge base for evaluating strategies. Along with identifying specific resources, historic character must also be defined. Defining historic character requires determining how resources impact the local quality of life. The historic character is important in creating a frame of reference within which historic resources can be evaluated.

- **Encourage the continued work of the New Garden Historical Commission.**

The Historical Commission is a municipal entity, established and supported by the Township Board of Supervisors. The Commission has broad responsibilities associated with historic preservation and serves as general advisors to the Board of Supervisors, Planning Commission, and Zoning Hearing Board on historic preservation matters. Unlike a Historical Architectural Review Board (HARB), the membership composition, duties, and responsibilities of a local Commission are not required per any enabling legislation, but their advisory function should be defined in local ordinances. The Commission is advisory in nature and may include the following kinds of responsibilities:

 - Identify, inventory, and maintain a database of local historic resources, and work toward their preservation.
 - Assist in the preparation of historic preservation grant applications.
 - Archive data and preserve artifacts.
 - Identify a local site for a museum and/or location for archived records.
 - Establish recording procedures.
 - Maintain and update surveys of historic resources.
 - Prepare articles, research papers, and narratives for educational purposes.
 - Represent the community on preservation matters at the local, regional, and state level.
 - Document the history of the Township.

It is particularly important that the Commission take on these responsibilities to prevent the loss of valuable information. Assistance in establishing local archives could be sought from the Chester County Historical Society (<http://www.chestercohistorical.org>). New Garden should continue to actively support the efforts of the Historical Commission and assist the Commission, whenever feasible, to work toward implementing the recommendations of this Plan.

- **Complete and maintain an inventory and map of historic resources through the historic resources survey.**

An important function of the Commission will be the completion of the survey of historic resources. The purpose of the survey is to maintain a record (database) of the physical characteristics and condition of historic resources. A comprehensive survey contains the physical description, along with historical data on the resource. A survey of New Garden was undertaken between 1979-1981 as part of the Chester County Historic Sites Survey of buildings over 100-years old. However, the survey was general in nature and is over 20 years old. Property characteristics recorded at that time have changed. During the 1990's, the Historical Commission undertook a survey to determine which of

the structures shown on the 1883 Breou's Map still stood. Approximately 160 such structures were found, although Toughkenamon was never surveyed. Following the Pennsylvania Historical and Museum Commission (PHMC) (<http://www.phmc.state.pa.us>) standards, the Commission started a more comprehensive preliminary survey to identify and map all Township structures 50-years or older. Approximately 420 structures or sites have been identified and many have been photographed. The Commission should complete the current survey work by 2005. The Historical Commission will need to prioritize these structures by their importance for protection. The National Park Service (NPS) (<http://www.cr.nps.gov/nr>) has several publications available on undertaking surveys of historic resources. The PHMC should be contacted prior to undertaking a local survey to provide the necessary forms and guidance on the survey techniques most appropriate to Pennsylvania and to investigate any opportunities for grants or funding from the PHMC.

One of the purposes of a historic resources survey is to determine which resources should be the focus of preservation efforts. Once the updated survey is complete and the resources are protected, the resources should be classified as to their significance and those determined to be important should be designated on a Historic Resources Map. The map will need to be officially adopted by the Board of Supervisors and the delineated resources should be subject to the provisions of the Historic Preservation Overlay District in New Garden's Zoning Ordinance. The provisions, when adopted, should indicate various protective measures, including; setback requirements, use restrictions, area and bulk controls, and demolition delays.

- **Support the nomination of identified and significant historic sites to the National Register of Historic Places.**

Of the 78 resources surveyed by the Chester County Historical Society survey between 1979-1981, seven sites were "Eligible" for the National Register, two are "Listed", and the remainder are either "Ineligible" or "Undetermined". The two sites listed on the National Register of Historic Places are the Landenberg Bridge and the Mereston House. Maintained by the National Park Service, the National Register is a comprehensive listing of districts, sites, buildings, structures, and objects of historical or cultural significance. Listing is mainly honorary and serves to draw attention to the importance of the historic resources. Such nomination does not affect the rights of the property owner. The owners of income producing properties listed on the National Register may be eligible for federal investment tax credits if they undertake a certified rehabilitation of their property. The Historical Commission should be charged with preparing National Register nominations for any potential resources. Although some of the initial survey work has been completed, the task of researching the history, and organizing and assembling the data, is still outstanding. The preparation of a National Register nomination is a lengthy, detailed, and time-consuming process, but one that has many rewards in terms of documenting important aspects of the community's history. The Township should consider using a qualified consultant to assist in evaluating and completing the preparation of any submission materials of nominations. It will be important to work directly with property owners in this effort.

- **Work to increase public awareness and participation in local history.**

The Historical Commission should work to increase public awareness of and participation in local history and the importance of preserving the physical reminders of the past. The Commission will be drawing attention to the protection of the historic resources and working informally with property owners in mitigating some of the negative impacts upon the resources that consequently affect the character of the Township. The Commission will focus on public participation and education as a way to sustain a high level of support for the protection of historic resources; as the individual buildings contribute to the rich fabric of New Garden, and to the quality of life. Reminding residents of the importance of these historic resources, using various methods, will serve to strengthen preservation efforts.

Historic Preservation Resources

A wide variety of techniques and resources to encourage historic preservation are available. Financial incentives in the form of grants, loans, and tax credits through local, state, and federal sources can substantially reduce the cost of historic rehabilitation and adaptive reuse. Human resources in the form of strong and energetic historic commissions can guide preservation efforts and help to develop policies. Knowing the resources available is key to developing realistic strategies.

- **Continue to pursue funding opportunities to finance historic preservation efforts.**

New Garden should take advantage of the funding opportunities available for implementing its historic preservation projects. A number of potential grant sources are available, both public and private, but they must be applied for and accepted, these include: Community Development Block Grants, PHMC's History and Museum Grant Program, the Keystone Historic Preservation Grant Program, as well as a number of private corporate and community foundations. The Township should pursue these funding opportunities to help finance the implementation of the historic preservation recommendations of this Plan.

Public Funding Sources

The Historic Preservation Fund (<http://www2.cr.nps.gov/hpf/>) was established at the federal level and is managed by the NPS to provide financial support for preservation activities. These funds are allocated on an annual basis to each state and dispersed in accordance with state policy subject to general guidelines. Although the amount of these funds is declining, this was once an important funding source for early preservation efforts, especially surveys such as the Chester County Historic Sites Survey. At least 10 percent of the state's allocation must be portioned to certified local governments. In Pennsylvania, these funds are passed through to the PHMC and dispersed annually. The Township should explore becoming a certified local government.

Another federal source is the Community Development Block Grant (CDBG) program. This program is a system of broad-based block grants that is passed through to states and certain localities to fund community and economic development activities. Certain historic preservation activities are eligible for CDBG funds provided they are linked to broader objectives.

The Certified Local Government (CLG) (<http://www2.cr.nps.gov/clg/>) program is a local, state, and federal partnership to preserve a community's unique historic character. This national initiative provides valuable technical assistance and small grants to local governments seeking to preserve historic resources for future generations. Funds are appropriated annually by the US Congress, and administered by the NPS and PHMC. The CLG program integrates the functions of a local government with historic preservation.

Investment tax credits (<http://www2.cr.nps.gov/grants.htm>) are available for the rehabilitation of historic buildings. A 20 percent tax credit can be taken for rehabilitation of certified historic structures, which are those either listed on the National Register of Historic Places (National Register) or certified as contributing to a National Register District. A 10 percent tax credit is available for the rehabilitation of buildings not listed in the National Register, but constructed prior to 1936. The credits are available only for income producing properties (both residential and non-residential) and the rehabilitation must comply with the Secretary of Interior's Standards for Rehabilitation, and be certified by the NPS. Providing information on investment tax credits by distributing brochures or publications containing information, or providing contact names at the NPS or the PHMC, may encourage their use. Advertising the availability of investment tax credits at the local level could also build support for the preparation of National Register nominations. Maintaining a list of consultants qualified to prepare certification applications is another way to encourage historically appropriate rehabilitation.

The Main Street Program (<http://www.mainstreet.org/>) founded by the National Trust for Historic Preservation, is a comprehensive approach to revitalizing declining downtowns and central business districts that blends historic preservation practices with economic development concepts. The Main Street Program emphasizes rehabilitating and reusing historic structures to the greatest extent possible to create an atmosphere that reflects the history and culture of the community. The preservation and adaptive reuse of historic resources and infill development are both elements explored within the context of a Main Street approach, one that allows the community to showcase its history and heritage.

State funding for historic preservation is available through the PHMC's History and Museum Grant program (http://www.artsnet.org/phmc/phmc_frame.html). There were four types of Project Support Grants: Museum Project Grants, Local History Grants, Archives and Records Management Grants and Historic Preservation Grants. All programs were competitive and maximum grant awards and match requirements vary among the programs. Eligibility requirements and application forms can be found in PHMC's annual publication, *Pennsylvania History and Museum Grants*.

Another state funding source is the Keystone Historic Preservation Grant Program also administered by the PHMC. The guidelines provide general information and sets eligibility requirements and applicant responsibilities. The program is competitive and offers 50 percent matching grants to non-profit organizations and local public agencies for preserving, rehabilitating, and/or restoring buildings, structures, and sites that will be open to the public and are listed in or eligible for listing on the National Register.

These programs are options that may be considered by the Township when evaluating funding options for the historic preservation strategies. Matching funds are required in many cases, however, private sources can often be used to fill this gap.

Finally, encouraging private historic preservation measures, such as the sale or donation of easements, deed restrictions, and restrictive covenants, is a strategy that can be implemented on a one-to-one basis with individual owners of historic resources. The Township needs to concentrate on education and incentive programs to encourage voluntary participation in this strategy.

Private Funding Sources

Private foundations, company-sponsored foundations, and corporate giving programs are all examples of private funding sources. Foundations are non-governmental, non-profit organizations with funds and programs managed by trustees or directors, established for the purpose of providing aid to social, educational, charitable, religious, or other activities mainly through making grants. Charitable trusts are a form of a private foundation and one of the most noted is Pew Charitable Trusts. A sample of the major foundations located in southeast Pennsylvania that have funded historic preservation activities include: Annenberg Foundation, Channel Foundation, William Penn Foundation, Philadelphia Foundation, and the Oxford Foundation.

Corporate foundations are those that derive funding from the sponsoring company or corporation. The recipient of corporate funds usually have some type of link to the corporation and those projects selected for funding often can further corporate goals. Often the projects selected for funding are in proximity to corporate facilities. These actions are sometimes considered as goodwill gestures and help to build local support for the organization.

Community foundations are a quasi-public funding source. They receive funding from various private sources including endowments and are managed through the community with the stipulation that funds be used for charitable purposes for organizations within a specific geographical area. The number of community foundations is increasing. The Chester County Community Foundation was

established in 1996 and is growing in importance as a funding resource for local projects, programs, and activities.

Regulatory Options for Historic Preservation

Identifying the legal foundation for historic preservation creates an understanding of the preservation activities that can and cannot be undertaken with respect to existing ordinances, laws, and enabling legislation. This will assist community leaders in formulating practical strategies.

- **Develop regulations in the Township's zoning and subdivision and land development ordinances for the protection of historic resources.**

The Pennsylvania Municipalities Planning Code (Act 247), Section 603, permits the adoption of zoning regulations to protect historic resources. This can take the form of a historic preservation overlay district and zoning standards to protect resources. The Pennsylvania Historic Districts Act, Act 167 of 1961, enables municipalities interested in protecting locally important historic resources to regulate alterations and modifications. Historic overlay zoning modifies use, area, and bulk regulations of underlying zoning to protect historic resources and help promote their preservation. In many instances, historic resources can be adaptively reused, effectively incorporated into new development, or rehabilitated to enhance the site.

Once the inventory and the map are completed, New Garden should create a Historic Resource Preservation Overlay Zoning District and appropriate regulations and standards to preserve and protect identified and significant historic resources. The Overlay District should be particularly useful as a protection mechanism when resources are not concentrated in a particular district, but are instead scattered throughout the Township.

In addition, the Township should require the identification of historic resources on preliminary and final subdivision and land development plans and create and adopt performance standards in the subdivision and land development ordinance to protect identified historic resources from development activities/impacts on-site and from properties adjacent to the resource.

- **Create a comprehensive Village Protection Program.**

A Village Protection Program (Program) is a planning initiative and, among other points, is aimed at preserving the smaller, often historic neighborhoods of a community. The main purpose of the Program is to map the area and identify land use measures that preserve the historic resources, enhance the sense of community found, encourage rehabilitation where necessary, and protect the unique characteristics that gave it its unique identity.

The village areas of Toughkenamon, Landenberg, and New Garden should be the focus of a Village Protection Program. The planning process for such a protection program involves three general steps: 1) the first is to identify and map key features; 2) the second step is to analyze these features and determine those characteristics that contribute to the individuality of each village; and 3) the third step is to formulate policies that meet and accomplish local objectives. The Program is largely implemented through the zoning ordinance.

These village areas contribute greatly to the character of New Garden and should be protected as part of the Township's quality of life. The characteristics of the villages should be documented by focusing on the history, physical development, building styles, facilities, circulation network, and land pattern. The relationships between the village area and its setting should be explored as well.

The outcome of the Program is usually the creation of a Village Zoning District. This district would

specify area and bulk regulations and design standards that preserve the unique characteristics of the village, providing for infill that respects the existing pattern. Village expansion should also be considered, however, the established pattern should serve as a guide for future development. Prior to developing the Village District regulations, a comprehensive analysis of the village should focus on spatial arrangements, circulation routes, building size, scale and orientation, setbacks and yard areas, and accessory structures.

- **Encourage the adaptive reuse of historic structures.**

The Township should encourage the adaptive reuse of vacant, underused, or deteriorating historic buildings for retail, office, and residential uses. Buildings that have outlived their initial purpose can often be given a second life through reuse, thereby preserving the historical significance and character of the Township. New Garden should review the current land use regulations and update and adopt performance standards that will encourage and facilitate adaptive reuse of these resources. The Township can encourage adaptive reuse by maintaining an inventory of older buildings that have reuse potential and assist the property owner in advertising their availability. Businesses that could benefit by locating in an older, historic building, such as specialty retailers, galleries, or small offices could be directly sought in an effort to prevent the demolition of important historic resources.

- **Develop a local policy on the interpretation of the Unified Building Code as it applies to historic properties.**

The BOCA Code serves as the state-mandated building code in Pennsylvania. It provides a set of minimum construction standards and building procedures that serve to regulate construction activity for the purpose of ensuring the health, safety, and welfare of building occupants. Although the Existing Structures component of the Code provides direction on rehabilitation, it does not address all aspects of rehabilitation as it pertains to older or historic buildings, since many of these buildings exhibit "unusual construction". Evaluating rehabilitation plans for historic buildings requires a certain amount of flexibility in interpreting the Building Code. The Township should consider adopting a policy that specifically integrates the comments and recommendations of the Historical Commission and historic property owners, with the concerns of the Code Officer, in the interpretation of the building code as it applies to historic properties.

- **Develop criteria for surveying, identifying, evaluating, and recommending changes to or giving observations on historic sites.**

Maintaining a high degree of consistency and objectivity when assessing the impact of various actions is difficult, but necessary in order for the Commission to retain a high level of credibility. The Commission should strive to maintain objectivity by carefully documenting the rationale for all recommendations associated with historic preservation by using consistent procedures and standard resources. Developing recommendations based largely on aesthetics should be avoided. Historic preservation tends to be an emotionally charged topic and objectivity will help reduce the potential for conflicts.

Citizen Participation and Community Education

Citizen participation is important in two ways: first, it gives local officials an understanding of the existing level of community support for historic preservation; second, it creates a forum through which residents can become more aware of historic preservation issues and concerns. Addressing preservation goals is highly dependent on strong support from residents.

- **Develop and maintain a database for use on the Township's website comprised of information on New Garden's historic resources and organizations in the region that work to preserve such resources.**

There are groups that focus on colonial history, the history of various cultural institutions such as the churches and schools, and unique sites such as the old bridges. There is usually consensus among such organizations on the importance of preserving the historic attributes of the Township. A link to the New Garden Historical Commission is located on the Township's website. A database of the Township's historic resources and materials should continually be developed and maintained and be included on the Commission's website. The database should include the historic resources and general information on each organization and its mission and, if possible, a mailing list of the membership. These organizations, along with their members, form a constituency that can then be tapped when support or assistance is needed for preservation projects.

- **Encourage the owners of historic properties to retain the historic features of their resource.**

Owners of historic resources in New Garden should be encouraged to preserve the historic features and characteristics of their buildings when undertaking structural modifications or repairs. This could be accomplished, in part, by providing information on what features should be preserved in order to maintain the integrity of a structure and the alternatives to be considered. Members of the Commission, with expertise or knowledge in historic architecture, could be asked to review modifications on a volunteer basis at the request of property owners or could suggest an architect that specializes in historic architecture. The connection between the retention of historic features and maintenance of property values should be emphasized to the owners of historic properties.

- **Work to obtain public participation in historic resources protection.**

Public participation and education are a critical part of the preservation effort and a variety of means should be used to increase the community's understanding and awareness of its historical resources. Keeping residents informed on the progress of preservation efforts and the status of various activities should be a priority. Information on rehabilitating existing historic structures should be made widely available. Conveying information can be done in many ways, through newspapers, community newsletters, a community bulletin board, the Township's website, educational programs, speakers, and special events. Information can also be made available in libraries and municipal buildings. Plaques can be displayed on historic structures and properties listed on the National Register of Historic Places, to recognize their significance. Active public involvement can continue by emphasizing the role of voluntary organizations and individuals in specific implementation strategies of the preservation plan, including the involvement of local high school students within a historic related curriculum.

- **Compile resource materials to assist in decision making related to historic preservation.**

Resource materials, such as regional design guides, historical architecture books, and historic building construction publications are examples of the materials that should be collected and used by the Township and Historical Commission in preparing recommendations associated with historic resources. Books and publications that generally address these topics can be obtained through many retailers; publications on specific topics relating to historic preservation can be obtained through organizations such as the National Trust for Historic Preservation, the National Park Service, and the Pennsylvania Historical and Museum Commission.

- **Establish “New Garden tours” as a means to promote and educate people about New Garden's history and historic resources.**

The Historical Commission should develop a series of walking tours of New Garden. The story of New Garden could be told on a house by house basis with discussion of local history blended into the discussion. Tours could focus on a major historical theme of the Township. Examples include the mushroom industry, railroads, White and Red Clay Creeks, early commercial trade, environmental issues, early transportation systems, or architectural heritage. This type of program could help to build pride in New Garden and spur revitalization and maintenance activities. The architecture could be emphasized in one tour that focuses on the best local examples of common types including; American Four Square, Bungalow, Greek Revival, or Italianate styles.

- **Establish recognition programs for homeowners that undertake historically appropriate rehabilitation or adaptive reuse projects.**

The Township should establish a program for honoring property owners that have undertaken historically sensitive rehabilitation projects. Property owners can be recognized through plaques, citations, resolutions, interviews, newspaper articles, and other forms of local publicity. The Commission should also seek out opportunities to present local successes to state and county entities for recognition and assist in preparing any applications required. These types of applications can also serve as the basis for “case studies”, which can be used as educational tools.

- **Develop and maintain a library of historical documents and surveys.**

The Commission should develop and maintain a library of information and resource material to reduce the time required by homeowners in undertaking research, thereby increasing the likelihood of a historically sensitive approach to an alteration or modification of property. In many cases, homeowners do wish to maintain the historic integrity of their properties, but do not have access to the needed resources. By providing a library of information intended to assist the owners of historic properties, the Commission can facilitate voluntary preservation measures and create a partnership with the owners of historic properties.

- **Participate in training sessions designed for Historical Commissions.**

Participating in training sessions, conferences, and seminars sponsored by organizations such as the Pennsylvania Historical and Museum Commission, Preservation Pennsylvania, and the Chester County Historic Preservation Network can help build expertise on historic preservation issues. These sessions usually address common topics or issues faced by communities throughout the state or region. They provide an opportunity to learn about particular issues and to share experiences and perspectives.

- **Promote local heritage by forming a display to showcase local history.**

New Garden has a unique history that could be shared with the community. A local history display could be created to serve as a venue for showcasing local historical collections. This effort could also be expanded to include local archives and resource materials. A small local museum could be considered to serve many purposes. Before the Township considers such a recommendation, it should undertake a feasibility study to determine interest in the project, and the present and future costs. The tourism potential should be investigated as well, since heritage tourism is now promoted at both the national and state level. If the concept proves generally feasible, the rehabilitation of a historic building or an available building in a well traveled area for this use should be considered.

- **Use electronic forms of communication, such as the Internet, to solicit, collect, and distribute information on preservation issues.**

The Internet is a powerful tool for both gathering and disseminating information on historic preservation issues. Organizations such as the National Trust for Historic Preservation

(<http://www.nationaltrust.org/>), the National Park Service, and Preservation Pennsylvania (<http://www.preservationpa.org/FrameHome.htm>) all have websites that offer resources and services to local entities, as well as additional links to other resources. The websites are also used as a way to quickly and directly convey information on topics of broad interest. The use of e-mail is also becoming an important means of communicating on preservation issues.

In addition, interviews with township elders could be collected and published. The interviews could be digitally "video-taped" for use in a future documentary on the topic, perhaps prepared with the assistance of high school or college students, and placed on the website. These types of efforts build support that can then be tapped when historic resources are threatened. The need to preserve the historic resources as physical reminders of the past should be emphasized in any educational campaign.

- **Communicate with and use media sources to promote historic preservation.**

The Historical Commission should seek to build a positive relationship with the local media and use it to generate awareness of local history and the importance of preservation. Newspapers, magazines, newsletters, radio stations, and television stations can all be used to convey information on preservation issues. The local media is usually supportive of historic preservation and generally willing to print articles about topics of historic interest. They can also be tapped to promote or publicize preservation projects and activities.

- **Continue to work with the School District to incorporate historic preservation into the local history curriculum.**

The Historical Commission and local educators should work together to develop a curriculum or presentation for schools to address local history. This could serve as the basis for introducing preservation concepts and the importance of protecting the built environment. The Commission should work with school officials and school teachers to link history discussions with actual historic sites. Developing an awareness of the buildings and neighborhoods that comprise the built environment could help to build respect for the community as a whole.

Conclusion

New Garden has identified historic resource protection as an important municipal objective. The Township should become involved in preservation efforts with continued support for the New Garden Historical Commission; adoption of a Historic Resources Preservation Overlay District, a Village District, and other regulations as part of the zoning and subdivision and land development ordinances; and encourage and support local preservation initiatives. It is suggested that the Township work with Kennett Square Borough in regional coordination and cooperation with respect to historic resources, they have very good data, information, and program for the protection of historic resources. The Township should support preservation efforts and seek to formalize the program through the initiatives recommended.

References

Chester County Planning Commission, Local Government Handbook Number 6 - *Community Planning Handbook: A Toolbox for Managing Change in Chester County*, Vol. I and II. West Chester, Pa, 1997 and 1999.

Chester County Planning Commission, Local Government Handbook Number 7 - *Preserving Our Places: Historic Preservation Planning Manual for Chester County Communities*, West Chester, Pa, 1998.

Resources

Federal

The National Park Service (<http://www.cr.nps.gov/ur>)
The Historic Preservation Fund (<http://www2.cr.nps.gov/hpf/>)
Community Development Block Grants
The Certified Local Government (CLG) (<http://www2.cr.nps.gov/clg/>)
The Main Street Program (<http://www.mainstreet.org/>)
National Trust for Historic Preservation

State

The Pennsylvania Historical and Museum Commission (<http://www.phmc.state.pa.us>)
History and Museum Grant program (http://www.artsnet.org/phmc/phmc_frame.html)
Keystone Historic Preservation Grant Program (http://www.artsnet.org/phmc/key_guide.html)

County

The Chester County Community Foundation (<http://www.chescocf.org/>)
Chester County Historical Association (<http://www.chestercohistorical.org>).

Charitable Trusts

Pew Charitable Trusts
William Penn Foundation
Warlock Foundation

Annenberg Foundation
Philadelphia Foundation

Channel Foundation
Oxford Foundation

Chapter 11

Community Services and Facilities Plan

Community Services and Facilities are essential to maintain a high quality of life for Township residents. These services and facilities have a variety of important impacts from ensuring public safety to effecting future development by provision of water and sewer facilities that are directly related to accomplishing the direction of the Land Use Plan. Effecting community services and facilities is complicated and communication is the key to both maintaining and modifying these elements to meet future need. This is true particularly because many community services and facilities are not directly owned or managed by the Township and thus consistent monitoring and communication with service providers is essential.

The recommendations in this Chapter are based upon the planning implications developed in **Chapter 6, Community Services and Facilities Inventory**, and Goals and Objectives from **Chapter 9**, and opinions from the Public Opinion Survey. It is essential for the Township to monitor and direct the provision of community services and facilities as the population continues to grow.

Goal:

To have existing public facilities and services well maintained and functioning efficiently while planning carefully for essential new and/or expanded facilities and services that meet the needs of the community.

Objectives:

- Promote a variety of community services and organizations by monitoring growth, development, population, age, and household trends to plan for future facilities and services.
- Continue to plan for and support the necessary functions of the municipality.
- Plan for the continuation and development of adequate and cost-effective public works programs, facilities, and services.
- Improve communications between municipal officials and residents.
- Encourage the development of advanced communication technology to enhance opportunities among businesses, government, schools, and residents.
- Encourage a capital improvements program to anticipate and plan for future financial needs.
- Support local and regional emergency management response services.
- Ensure an adequate quality and quantity of public drinking water.
- Ensure adequate public sewage disposal and encourage proper maintenance of private sewage systems.
- Coordinate land use planning and zoning with water and sewage facilities planning to ensure that adequate infrastructure is provided to areas targeted for growth and not extended to those areas identified for preservation.
- Continue to evaluate and monitor the recreation needs and desires of residents and consider options for improving existing facilities or providing new recreational opportunities.
- Coordinate recreational facilities and programs with surrounding municipalities to prevent duplication of efforts and to provide a wider range of recreational options for residents.

MUNICIPAL SERVICES AND FACILITIES

The following are recommendations for services and facilities provided directly by the New Garden Township administration.

Administration

The Township constructed a new Township building in 2003 that will accommodate the space needs for the Township administration and public meetings for the foreseeable future. The first Township Manager was hired in 2003 and the budget underwent substantial changes to update the format to more current practices. Due to these already substantial changes, there are few immediate changes necessary for the Township administration. However, there are a few items that should be monitored that may increase the effectiveness of the budget, potentially change staffing to facilitate certain programs, and increase communication between the various boards and commissions.

- **Continue to encourage and provide for public services and facilities.**

New Garden will work to ensure existing public and private services and facilities are well maintained and functioning efficiently by continually monitoring, and carefully planning for essential new and/or expanded services and facilities that meet the needs of the community, yet staying within the fiscal budget limitations of the Township. New Garden should continue to develop a reasonable budget with the cooperation of all department heads, prior to consideration by the Board of Supervisors.

- **Consider developing a formal Capital Improvements Plan (CIP).**

The Township consistently applies a budgeting process and plans ahead for major capital improvements, but should develop a more formalized CIP to increase the effectiveness of this process. An individual capital improvement can generally be defined by a high value fixed asset that is expected to be in service for many years, but does not include annually recurring expenses or the maintenance of existing facilities. A CIP is **a framework for the financing of identified capital improvements each year for a fixed period of time, typically five years into the future.** The CIP is beneficial in prioritizing and budgeting for large capital expenditures such as vehicles, expensive office equipment, and facilities, such as administrative offices or park facilities.

- **Encourage volunteerism to build local commitment, increase public awareness, and utilize the diverse skills, knowledge, and ideas of Township residents.**

The Township has been successful in recruiting individuals to fill the positions on various boards and commissions. The volunteers that serve in this capacity handle many of the administrative activities of the Township. The Township should consider maintaining a volunteer bank of interested individuals and their area of emphasis. Existing volunteers could also make recommendations for additions to the list of possible volunteers. Residents with special skills or knowledge should be considered for positions that allow them to use their talents to the benefit of the community. The Township should strive to fill positions with people from a variety of backgrounds and diversified viewpoints to increase the base for new concepts and ideas for the direction of the municipality.

- **Explore the continued use and expansion of cooperative agreements.**

Explore the continued use and expansion of cooperative agreements with other municipalities for the purchase of materials and the provision of services in an effort to be more efficient and cost effective. This task should be considered as an on-going process, which is typically dependant upon the circumstances. Co-leasing or purchase of equipment of road improvements, coordinating and cooperative bidding for major projects, and cooperative purchasing of materials such as salt should be investigated in conjunction with adjacent municipalities.

- **Continue to monitor and adjust the Township staff to ensure the effectiveness of Township operations.**

The Township should periodically evaluate the staffing levels to ensure the effectiveness of Township operations, such as code enforcement, public works, and customer service. Changes or additions to

Township programs may require changes or additions to Township staff in order to facilitate effective implementation.

- **Increase effective communication between Township staff, administration, volunteers, and residents.**

New Garden has numerous personnel, boards, and commissions where communication and coordination is essential for the effective operation of the Township. The Township website is already an effective means of distributing information both between boards and commissions, as well as to Township residents. As residents become more familiar with internet communications, the municipal website will serve as a community tool for providing information to the residents and interested stakeholders, as well as business owners exploring relocation options. The Township will continue to develop and maintain the municipal website to enhance communications and to provide residents with information concerning services and facilities, meetings, announcements, codes, maps, police and fire protection, emergency management, solid waste and recycling collection, services, and other vital news. The website will also provide opportunity for people to communicate with the Township in general or to specific people. Finally, the website will provide interactive versions of key plans and ordinances on-line, with appropriate links provided between related sections of various plans and ordinances. For example, this Comprehensive Plan, the Zoning Ordinance, and Subdivision and Land Development Ordinance could be on the website, with links between related sections and additional links to application forms, fee schedules, and other user oriented information. Beyond expanding the municipal information provided on the website, the Township could consider working with local businesses and organizations to develop a website or link that integrates and organizes the websites of all local entities into an "electronic village". Such a website, could connect local residents with government, religious institutions, local and regional organizations, libraries, museums, schools, health care providers, local businesses, and the personal home pages of local residents.

- **Continue to participate in regional planning efforts with the Kennett Area Regional Planning Commission (KARPC).**

New Garden is a participant in the KARPC and should continue to participate by ensuring at least one designated representative from the Township regularly attends meetings of the KARPC and reports to the Township supervisors, manager, and other boards and commissions on appropriate issues. The Township should remain up to date on KARPC initiatives, both to actively participate in such activities, and ensure the interests of New Garden Township are contained in KARPC actions.

- **Conduct periodic surveys with similar Townships to establish benchmarks for municipal "information and statistics" and in terms of public services effectiveness.**

Benchmarking will assist New Garden and comparison townships in evaluating and assessing municipal programs and services, and assuring that the provision of these programs and services will meet resident needs. New Garden will work to create and conduct surveys to establish the necessary benchmarks, potentially a municipal level survey and a public opinion survey.

A municipal level survey may establish benchmarks through a comparison evaluation of municipal data and statistics without direct public involvement. Potential data may include valuation, per capital taxes, payroll, number of employees, annual road maintenance costs, grants, and similar information.

A public opinion survey can generate more comprehensive results for benchmarking and evaluation. Several functions to be evaluated include: public services and their effectiveness in meeting the needs of residents; ineffective public services; comparisons of public services between communities; and to assess the quality of life between municipalities. The survey could be facilitated through the

Township newsletter, the website, or through a postage paid write in evaluation mailed to residents. Examples of items to be compared include fire protection, ambulance service, police service, public water and sewer, municipal government services, recreation, open space, code enforcement, community development, solid waste management, libraries, schools, health services, electrical services, telephone services, and cable services.

To be reliable and to ensure usefulness, benchmarking surveys should be concluded on a regular basis. Initially, the Township will need to develop a list of comparison townships, and establish a means of communication with these municipalities in order to discuss a strategy including the purpose, goals, development of the survey, method of distribution/collection, and funding among others. It is also important to decide how responses will be evaluated to establish the benchmarks for comparison over time.

After the surveys are completed one or more meetings should be held, potentially between the participating municipalities, but at a minimum between the boards and commissions of New Garden Township as well as a public meeting for presentation to and response from the Township residents. Discussions should include issues and strategies on how to change and improve services to meet the needs of the Township.

- **Use the Township newsletter and website to educate residents on services and facilities.**
The newsletter and website are two means of communication with Township residents and businesses that should be maximized to provide information on services and facilities. The scope of services and facilities in terms of what is provided and who (i.e.: the Township, PECO, etc.) is responsible for service, as well as a primary contact, should be included. Changes to services, as necessary and appropriate, should be included on the website and in each addition of the newsletter.
- **Communicate to businesses that the Township wants to actively promote state-of-the-art services in conjunction with the business community to encourage economic development and improve the viability for businesses.**
New Garden should make this issue clear in both the Township newsletter and the website. The Township should consider making available on the website and sending out either a special edition newsletter for businesses, or making a regular practice of creating a new business specific newsletter. The Township should consider meeting with Township businesses in order to communicate the intentions and policies of the Township, as well as to solicit issues and needs of the business community and foster future communication. New Garden should communicate the potential for businesses to work with the Township to facilitate improvements for businesses, such as the potential for improved cable service and internet connections, road improvements, transportation issues, marketing, and other applicable topics.

Municipal Buildings

- **Ensure the new Township building is used for all facets of Township operations and for Township residents.**
The new building will effectively serve the Township space needs for years to come. As of 2003, there is additional unused space in the basement of the building that is not dedicated for a specific purpose. A use for this space should be found. The Township administration should ensure that the building is used effectively and efficiently for both Township operations and for appropriate uses by Township residents. The Township website and newsletter could be used to announce the availability of space for appropriate uses.

Police Department

- **New Garden should continue to monitor the staffing levels of the police department to effectively serve Township residents and businesses.**

As the Township continues to develop, it is essential that police staffing levels are appropriate to serve the community. New Garden should be weary that certain commercial uses that require an undue amount of police protection and reduce the capacity of the police department to serve Township residents, do not proliferate, unless adequate staffing is provided.

- **Encourage a highly trained police force that is adequate to meet the needs of the Township.**

It is important that the Township work the Police Department to maintain a high level of professional training for the officers, and that the community is pleased with the service being provided. The Township should work to ensure officers continue to receive training and equipment that exceeds minimum standards and that is necessary to meet the special needs of the growing population.

- **Encourage Police Department personnel to become more "visible" within the Township.**

In addition to the car patrols within New Garden, Police Department personnel should become more visible and interact with the Township. This might be accomplished by one or more of the following: 1) requiring officers to walk in appropriate areas at least one hour during their a shift; 2) requesting officers attend any Township and any neighborhood meetings that are scheduled during their tour of duty; 3) welcoming new residents into the Township by having an officer deliver to them a package of information that will help them become familiar with the Township; 4) conducting vacation checks for residents who fill out a form requesting police to check their homes when they are "out-of-town"; 5) conducting night-time business checks and report any security problems; 6) "adopting" a senior citizen who lives alone. The senior citizen would fill out a form indicating they will call the Department every day before a certain time ("10:00 AM") and if there is no call, the Department will dispatch an officer to look in on the individual; 7) working to create a Townwatch Program for the Township; 8) establishing a bike patrol, whether periodic or full time, should be considered potentially on a neighborhood basis and Toughkenamon. Finally, a link on the Township's website to the Police Department should enhance community understanding and support for the Department. The website could contain information, such as; a mission statement of the police department, how to contact the police department, community programs, seasonal information, an organizational chart, and a link to view the Department's activity.

- **Seek the input of the Police Department on new developments.**

The New Garden Subdivision and Land Development Ordinance should require that preliminary plans be submitted to the Police Chief for review. Input from the Chief concerning response issues is vital during the planning phase. The Township should also ensure that the Department is aware of the location of approved developments. Information including maps of the development, types of units, and street widths should be shared so that the Department may update their maps and respond to possible emergencies with proper knowledge of the situation.

Public Works

There are approximately 67 miles of public roads within New Garden. Of all the services that are provided by the Township, the roadway network incurs the greatest scrutiny and expenditure. Roadways are a major concern because of the role they play in daily affairs and because they will be a primary factor in determining the location and intensity of growth and development in the Township. In a municipality such as New Garden, where residents depend on many of the services and facilities in surrounding communities, transportation links to adjacent communities are considered very important. The Township

funds its transportation projects utilizing a combination of resources, including the use of municipal capital improvement funds for roads (municipal budget) and state liquid fuel tax allocations. The Township Public Works Director and Supervisors survey the Township roads twice a year. Following this road survey, a prioritized list of improvements is prepared and submitted to the Supervisors for their decision.

- **Improve upon the Road Maintenance and Improvements Plan.**

New Garden should continue to develop and improve the Roadway Maintenance and Improvements Plan (RMIP). Several intersections have poor alignments, sight distances, and drainage. The RMIP should identify these conditions during the bi-annual road inspection and develop a list of major improvements by priority with a timeline in conjunction with on-going resurfacing efforts. The RMIP should include detailed recommendations for Township roads and intersections with general recommendations for the Pennsylvania Department of Transportation (PennDOT) maintained roads. Improvements should be made to higher functioning roadways with priority over local roads. Capital improvements such as signs, signals, and equipment necessary to complete improvements, should be incorporated into the Capital Improvements Plan. Major projects should be included in the Chester County Planning Commission's Highway Improvements Survey and appropriate recommendations should be submitted for the PennDOT 12-Year Program. Improvements should be completed in conjunction with construction standards recommended for each roadway functional classification in **Chapter 14, Transportation and Circulation Plan.**

It is important that there is a balance with roadway improvements and maintaining the characteristics of the Township. Improving roads with inadequate right-of-way, shoulders, and lane width is necessary, but consideration should be given to retaining the rolling and curving nature of the roadways. Regrading and straightening of vertical and horizontal curves should be avoided whenever possible. The Township should strive to improve roads to facilitate movement, but not compromise the aesthetic aspects of the existing transportation network. Once the RMIP is completed, it should be updated on a regular basis.

- **Submit improvements identified in the Road Maintenance and Improvements Plan to PennDOT and surrounding municipalities.**

The Road Maintenance and Improvements Plan will enable the Township to begin improvements identified on locally owned roads. Improvements for state roadways should be submitted for inclusion in the PennDOT 12-Year Plan. Some improvements may involve coordination with adjacent municipalities.

- **Incorporate road maintenance equipment expenditures into the Capital Improvements Plan (CIP).**

Road maintenance equipment expenditures are significant and should be incorporated into the CIP. This will be of additional importance once the Road Maintenance and Improvements Plan is completed, as some roads in New Garden may require complete reconstruction and significant improvements. Additional equipment may be necessary to reconstruct roadways and continue routine maintenance and to provide safe and efficient modes of travel on a local and regional level. The Township should consider leasing certain pieces of equipment in lieu of purchase to maximize the budget in terms of added maintenance and storage costs. In some cases it may be more effective to lease instead of buying equipment that is used only on occasion or for specialized circumstances. This could also be applied on a multi-municipal basis. These equipment needs should be included in the CIP to provide for efficient planning and financing. The Township should solicit advice from transportation experts, such as: the Transportation Management Association of Chester County, the Delaware Valley Regional Planning Commission, PennDOT, and Chester County Planning Commission, and from the private sectors when putting together CIP requests. Such agencies will be

aware of state and federal assistance programs that could be beneficial to subsidize the cost of specific transportation improvements.

Stormwater Management

Stormwater collection lines serve most of the developed areas of New Garden, and the Township is charged with their *installation and* on-going maintenance. Stormwater management is the process of controlling and cleansing stormwater flow so that it does not harm human health, property, or natural resources. Stormwater management often involves measuring the extent of the immediate watershed, calculating how much precipitation might fall during a major storm, and taking steps to direct, capture, and/or control the runoff. Proper stormwater practices reduce potential damage to properties and natural resources due to flooding and erosion and can significantly affect groundwater recharge. The conversion of natural land and topography to residential, commercial, industrial, institutional, and even recreation, results in decreased infiltrations of rainfall and an increased rate and volume of stormwater. As subdivision and land development activity occurs, the increased quantity of stormwater must be properly addressed. Failure to do so can result in greater flooding, stream channel erosion, sedimentation, and reduced groundwater recharge. The provisions for stormwater management in New Garden are contained in the Subdivision and Land Development Ordinance and will need to be updated to emphasize the use of Best Management Practices, groundwater recharge, and National Pollutant Discharge Elimination System (NPDES) Phase II. Stormwater management is covered in more detail in **Chapter 12, Natural Resources Plan**.

- **Monitor municipal stormwater management facilities.**

The Township will need to continually monitor the stormwater lines to ensure proper drainage, flow, and discharge, as well as erosion and sedimentation control. There is currently no Township-wide man-made filtration or holding system in place and stormwater in the Township generally is indirectly discharged into the White and Red Clay Creeks and other small streams. The Township considers groundwater infiltration as a priority for stormwater management and changes to regulations should be made to maximize infiltration over stream discharge to protect groundwater quantity and quality. This is important as many residents continue to rely on private wells for water needs. As a long range alternative, the Township should consider biological or mechanical filtration in order to protect both surface and groundwater quality. Finally, stormwater management standards in the Township Subdivision and Land Development Ordinance will need to be reviewed and updated since the current provisions must come into compliance with NPDES II requirements.

- **Enforce the use of Best Management Practices in stormwater management planning.**

Existing neighborhoods should be examined for stormwater management problems and steps should be taken to rectify any identified problems. Updating and enforcing stormwater management regulations is critical to achieving this recommendation. New development should be strictly scrutinized to incorporate well planned stormwater management systems to reduce the impacts of runoff and promote groundwater recharge through the most applicable techniques. All proposed developments should be consistent with the updated provisions of the Subdivision and Land Development Ordinance, NPDES II requirements, and recommended provisions of the Chester County Water Resources Authority.

Open Space and Recreation Facilities

In 2003, the primary means of recreation in New Garden included the Township park located near the Township building. There is great interest in developing additional recreational facilities, including both parks and trails throughout the Township. Additionally, the preservation of the remaining open space within New Garden is of great concern to Township residents as significant development pressure continues.

- **Continue to develop, maintain, and improve existing parks and recreation programs.**

New Garden should continue to work with the Parks and Recreation Board to develop, maintain, and improve parks and recreation programs that meet the needs of all age groups within the community and continue efforts to ensure New Garden Township Park (Park) is well maintained and accessible to provide a pleasing atmosphere, safety, and appropriate facilities to meet community needs. The Park should be examined on a regular basis for necessary maintenance and improvements. The Parks and Recreation Board should be encouraged to plan for enhancement of the Park and the development of additional parks by researching funding sources and exploring cooperative agreements with adjacent communities to share facilities and programs. New Garden should also continue to define opportunities for intergovernmental cooperation and other partnerships. As part of this effort, the Parks and Recreation Board could address parks, recreation, and open space needs on a regional basis and coordinate future planning endeavors with the Chester County Planning Commission, Chester County Parks and Recreation Department, Brandywine Conservancy, Kennett Consolidated School District, adjacent municipalities, and other public or private agencies. Finally, New Garden should continue to encourage volunteerism with respect to parks and recreation programs to develop a sense of community, increase public awareness, and to utilize the diverse skills, knowledge, and ideas of the local residents.
- **Complete the work of the Open Space Task Force in planning a program for open space preservation.**

The Open Space Task Force was initiated in 2003 to develop a planning program for the preservation of open space within New Garden. The Task Force, with the aid of a planning consultant, continues to develop and refine a planning program that will provide guidance for additional planning measures and implementation. The Township Supervisors, staff, and other boards and commissions should support and communicate with the Open Space Task Force in this initial step towards greater open space preservation.
- **Create a permanent Open Space Committee to implement the recommendations of the above Task Force to protect open space, implement the New Garden Township Open Space and Environmental Resources Plan, and the open space initiatives of this Comprehensive Plan.**

The Township should continue the efforts initiated in the above recommendation by establishing an official permanent body to plan for and protect open space. The guidance provided by the work of the Open Space Task Force should be followed as the initial step in open space protection. The Open Space Committee should also refer to the Township Open Space Plan for additional guidance as well as **Chapter 13, Open Space and Recreation Plan**, and other applicable sections of this Comprehensive Plan as the policy document for the Township.
- **Explore the possibility of a Township senior center.**

The Township should evaluate the need for a Township owned or sponsored senior center. The facility could be located at the Township park or other Township owned property, to facilitate recreation for the increasing number of senior residents. This facility could be used for a variety of purposes aside from being a senior center, including a location for local boy scout and girl scout troops, special events, holiday celebrations, and other multi-purpose uses. Location in the Township park would be ideal to integrate a variety of recreational opportunities in combination with this proposed facility.

NON-MUNICIPAL SERVICES AND FACILITIES

These are facilities and services that are not directly provided or controlled by New Garden Township administration. Recommendations involve coordination with the appropriate entity to achieve positive and fiscally responsible changes within the Township.

Fire Protection

Fire protection is made available to New Garden through a contract with the Avondale Fire Company located in the Borough of Avondale. Volunteers provide fire and rescue services to Avondale Borough, New Garden Township, and portions of London Grove, Franklin, and West Marlborough Townships. The Avondale Ambulance Association utilizing a combination of paid and volunteer personnel provides emergency Medical Service for these areas.

- **The Township should continue to support the Avondale Fire Company and actively monitor and communicate with the Company.**

New Garden should continue to maintain fire protection through contracting with the Avondale Fire Company. The needs of the Township should be assessed and communicated to the Station on a regular basis and changes to the contract made on an annual basis. The Company should be made aware of issues in New Garden, such as new developments within the Township, as well as changes of road names and significant construction. Information such as street widths, the types of units, and turning radii should be communicated. The Township Subdivision and Land Development Ordinance should require that preliminary plans be submitted to the Fire Chief for review. Input from the Chief concerning response issues is vital during the planning phase, particularly for the placement of fire hydrants and turning radii. As of the fall of 2003, the Company was in the process of developing a new fire station, on the border of Avondale and New Garden. The Township should ensure that a representative maintains regular communication with the Company on this issue and attends appropriate meetings while reporting to the Township manager, supervisors, and appropriate boards and commissions.

- **Encourage volunteerism in the Avondale Fire Company.**

Continue to actively support and promote the Avondale Fire Company in Township publications, meetings, festivals, newspapers, and other media; and educate the public on the importance of maintaining an adequate base of volunteers. Information about the Fire Company and the roles and responsibilities of volunteers should be included on the Township's website for potential volunteers.

- **Publicize the efforts of the Avondale Fire Company.**

The Avondale Fire Company provides an essential service to the community and assists community education activities through regular events. These efforts should be acknowledged by publishing a section on the Company in the Township newsletter, local paper, and on the website to inform the public of the response time to emergencies, public education efforts, contributions to the community, and individual efforts of volunteers. The link to the Avondale Fire Company (<http://www.avondalefirecompany.org/>) on the Township's website should be announced to provide basic information and show its efforts and accomplishments, the mission statement of the Company, how to contact the Company, community programs, seasonal information, an organizational chart identifying personnel, response reports, apparatus and general news. In addition, links could be established directly to the Chester County Department of Emergency Services, other fire departments, national fire departments (Firehouse.com), and other emergency response agencies and programs servicing the community. A positive image for the Fire Company and its emergency response initiatives is vital when it is conducting fundraisers or when they perform other duties.

Ambulance Service

Chester County returned control of ambulance territories to local municipalities after February 2000, and ambulance services continues to be of concern to the Township. As of 2003, the Township contracts with the EMS division of the Avondale Fire Company and houses one unit from the Jennersville Medical Center.

- **Continue to contract with the Avondale Fire Company Emergency Medical Service Division (EMS) for ambulance service and maintain additional support by housing a unit from Southern Chester County Emergency Medical Services within the Township.**

The Township should continue to ensure the provision of ambulance service for residents by contracting with the Avondale Fire Company EMS Division. The Township should maintain regular communication with the Division on the adequacy of this service as the Township continues to develop. Additionally, the Township should maintain the practice of housing a unit from the Southern Chester County Emergency Medical Service within the Township to provide advanced life support (ALS) services in conjunction with the Avondale Fire Company which provides basic life support (BLS) services. The link to the Avondale Fire Company on the Township's website provides access to the EMS Division. (<http://www.avondalefirecompany.org/ems.htm>)

Water Supply

A majority of properties in New Garden obtain water from private wells. The primary source of public water service is from the City of Chester Water Authority (CWA) pipeline that traverses the Township in a west-east direction south of Avondale and Toughkenamon. The extension of public water lines is an important consideration for the type and density of development that may occur in the Township. Additionally, due to the high number of residents who rely on private wells, the quality and quantity of groundwater is a concern. The provision of public water as a facility is directly related to the Land Use Plan and the limitation of new wells within resource protection areas within the Land Use Plan through low densities is a goal of this Plan.

- **Coordinate the boundaries of the public water system with the Land Use Plan.**
As with sewage facilities, discouraging the extension of public water lines into areas where development is to be limited is a goal that should be encouraged. Conversely, the extension of water lines into locations of higher density and to promote growth, or to address water quality and quantity problems, should be supported. Water supply lines should be coordinated with the policies and recommendations of the Land Use Plan and with the provision of public sewer lines.
- **Work with the CWA to ensure a potable drinking water supply.**
New Garden should work with the CWA to ensure the public water supply to the Township is of a high quality, safe, clear, dependable, efficient, and meets the needs and demands of the residents. A link on the Township's website to CWA could provide detailed information concerning the system, operations, management, water rates, water quality, and other valuable data and information.
- **Develop a Wellhead Protection Program.**
New Garden should initiate a Wellhead Protection Program to protect and preserve the quality of the groundwater supply. A Wellhead Protection Program is a pollution prevention and management program used to protect groundwater based sources of drinking water. There are usually four (4) parts required for a wellhead protection program; a delineation of a protection area, an inventory of potential sources of contamination, a management plan to mitigate current and prevent future threats to each well, and a contingency plan for dealing with any disruption of service from a well. The Township should work to define a protection area around the wellhead(s), identify potential sources of contamination, and create a management plan and a contingency plan for dealing with any disruption of service from a

well(s). In addition, a good public information program will help to establish and promote the program. If the public and Township officials have an understanding of the adverse health and economic consequences of a contaminated groundwater supply, they will be in a better position to decide how to protect the wellhead and water supply.

- **Protect groundwater resources from large scale water extraction.**

Extraction of large amounts of groundwater is a concern of the Township because of its effect on groundwater supply and the detrimental effects of the exportation of water out of the watersheds from which it is taken with no potential for recharge. The Township should actively monitor the potential for such uses and ensure that proper zoning ordinance provisions are added or amended to prevent the exportation of water from the watersheds within the Township. Water extraction ordinances, well-head protection, and groundwater withdraw ordinances are three measures which may be addressed to protect water resources.

Sewage Treatment

Many of the Township residents rely upon on-lot systems for water supply and wastewater treatment. Public sewer facilities are provided in certain areas of the Township. (See: **Map 11-1**) The New Garden Township Sewer Authority and the Borough of Avondale manage these. In conjunction with water facilities, the extension of sewer facilities has a direct impact in accomplishing the goals of the Land Use Plan because these facilities enable the development and placement of higher intensity uses. The extension of public sewer should be directed to areas established in the Land Use Plan and to remediate failing on-lot septic systems. Additionally, due to the number of individual systems within the Township, it is important to educate residents on the maintenance of these systems as improper maintenance may lead to increased costs and negative groundwater impacts.

- **Coordinate the boundaries of the public sewer system with the land use plan.**

The Township's sewage facilities planning should be closely coordinated with the future land use goals of this Comprehensive Plan. In particular, further extension of public sewer lines into areas being discouraged from development should be avoided if growth boundaries are to be maintained. The Act 537 Sewage Facilities Plan, which establishes how sewage facilities can best be provided to meet anticipated future needs, should be coordinated with the Land Use Plan to establish logical and consistent service areas. **Map 16-1, Land Use Plan**, provides guidance where concentrated development is considered most appropriate and where public sewer service should be either avoided or provided.

A related issue is the reduced groundwater recharge when individual wells are coupled with public sewer. In areas where groundwater levels are of significant concern, the export of water out of those areas via the public sewer lines must be avoided. The Comprehensive Plan policies should provide the overall guidance for Township decisions, including those of the Sewer Authority and sewage facilities planning.

- **Educate residents on the proper maintenance of on-lot septic systems.**

The Township should create a brochure or an addition to the website to educate residents on the proper maintenance of individual on-lot septic systems as well to inform them of Ordinance #103 the Township ordinance requiring regular pumping (every 3-years) of individual septic systems.

- **Adopt a standard for the use of community sewage facilities.**

There are a number of large undeveloped parcels without direct access to the public sewer system. If any of these parcels were to be developed and a connection to the public system is not feasible, consideration should be given to requiring such development to connect to a community type sewage

disposal system. Community type systems allow for tighter development patterns surrounded by areas of open space that might not be possible in areas where public sewer lines are not available. Community systems can also be used to correct problems of on-lot system failures or to allow for their expansion. These facilities should be sized to meet the needs of the specific development or problem to avoid the potential for creating additional sprawl. The standards drafted by the Township should establish a hierarchy of preferred systems with those facilities that promote groundwater recharge (e.g. spray or drip irrigation or community on-lot systems) taking preference over stream discharge systems (e.g. package treatment plants). The Township should also act as a co-permittee on community systems for better management and control of the systems and to reduce the chance of failure due to improper maintenance.

- **Review and update as necessary the Township's Act 537 Plan.**

The current Act 537 Plan (Plan) was adopted by the Township in 1995. It is recommended that 537 Plans be reviewed every five years and be updated as necessary to address future sewage facility needs. The Plan should be re-evaluated to determine the effectiveness of the recommended plan and/or to determine if revisions to the recommended plan should be pursued. Future updates to the Plan should be scheduled in 5-year cycles. The proposed sewer districts established within the Plan should be consistent with the Land Use Plan of this Comprehensive Plan. As part of the Plan, it is recommended that the Township continue to outline in further detail effective policies and programs to manage the review, testing, permitting, and operation of on-site sewage disposal systems within the Township. The Township acquired the Shangri-la sewage treatment plant since the most recent update to the Township 537 Plan, it is important that efforts are made to update the Plan to incorporate this significant addition to the Township facilities that the adopted Plan do not consider as well as to incorporate the policies of this Comprehensive Plan. The Township should also communicate with the Kennett Area Regional Planning Commission about the potential for a Regional Act 537 Plan.

- **Investigate the potential for a regional sewer organization.**

Due to the size of the existing Township sewer system, the potential for future growth of the system, and sewer issues through out the surrounding region, the potential for a regional sewer organization should be investigated. This subject has been broached at the Kennett Area Regional Planning Commission (KARPC) but significant discussion on the topic has not occurred. Increasing costs, management, and complexity of the Township system may eventually lead to some method of reducing the burden on the Township by selling the system, creating a regional authority, or some other means. A regional authority may be the most effective means of managing the system in conjunction with the various other municipal and individual systems throughout the region. The Township should facilitate further discussion at the regional level to continue evaluating the most effective method for managing sewage systems in the future.

Solid Waste

The Pennsylvania Municipal Waste Planning, Recycling, and Reduction Act (Act 101) was enacted in 1988 to deal with issues including sub-standard landfills, landfill capacity, and escalating tipping fees. Since then, costs have stabilized and landfill capacity is less of an immediate concern. Act 101 requires municipalities with a density greater than 300 persons per square mile to institute mandatory curbside recycling.

New Garden is a member of the Southeastern Chester County Refuse Authority (SECCRA) that provides solid waste disposal to southern Chester County municipalities. Individual households contract refuse disposal independently. Based on the 2000 US Census data, the Township has been required to implement a mandatory program. The Township had not previously incorporated any kind of recycling program and was done only on a volunteer basis by township residents with their privately contracted waste haulers.

- **Continue to develop a recycling strategy in compliance with State requirements to serve the needs of the Township.**
The Township should contact the Pennsylvania Department of Environmental Protection to continue steps to implement the mandated Act 101. There are funds available for the planning and implementation of this program.
- **Increase public awareness to and knowledge of the solid waste collection and recycling program.**
New Garden should ensure that residents are aware of and understand the Township's solid waste collection program, its purposes, and recycling requirements; and encourage residents to participate in recycling. The Township should provide information in the Township's newsletter and on the website on solid waste collection and recycling to include: materials accepted; proper handling and disposal, recycled items, pick-up days, disposal fees and monthly collection rates, importance of managing solid waste and recycling, HHW, drop-off locations for other types of materials, and links to other pertinent sites on solid waste management.
- **Explore the feasibility of consolidating solid waste collection.**
Because solid waste collection is contracted by individual households, there is a certain level of inefficiency built into the system. New Garden should consider the economic benefit and added efficiency of providing this service to residents through negotiating and contracting with a single hauler. Township collection may reduce the burden of this issue for residents and provide the Township with additional revenue. The effects on administration of providing this service, the economic benefits, and the overall benefit to the community should be carefully considered. The Township may want to attempt a smaller pilot program to measure the effectiveness before attempting to provide services to the entire Township.

Public Education

New Garden is part of the Kennett Consolidated School District (KCSD) serving New Garden Township, Kennett Township, Kennett Square Borough, and the southeastern corner of East Marlborough Township. It is important for the Township to maintain active communication with the KCSD as district policy changes can significantly influence Township residents. Furthermore, it is important for the school district to be aware of new developments and for the Township to be aware of special events and changes to school operations.

- **Establish regular communication with the KCSD.**
New Garden should have regular communication with the KCSD and/or the adjacent municipalities to facilitate coordination on joint or regional projects. As part of this process, explore grants or other funding sources that can assist the stakeholders with the implementation of certain projects. It is also important that the Township share approved development proposals with the School District so that the District may ensure the provision of adequate educational facilities and the quality of education. Sharing information on proposed developments and the number of new homes will allow the District to anticipate future needs for programs, staffing, equipment and facilities. The School District should be encouraged to coordinate with the Township on relevant issues including bus routes and stops, large events that may require police services, and roadway maintenance or improvements. Bus routes and stops are important concerns to ensure the safety of children. It is important for the Township to be aware of bus stops so that improvements can be made to the transportation system such as sidewalks and crosswalks, to increase safety for school children. Additionally, because of the importance of school taxes to Township residents, it is important for the Supervisors and Township Manager to

regularly communicate with the school district to remain current on issues such as new developments, school initiatives, and safety improvements.

Medical Facilities and Human Services

These types of facilities and services are generally provided on a larger, rather than municipal, scale due to their regional nature and vast expense. While there are no facilities located within the Township, there is no shortage of these types of facilities within the region. Given the current population trends within the Township and the region, the capacity of these services and facilities should continue to be monitored in the future to ensure adequate service is provided.

Emergency Management Disaster Plan

New Garden has developed an Emergency Management Disaster Plan that should be updated every 2 years. The Township, through the Emergency Management Director, should continue to update this Plan on a regular basis and ensure that designated shelter areas, equipment, and supplies can continue to provide assistance to Township residents in case of an emergency.

Library Services

Library services for Township residents are provided by the Chester County Library System. The system was organized in 1965 as a federated system composed of a District Center Library in Exton, sixteen (16) member libraries and a Bookmobile. The library's function and programming is expanding to meet regional educational and community needs. Although there are no public libraries within New Garden, the Bayard Taylor Library, in Kennett Square, is located within close proximity to the Township. New Garden should continue to support and encourage the use of the Bayard Taylor Library and the bookmobile. A link to the Chester County Library System (<http://www.ccls.org>), the Bayard Taylor Library (<http://www.ccls.org/libs/bayard.htm>), and other regional libraries should be provided on the Township's website.

Chapter 12

Natural Resources Protection Plan

The natural landscape is an integral component of New Garden's scenic character and an essential element to maintaining a healthy environment for Township residents. This chapter provides recommendations for how to best protect the Township's natural resources and to achieve the planning policies for their protection. Because a combination of measures is needed to effectively protect natural resources, these recommendations should be viewed as an integrated protection program. New Garden contains an important and diverse natural resource base, including streams, ponds, lakes, woodlands, wetlands, floodplains, deposits of sand and gravel, fisheries and wildlife habitat, and valuable acreage of prime agricultural lands.

In April of 2003, a public opinion survey was conducted for this Comprehensive Plan. Important planning issues identified within the survey were; the management of growth (sprawl) and open space preservation. Eighty-eight percent of the respondents felt productive farmland and agricultural soils in the Township should be preserved for agricultural uses. Residents were supportive of either clustering development (45% of the respondents) or using lot averaging (22%) to promote protection of open spaces and natural resources, as opposed to the use of conventional residential developments (10%). In addition, Township residents were concerned with environmental resources, with the most important priority to protect water quality and drinking water supplies, 88% of the respondents felt that more development controls were needed to preserve wetlands, 90% for woodlands, 76% for steep slopes, 94% for groundwater recharge areas, and 87% for floodplains. Clearly, natural resources and open space planning are important issues to the residents of New Garden.

The recommendations that follow implement the goals and objectives from **Chapter 9** and the planning implications outlined in **Chapter 4, Natural Resources Inventory**, of this Plan and address resident concerns expressed in the public opinion survey.

Goal:

To preserve and conserve the valuable natural and scenic resources of New Garden.

Objectives:

- Direct growth away from areas with sensitive natural resources and toward those areas most suitable for development in terms of available infrastructure (i.e. sewer, water, transportation), compatible land uses, and least impact on protected resources.
- Encourage the use of Best Management Practices (BMPs) for controlling and regulating stormwater management in subdivision and land development activities.
- Enforce existing zoning and subdivision ordinance standards to protect sensitive environmental resources including: stream corridors, floodplains, woodlands, steep slopes, wetlands, and groundwater.
- Strengthen existing ordinance standards, or adopt additional measures when necessary, to ensure that natural resources are effectively protected.
- Preserve and manage large woodland areas for their wildlife habitat, scenic values, and their contributions to groundwater recharge, improved air quality, and erosion control.
- Develop timber harvesting and tree replacement provisions as part of the subdivision and land development process.

- Identify, assess, preserve, conserve, and manage habitats necessary for survival of existing rare, threatened, and endangered species identified in the Pennsylvania Natural Diversity Inventory and the Chester County Natural Areas Inventory.
- Protect and preserve land areas classified as steep slopes from earth disturbance activities relating to subdivision and land development projects.
- Improve air quality by monitoring commercial and industrial operations in order to ensure compliance with state and federal air quality emission standards.
- Pursue both public and private options for preserving open space, wildlife habitat, farmland, and natural landscapes, while allowing sufficient room for development in designated growth areas.
- Pursue regional solutions for the protection of natural resources, such as streams, groundwater, and aquifers that cross municipal boundaries. Consider coordination of ordinance resource protection measures at the regional level to most effectively protect natural resources.
- Preserve open space corridors between habitats to the greatest extent possible through the Township's land use regulations.
- Protect prime agricultural soils and investigate regulatory and non-regulatory techniques and incentives that protect prime agricultural soils.
- Discourage development on prime agricultural soils capable of economic production in order to protect the economic base and help maintain the rural character.
- Encourage public/private initiatives that promote the retention of agriculture, including participation in County and State agricultural preservation programs, donation of conservation easements, participation in community land trusts, and others.

Direct Growth to Appropriate Areas

To protect those areas with important and sensitive natural resources, New Garden's plans and ordinances should direct growth away from, and encourage limited disturbance of, such areas. In addition, plans which control and set policy for infrastructure, such as public sewer and water, should provide such infrastructure in areas considered most appropriate for future growth and avoid extensions into sensitive areas.

- **Use the Comprehensive Plan, Open Space Plan, Zoning Ordinance, Act 537 Sewage Facilities Plan, to direct growth away from sensitive natural resources.**
 - A. **Land Use Plan - Chapter 4, Natural Resources Inventory** of this Plan and the Township's Open Space, Recreation, and Environmental Resources Plan, 1993, both include mapping and discussions of the sensitive natural resources and constraints in New Garden. This information should serve as one of the primary criteria for determining where future growth is/is not appropriate in the Township. **Chapter 16, Land Use Plan**, respects these resources by assigning lower density categories of land use.
 - B. **Zoning Ordinance** - The Township Zoning Ordinance Map should be consistent with the location of land use categories depicted in the Land Use Plan. This will ensure that the Ordinance reflects the Township's policies in regard to the protection of natural resources, as well as the other considerations discussed during the development of the Land Use Plan. The Zoning Ordinance requirements governing each of the Districts should be consistent with the land uses, densities, and other recommendations of the Land Use Plan. Finally, standards for the protection of individual natural resources should be updated in the Zoning Ordinance.
 - C. **Act 537 Sewage Facilities Plan** - New Garden's Act 537 Sewage Facilities Plan was last updated in 1996. When the Sewage Facilities Plan is scheduled for an update, the Plan should also reflect

the recommendations of this comprehensive plan in terms of the location of sewage facilities and service areas, uses of community sewage systems, and individual on-lot systems. The Sewage Facilities Plan should also establish a hierarchy of the use of preferred treatment systems. Those systems that provide the most effective groundwater recharge represent the most desirable system, while those that export water out of the area, would be the least desirable.

- D. Water Facilities Planning** - A majority of the potable drinking water within New Garden is obtained through on-lot wells, with the Chester Water Authority providing a public water supply through a waterline from the Octoraro Creek Reservoir and the Susquehanna River. The Artesian Water Company in Delaware provides public water service to a small selected franchise area within the Township. While water facilities planning does not require the equivalent of a Act 537 Sewage Facilities Plan, the extension of water facilities into New Garden should similarly reflect the policies of the Township's Land Use Plan. The extension of public water lines should correspond with those of the public sewer system and be consistent with the plans for the extension of public sewer lines in terms of serving higher density areas. In areas not planned for public sewers and where community sewage systems will be used, a community wellhead might be the most appropriate water supply method. The Board of Supervisors, Planning Commission, and water authorities should work together to ensure that public water plans and policies are consistent with the Township's policies for natural resource protection and land use planning.

Natural Resource Protection Ordinance Standards

The existing natural resource protection standards in New Garden's Zoning Ordinance, as amended (1997) and Subdivision and Land Development Ordinance, as amended (1999), contain nominal requirements for natural resources, including: a Flood Hazard District; wetlands, prime agricultural soils, woodlands, and steep slopes only within Cluster Developments; and stormwater management (soil erosion and sedimentation). While these protection measures provide a foundation for protecting the Township's natural resources, additional steps need to be considered.

- **Ensure existing natural resource protection measures are effectively and uniformly enforced.**
New Garden must consistently enforce existing land use regulations and minimize the number of variances granted to effectively protect natural resources. One of the first steps to ensure that the existing measures are being properly applied and enforced is to ensure that all protected resources are reflected on land development plans. In addition, Township officials should visit proposed development sites early in the process to make certain that the information provided on plans is accurate and complete.

A second important enforcement step is to ensure that proposed disturbances to the site do not encroach into any protected areas. While this information is to be provided by the developer, verification that the minimum disturbance areas shown on the plan meet the requirements of the ordinance, needs to be established by the Township.

Once a plan has been approved and site work begins, the provision of required erosion and sedimentation controls, adherence to natural resource protection requirements, and non-disturbance of other protected natural resources will be monitored on a regular basis by the Township.

- **Adopt supplemental natural resource protection standards and improve existing requirements within a Natural Resources Protection Overlay District.**
Additional natural resource protection standards and updates to the existing requirements will be included in a Natural Resources Protection Overlay District within the Zoning Ordinance. The

Overlay District will include the following, among other natural resources identified for protection within this Chapter (floodplains, riparian buffers, wetlands, etc.):

A. Steep Slope Regulations - Steep slopes in New Garden have a direct relationship to erosion and sedimentation and stream quality. These slopes characteristically have shallow bedrock depths due to soil erosion and are therefore less suited for development. Steep slopes are protected only within the Cluster Development provisions of the Zoning Ordinance and then only slopes of greater than 20 percent. New Garden should review and update the steep slope regulations to include moderately steep slope (15 to 25% slope) and very steep slope (greater than 25% slope) standards, to include the restricting of development activities on very steep slopes. Moderately steep and very steep slopes should receive proper protection through appropriate zoning regulations to be developed and adopted by the Township.

B. Woodland and Other Vegetation Protection Standards - The current standards within this Overlay District would control woodland harvesting operations within New Garden, especially within riparian buffers and wetland margins, and on steep slopes; establish regulations for the harvesting of Specimen Vegetation; and contain requirements to ensure that trees remaining on site during the construction phase of a development are not damaged. Because many of the prime woodlands remaining in the Township are located adjacent to streams and wetlands, and on steep slopes, a woodland management plan (documenting actions and measures to be taken to: protect water quality; minimize impacts from skid trails and logging roads, land areas, and the tree removal process; and ensure site restoration) should be required. The natural resources protection standards will provide additional limitations on the disturbance of woodlands within those resources. In addition, New Garden has an extensive network of mature woodlands ("Specimen Vegetation") in the southern portion of the Township that contributes greatly to its quality of life. As part of the development review process, specimen trees should be identified and preserved from harvesting or disturbance. The woodland protection standards would not apply when trees are being cut in conformance with an approved woodland management plan.

- **Consider the creation of a Scenic Preservation Overlay District and Ridgeline Protection.**

New Garden should consider the creation and adoption of a Scenic Preservation Overlay District to be included in the Zoning Ordinance. The provisions of such an Overlay District will include important scenic roads or viewsheds from public rights-of-ways identified within this Plan and the Open Space Plan. Scenic views and vistas that can be seen at these viewpoints or along specific roads should be protected. Another consideration in scenic preservation is the view of ridgelines and the prevention of man-made intrusions above ridgelines.

Because natural areas are an intrinsic part of scenic views, the continued or expanded protection of natural resources such as woodlands, streams, riparian buffers, steep slopes, wetlands, and open space in general will also serve to protect the scenic qualities of the Township.

- **Control land development activity on soils with severe limitations.**

Soils with severe limitations that are prone to bedrock, wetness, poor drainage, steep slopes, low structural stability, and frost action (Development Suitability Classification 5, 6, and 7) should be thoroughly investigated by a PA registered engineer and soil scientist as part of a development application. Proposed development plans should clearly delineate the location of soils with Development Suitability Classification 5, 6, and 7. In addition, land development activity should be carefully planned around these same soils.

Natural Diversity

Providing connected high quality habitats that are large enough to sustain a variety of wildlife and plant species is needed to maintain natural diversity. The combined use of the recommendations outlined below would provide an effective means for protecting and even increasing the natural diversity of habitats in New Garden.

- **Protect and promote natural diversity by adopting and enforcing natural resource protection standards; discouraging the use of non-native plant species; and encouraging the use of development options or other methods that preserve large tracts of open space.**
 - A. Resource Protection Measures** - Natural diversity can be preserved and enhanced through an integrated program of protecting wetlands, riparian buffers, woodlands, hedgerows, steep slopes, and floodplains through the Natural Resource Protection Overlay District, discussed above. Cooperation with surrounding municipalities and adopting these protection measures at a regional level would provide even greater opportunities for habitat protection.
 - B. Use of Native Plant Species** - Invasive, non-native plant species currently pose a serious threat to the long term health and quality of woodland ecosystems that are being overrun by aggressive, introduced species. Because of their rapid growth, adaptability, ability to reproduce, and lack of natural control mechanisms, these species out-compete native species, resulting in a reduction of plant and wildlife diversity. The creation and use of a native/non-native plant species list in the Subdivision and Land Development Ordinance appendix should be strongly encouraged. The use of exotic, invasive plant species should be prohibited. New Garden should consider adopting native/non-native plant standards within the subdivision ordinance.
 - C. Preservation of Large Land Tracts** - New Garden has a number of developable parcels greater than 10 acres that fit the criteria for cluster style development; and numerous smaller undeveloped parcels that could be amalgamated to meet the 10 acre threshold. The Township should review current cluster design regulations in the Zoning Ordinance and update these as appropriate. Within cluster subdivisions, upwards of 50 percent of the parcel (usually the significant natural features) is preserved as open space and maintained in its natural state; this can help to preserve the integrity of the larger residential area(s) of the parcel. Lot averaging can also be beneficial, if at least some areas on the larger lots are maintained as contiguous meadows or woodlands rather than groomed lawns. The promotion of preservation easements, maintained by a local land trust and the addition of natural areas to the Township's passive recreation facilities will also serve to protect natural diversity and wildlife habitat.

Open Space Preservation

This section of the Plan focuses on open space preservation primarily from a natural resource and wildlife habitat protection perspective.

Open space can broadly be defined as any land that is not covered by buildings or pavement. From there, open space can be further categorized as being either “protected” or “unprotected”. Protected open space includes parcels that are owned by a non-profit land trust, privately owned parcels with conservation or agricultural easements, homeowner’s associations owned parcels designated as open space, or parcels owned by government entities that are largely undeveloped and used for parks, playgrounds, public gardens, and nature preserves. Unprotected open space is undeveloped land that is not rigorously protected from the possibility of future development.

One of the primary purposes of open space preservation is to identify methods by which Township land in the "unprotected" category can be elevated into the "protected" open space category. Obviously, development cannot be prohibited on all open land in New Garden; rather preservation efforts should be focused on parcels that will best meet the community's goals for natural resource protection and open space preservation. Related to this concept, a key discussion in this section and in **Chapter 13, Open Space and Recreation Plan**, is the creation of a connected and protected open space network within the Township and the region, using various open space preservation methods to protect the areas within the network. Opportunities for forest land and agricultural land preservation are another method of both preserving open space and preserving a traditional element of the New Garden economy. Finally, the protection of natural resources through the ordinance standards described within this Plan also serve to protect and create a network of open space.

- **Review and implement applicable recommendations of, "*Linking Landscapes: A Plan for the Protected Open Space Network in Chester County, Pennsylvania.*"**

Linking Landscapes (2002) serves as the open space element of the County's policy plan, *Landscapes*. The plan focuses on three major areas: a countywide inventory of open space features and a regional vision for the establishment of an open space network, a listing of actions that County government should initiate to coordinate open space protection efforts, and, most importantly for the purposes of this Plan, guidelines for municipalities who wish to pursue the protection of open space through their own initiatives or through partnerships with other entities.

There are several chapters in *Linking Landscapes* devoted more specifically to recreational needs and open space planning, this will be covered in more detail in **Chapter 13, Open Space and Recreation Plan**, of this Comprehensive Plan. New Garden should review the respective chapters of *Linking Landscapes* and the recommendations most relevant to Township needs and develop a course of action to implement each. In many cases these recommendations will supplement efforts by the Open Space Task Force and the Natural Lands Trust already underway in the Township.

- **Plan for and create public access to open space lands and waterbodies.**

Public access opportunities are those locations where people can obtain entry to and use of waterbodies and open space and scenic lands for recreational and leisure pursuits. The major surface waters in New Garden are White Clay Creek, Red Clay Creek, Broad Run, Egypt Run, Bucktoe Creek, Walnut Run, Trout Run, and tributaries to these creeks. There is no public access provided to these waterbodies. The Township should continue to pursue grant programs for the planning, acquisition, construction, and/or maintenance of public access points to White Clay Creek, Red Clay Creek, Broad Run, Egypt Run, Bucktoe Creek, Walnut Run, Trout Run, and tributaries to these creeks. Once public access is obtained, they will provide a unique outdoor experience to residents and visitors and contribute to the overall quality of life in New Garden.

Open space in New Garden is a mosaic of a wide variety of landscapes, generally devoid of buildings and structures, which serve a number of purposes. In some cases the open space results from established recreational activities, yards, meadows and fields, nurseries or other organized land uses. In other cases the open space results from woods, ponds or lakes, wetlands, steep slopes, streams, quarries or other naturally occurring features that do not lend themselves to building or development. The grouping of these areas, their spatial relationships, and the accessibility people have to them, helps to define the character of the Township. In order to obtain and secure access to these lands, the Township should work with landowners in the identification and achieving of public access and in developing a network of protected open spaces.

- **Protect scenic and aesthetic qualities of the White Clay and Red Clay Creeks Watersheds.**
New Garden contains portions of both the White Clay and Red Clay Creek watersheds (for additional watersheds planning information, see: Water Resources Plan, below). White Clay Creek and its tributaries are included in the federal Wild and Scenic River program. Beginning downstream, just south of the New Garden/London Britain border, White Clay Creek is part of the White Clay Creek Preserve, the only "preserve" in the Pennsylvania Bureau of State Parks. The White Clay Creek Watershed Association and the White Clay Creek Watershed Management Committee provide protection, education, and environmental enhancement concerning the watershed. Red Clay Creek is afforded the same amenities by the Red Clay Valley Association. New Garden should work with these and other organizations to preserve and protect these scenic and aesthetic resources. In order to maintain the aesthetic value of these corridors, the Township should adopt ordinance language to include the enhanced use of Best Management Practices (BMP's) and a Natural Resources Protection Overlay District to ensure that development does not degrade the watershed or the scenic and aesthetic qualities.
- **Update cluster development standards for the increased preservation of open space.**
Greater protection of natural resources and creativity in subdivision design can be achieved by encouraging design options, such as cluster development, within the Township's zoning ordinance. Standards for cluster style development are established within the zoning ordinance and provide a means of both preserving open space and allowing development to be directed away from sensitive natural resources on the parcel. Such standards can encourage the preservation of open space (typically 50 percent) and allow developers to design around interesting site features such as woodlands and steep slopes. In addition, a reduction in infrastructure costs can also be achieved and be a positive benefit. New Garden should review and update the cluster design standards in the zoning ordinance. Depending on the availability of public sewer (including community systems) and public water and the district in which the subdivision is located, upwards of 50 percent of meaningful open space can be required in exchange for allowing smaller building lots.

Agricultural Preservation

While agriculture is no longer the predominate land use in the Township, significant areas are still used for agricultural activities. Supporting the protection of these lands helps to achieve open space, wildlife habitat, and scenic preservation goals. For the most part, these farmlands are closed to the public and therefore serve a different purpose in overall Township preservation efforts. As with the protection of natural resources, agricultural preservation is best approached through a number of different strategies. Several of these strategies are accomplished through private efforts of the land owners and land preservation organizations. The following strategies will be considered in New Garden.

- **Control land development activity on Prime Agricultural Soils.**
The majority of the soils within New Garden are considered Prime Agricultural Soils (Class I, II, and III), approximately sixty percent of the total soils (6,260.6 acres of the Townships 10,423.7 total acres). These soils should be thoroughly investigated by a PA registered engineer and soil scientist as part of a development application. Proposed development plans should clearly delineate the location of Prime Agricultural Soils and land development activity should be carefully planned around these same soils.
- **Encourage public and private agricultural preservation initiatives in the Township.**
 - A. **Agricultural Security Areas** - Agricultural Security Areas (ASA) were enacted by Pennsylvania in 1981 through PA Act 43, with New Garden adopting its Agricultural Security Area on October

10, 1989. An ASA must consist of a minimum of 250 acres of productive farmland, which can be composed of any number of parcels that do not need to be contiguous. An ASA can only be established if one or more farmers request that an ASA be created and it fulfills the requirements of Act 43. Once an ASA is established, local governments cannot pass ordinances that unreasonably restrict farm practices or structures within the ASA. Agricultural activities cannot be defined as a public nuisance or prohibited within the ASA. Farms within the ASA are not protected from development and landowners can withdraw their property from the ASA at any time. However, for the purposes of an open space protection, an important benefit of being in the ASA is meeting one of the required eligibility criteria for the Agricultural Easement Program described above. The Township should continue to encourage and support participation in the ASA program.

- B. Agricultural Easements** - The Chester County Agricultural Easement Program is a competitive program whereby the development rights of farms are purchased and permanent agricultural easements are established. Participation in the program is voluntary. The program is overseen by the Chester County Agricultural Preservation Board and is administered in conjunction with the State Program. Farms applying to be in the program are evaluated using the Land Evaluation Site Assessment developed by the USDA. This system considers soil type, slope, and other features. Farms must also be located within an Agricultural Security Area. The program has proven so successful that in most years it is not possible to purchase the easements of all eligible participants. A local land trust, as well as local conservancies, can provide another mechanism for the establishment of preservation easements on agricultural properties. The Township should contact large parcel owners to make them aware of available preservation options and to determine their potential interest in the easement program.
- C. Regulatory Approaches** - The Township can put land use regulations in place that provide options for agricultural preservation. Two of these options include the transfer of development rights (TDR) and cluster style development. The enactment of a TDR program and improvements to the cluster development option should be considered.
- D. Accessory Farm Uses** - The Township can encourage Agricultural Preservation by allowing accessory economic development opportunities for farms, such as: bed and breakfast, an eco-tourism working farm, farm produce stand/market, dairy bar, education center, or equipment repair shop. The Township should review and consider standards for the accessory use of such opportunities, as appropriate.
- E. Other Agricultural Preservation Initiatives** - There are a number of state and federal programs that can be used by farmers to protect or more economically maintain their property. Enrollment in PA Acts 319 and 515 allows land to be assessed and taxed by the County at its open space or agricultural use value, rather than at its potential development value. Act 319 is the most actively used of the two programs, with more than 189,400 acres currently enrolled in the County. Land in these programs is not restricted to agricultural uses; forest, water supply, and open space uses may also qualify, depending on the program. The Township should make available information to landowners about these tax-relief programs.
- **Consider implementing and promoting a Transfer of Development Rights (TDR) program.**
A TDR program, implemented through the zoning ordinance, is a voluntary program for guiding development. The TDR program directs growth to preferred locations in New Garden through the sale and purchase of development rights. Parcels targeted for preservation become the “sending areas” for which development rights are sold, and those parcels designated as appropriate for growth are the “receiving areas”. The owners of the sending parcels can sell their development rights in

exchange for a permanent protection easement to owners of the receiving parcels who are provided with a development density bonus. This density bonus provides the incentive to purchase the development rights. The TDR option offers one of the most equitable systems for preserving open space and significant natural resources by compensating the owner of the preserved land, while guiding the growth towards development centers. The price of the development rights is determined by a willing buyer and a willing seller under fair market conditions.

The establishment and success of the TDR program would require some commitment of time and effort on the part of the Township. It should also be noted that the Township can acquire development rights and either retire the rights or sell them to a willing buyer in established receiving areas. This option is useful if an important piece of land is available for sale and there are no immediate buyers for the development rights. Where the Township wishes to purchase such easements, consideration must be given to how such purchases would be funded. The local land trust can also act as a bank for the purchased development rights.

Consideration should also be given to the possibility of establishing a regional TDR program. Recent amendments to the Municipalities Planning Code (Acts 67 and 68) allow, under certain conditions, the transfer of development rights across municipal borders from rural resource areas to designated growth areas. Conditions that must be in place before this regional option can be implemented include the adoption of a multi-municipal plan, such as the *Kennett Area Regional Comprehensive Plan, 2000* adopted by the Kennett Area Regional Planning Commission (KARPC). New Garden is a member of KARPC, however, the Township chose not to participate in the regional planning effort. Conformance with the multi-municipal plan is achieved through the implementation of cooperative agreements and adopting the appropriate resolutions and ordinance revisions at the local level. The ability to transfer development rights across municipal borders provides a wider range of options for designating appropriate sending and receiving areas at a regional level.

Water Resources Plan

The planning and management of surface and ground water resources is most effectively carried on at the watershed level. New Garden lies within four major drainage basins: the White Clay Creek Basin and Red Clay Creek Basin, which flow into the Christina River Basin, which is part of the Delaware Bay Basin. The protection of the water resources associated with these watersheds is essential in addressing water quality and quantity.

The protection and preservation of the following components is essential in promoting the stability of the White Clay and Red Clay watersheds.

- **Work to implement the applicable recommended actions of *Watersheds*.**

The Chester County Water Resources Authority (WRA) adopted *Watersheds*, the water resources management planning element of *Landscapes* the Chester County Policy Plan, in 2002. According to the WRA, *Watersheds* will provide the County, its municipalities, utilities, and stakeholders with technically sound policies, strategies, approaches, and implementation techniques to achieve the goals of the Plan. These goals include the protection of the hydrogeologic systems of all Chester County watersheds, guiding the locations and expansion of water and wastewater infrastructure, managing stormwater from existing and future land uses, protection of groundwater and stream quality, and encouraging the implementation of integrated resources planning by municipalities. New Garden should consider implementation of recommended actions applicable at the municipal level. Regional level implementation actions should also be considered by the Central Chester County Regional Planning Commission.

Goals and Objectives for the White Clay and Red Clay Creek Watersheds.

Another valuable source of watershed information available to New Garden is the *White Clay Creek Watershed Action Plan*, and the *Red Clay Creek Action Plan*, both December 2002. Watershed Action Plans were prepared for each of the fifteen largest watersheds in Chester County as part of the *Watersheds* planning process. The White and Red Clay Creek plans present all of the key data, results, GIS maps, management needs, priorities, and recommendations that were developed and published in the *Chester County, PA Water Resources Compendium*, December 2001. A hardcopy of both Action Plans was provided to the Township and additional copies can be downloaded from the Chester County Water Resources Authority website at www.ccwra.com. Because New Garden is located within both watersheds, these publications may prove particularly useful for the Township's water resource planning efforts.

Sections 4 and 5 of the Action Plans summarize the watershed management needs, priorities, goals, and actions identified for the White Clay and Red Clay Creek watersheds. While these watersheds have benefited from the stewardship of many individuals and entities, there is still much to be done. It was therefore necessary to establish priorities to help guide efforts to the most important problems and in a way that would provide the greatest overall benefits within the limits of the financial and human resources available. The overall goals for watershed management of the White Clay Creek and Red Clay Creek watersheds are:

Overall Goals for the Watersheds

1. Engage and educate individuals, communities and governments in watershed stewardship.
2. Enhance recreational and cultural resources.
3. Preserve natural resources.
4. Improve water quality.
5. Reduce stormwater runoff and flooding.
6. Protect watershed water balances.
7. Integrate utility and municipal planning to meet future water supply and wastewater needs.

Management Objectives for the Watersheds

To assist in focusing stewardship and restoration efforts within the framework of these goals, the following priority management objectives were developed for the White Clay Creek and Red Clay Creek watersheds:

1. Reduce stormwater runoff and flooding throughout the watershed.
2. Restore water quality of "impaired" streams and protect unimpaired streams from further degradation.
3. Protect and enhance vegetated riparian corridors, particularly for first order streams.
4. Protect first order streams.
5. Increase public access to and recreational uses of streams.
6. Undertake Integrated Water Resources Planning for growth areas to guide water supply and wastewater to meet future needs.
7. (White Clay Creek Only) Implement other source water protection measures for the water supply intake and wells.
8. (White Clay Creek Only) Protect and enhance historic and cultural resources.

Priority Actions for the Watersheds

Achieving the management objectives will require implementation of several types of actions on the part of the Township. Many of these actions will contribute to more than **one management objective**. Most of these actions are addressed within this Natural Resources Plan, **with several of the actions** being focused on in other chapters of this Comprehensive Plan. **Implementation of these actions is a** long-term, but highly worthwhile undertaking for the Township in order to preserve, protect, and enhance water resources. It is recommended that this effort be undertaken by a joint committee of the Township Supervisors and Planning Commission (and possibly representatives from the various watersheds groups) to determine which actions are applicable in New Garden, the priority for the listed actions, and how the strategies can best be implemented.

- **Adopt more stringent stormwater management regulations that meet federal guidelines.**
Watersheds identified stormwater management as a major concern for Chester County and the White Clay and Red Clay watersheds. The effects of uncontrolled stormwater can lead to flooding and property damage, cause the loss of valuable topsoil, create serious sediment problems, and strain local infrastructure. Stormwater management must be addressed on a local and a regional level to provide effective control. New Garden should review the policies and objectives contained in *Watersheds* and develop a comprehensive program that will address the water quality needs within the Township and watersheds. As part of the those water quality needs, stormwater management will be a vital element of the natural resources protection program. New Garden should also review its current stormwater regulations and adopt more stringent stormwater management regulations within the subdivision and land development ordinance that meet the federal National Pollutant Discharge Elimination System (NPDES) Phase II guidelines. This effort will include the use of Best Management Practices (BMPs) to minimize the disturbance of natural areas, increase infiltration, and collect, retain, and/or detain stormwater.
- **Proactively seek methods to improve regulation and monitoring of runoff/groundwater contamination by mushroom industry uses and coordination between the Township and agencies associated with this issue.**
The Township should seek for improvements in **communication between agencies related to the** permitting and regulation of the mushroom industry. **Notice of and/or review of improvements to** properties with management plans by the Township **is one example**. Greater **involvement in the** permitting process should be sought as well as in the **continued monitoring of managed properties**. The Township should coordinate with the State, County, appropriate agencies, and other municipalities where the mushroom industry predominates, to continue improvements to the regulation, permitting, and management of this use. While the Township wishes to support the continuance of the mushroom industry as an important economic and cultural aspect of the Township, ensuring groundwater quality and appropriate regulation of the industry is a priority that must be accomplished.

Headwaters Protection

Headwater areas are sensitive environmental features and key components in the stability of a stream corridor. In addition, they contribute to the overall health of the ecosystem, promoting natural diversity by providing wildlife habitat. The stability of headwater areas directly impacts the quality of water and quantity of water that will flow as first order streams within the watershed.

- **Adopt water resource protection standards for headwaters.**
New Garden contains the headwaters of several streams. Headwaters are the first line of defense in the protection of stream corridors and are highly susceptible to contamination through earth

disturbance and development. Headwater areas in the Township can be protected by applying the protection measures within a Natural Resource Protection Overlay District (see below) associated with floodplains, riparian buffers, and wetlands in the zoning ordinance. Where headwaters do not fall within the boundaries of floodplains, riparian buffers, or more commonly wetlands, setback requirements and disturbance standards specific to the resource should be applied. New Garden should adopt regulations as part of the Natural Resources Protection Overlay District to protect its headwaters. In addition, inclusion of the boundaries of headwaters will be required in a Conservation Plan required by the Subdivision and Land Development Ordinance.

Floodplain Protection

Floodplains are a primary natural resource that impacts the health and stability of its associated stream corridor and watershed. The floodplain represents the area in which the 100-year flood will inundate and also represents a distinct ecosystem that promotes natural diversity. In addition, floodplains are a possible connection between areas of open space or passive recreation. The boundaries of the 100-year floodplain have been established by the Federal Emergency Management Agency (FEMA). As defined by FEMA, a floodplain is comprised of two zones: the floodway and the flood fringe. The floodway is located adjacent to the stream on either side and, by FEMA standards, must be reserved to carry the base floodwaters without increasing the base flood elevation more than one foot. This area will, therefore, be designated to preclude disturbance. The flood fringe is the outermost zone of the floodplain and therefore will be less restrictive in terms of potential uses.

- **Review and update the floodplain regulations.**

Floodplains are protected throughout New Garden and development within the floodplains should continue to be restricted so as not to inhibit natural functions that include retaining/detaining flood waters, recharging groundwater, and providing wildlife habitat. Portions of the floodplain in the Township, most notably in the Landenberg area, were developed dating back to the early days when industrial activities required close proximity to water sources. Future intensive uses, as well as, the construction of additional impervious surfaces within the floodplain area, should be prohibited. Floodplains should only be used for passive recreation activities or temporary uses.

Floodplains are evident throughout New Garden and must be afforded continued and more thorough protection. The Township should review and adopt more up-to-date and comprehensive standards for the protection of these natural resources as part of the Natural Resources Protection Overlay District in the Zoning Ordinance. To preclude any disturbance of floodplains, the regulations within the Zoning Ordinance will be reviewed and amended to include provisions to "net-out" floodplain areas in development proposals. The extent of the floodplain area would, therefore, be taken out of the density calculation and the permitted uses would be restricted to the following:

Floodway Uses - Disturbance would be prohibited in this area.

Flood Fringe Uses - Although it is recommended that disturbance be prohibited in this area as well, the flood fringe may be developed if the permitted uses are extensively elevated or flood-proofed.

Riparian Buffer Protection

A riparian buffer is a vegetated area of land adjacent to a pond, lake, stream, creek, river, marsh, wetland, or shoreline. The condition of the buffer directly impacts the quality of water that flows into and through the associated stream corridor and therefore the stability of the associated watershed. The use of riparian buffers is one of the most effective techniques for the protection of surface water and wildlife habitats.

By protecting these buffers of trees, shrubs, and other vegetation (the root systems of the vegetation intercept polluted and sediment-laden stormwater before it reaches the water body), the White Clay and Red Clay Creeks watersheds can be protected from the impacts of human activities and development.

- **Adopt water resource protection standards for riparian buffers.**

The New Garden Zoning Ordinance does not contain regulations for riparian buffers. Riparian buffer standards will be drafted and implemented through the Natural Resource Protection Overlay District in the Zoning Ordinance. The standards will limit or prohibit disturbance within a specified distance from the stream. The regulations may divide the riparian buffer into more than one zone, with the most stringent requirements applied to the zone closest to the stream (Zone 1). Zone 1 is commonly identified by undisturbed forest of the first 15-35 feet from the banks of the stream. This zone should remain as a natural undisturbed forest. The actual depth of Zone 1 depends upon the limits of the associated floodplain. Zone 2 should extend between another 50-65 feet beyond Zone 1. Typically, a protection area is 100 feet on either side of the stream. The actual depth of Zone 2 depends upon the ability of the Zone to filter sediment before it reaches the surface water. This zone serves as a filtering area for nutrients and sediment. At a minimum, the standards mandated by the US Department of Interior-Fish and Wildlife Service for setbacks from wetlands and endangered species should be implemented.

Wetlands Protection

Like floodplains, wetlands are a key natural resource in maintaining the health and stability of the associated watershed. In addition to their role for infiltration of surface water to ground water, they also supply habitat to wildlife and therefore promote natural diversity. They also play an integral part in the stability of headwater areas. Although construction in wetlands is regulated at both the state and federal level, unless a mechanism is in place to ensure those agencies are contacted as required, wetlands can be damaged or lost altogether during the development process. Wetlands and other primary resources should be included in a Conservation Plan required by the Subdivision and Land Development Ordinance. Site specific wetland studies are the only clear method to completely determine the entire extent of wetlands in New Garden.

- **Adopt water resource protection standards for wetlands, wetland margins, and hydric soils.**

According to the National Wetlands Inventory maps covering New Garden, potential wetlands are fairly well scattered throughout the Township, but generally are located next to or in close proximity to surface water resources. The Township's Zoning Ordinance does not protect either wetlands or wetland margins from disturbance. The Subdivision and Land Development Ordinances provides for the identification of the wetlands on plans, however there are no protection standards for wetlands and wetland margins from disturbance activities. Wetlands and wetland margins should be preserved and protected due to the important functions they provide. The Zoning and the Subdivision and Land Development Ordinances will be amended to provide for the identification and protection of wetlands and wetland margin soils from disturbance activities. The wetland margin is defined as the transitional area extending from the outer limit of the wetland. Protection of the wetland margin provides an important buffer between the wetlands and potential development. Wetlands are protected under Section 404 of the Clean Water Act of 1977 and regulated by the US Army Corps of Engineers and the Pennsylvania Department of Environmental Protection. A permit is required to disturb any portion of a wetland. Prior to proposed development, a detailed site analysis will need to be conducted to verify wetlands on sites preliminarily identified by the National Wetlands Inventory. Either of these agencies may require mitigation, which may include siting development to protect the wetlands, reducing the size of the development to insure protection, or relocating the wetlands.

There are several areas of hydric soils in New Garden. Hydric or wet soils are very poorly drained, typically found within floodplains and wetlands, and generally have seasonally high water tables with the upper portion of the "zone of saturation" within 20 inches of the ground surface for at least a portion of the year. Hydric soils are often associated with headwater areas and are located in low-lying areas, at the fringes of floodplains, and sometimes in upland depressions. These soils have occasional standing water, a shallow depth to the underground water table, or both. When detailed wetlands mapping is unavailable, hydric soils serve as an indicator of where wetlands are likely to be located. The Township's Zoning Ordinance currently does not protect hydric soils from disturbance. However, there is a list of Hydric Soils in an Appendix. The Zoning and the Subdivision and Land Development Ordinances will be amended to provide for the identification and protection of hydric soils from disturbance activities.

Wetlands, wetland margins, and hydric soils can be protected through the recommendations discussed above. In addition, to further prevent any disturbance of these resources, the Zoning Ordinance will be reviewed and amended to include provisions to "net-out" wetlands, wetland margins, and hydric soils in development proposals. The extent of these areas would, therefore, be taken out of the density calculation and any permitted uses would be restricted.

Groundwater Protection

One of the foremost goals of watershed protection is to protect the quality and quantity of the groundwater flowing into, through, and out of New Garden. Groundwater is a resource that is directly impacted by the health of the watersheds and water-related resources such as headwaters, floodplains, riparian buffers, and wetlands. The preservation and protection of these resources (as discussed above) directly impacts the quality and quantity of groundwater within a given watershed.

- **Adopt other water resource protection standards.**

In addition to the protection of surface waters (headwater areas, floodplains, riparian buffers, and wetlands discussed above), there are additional ordinance provisions that should be implemented by New Garden to protect the quality and quantity of ground water resources in the watersheds. These include the establishment of infiltration stormwater management facilities and a reduction in permitted impervious surface percentages, as discussed below:

- A. Best Management Practices.**

Stormwater best management practices (BMPs) establish a preference for infiltration facilities. Rather than planning for the 100-year storm that is rare and almost impossible to address, BMPs promote the inclusion of infiltration facilities that accommodate the two or five-year storm event and facilitate the recharge of stormwater to groundwater. BMPs discourage the use of large pipe and basin systems that have a greater impact on the character of a development or community. A hierarchy is established that promotes the use of filtration facilities while discouraging the use of pipe and basin facilities by requiring proof that filtration facilities are not applicable. The use of BMPs should be reviewed and implemented in the New Garden Subdivision and Land Development Ordinance.

- B. Reduction in Impervious Surfaces.**

Impervious refers to areas or structures that restrict the infiltration of stormwater. For example, an asphalt driveway restricts the filtration of stormwater into the ground promoting additional run-off while an adjacent forest area slows stormwater runoff while accommodating filtration to groundwater. The Township should consider adopting infiltration strategies such as pervious parking surfaces and reserve parking areas into land use ordinances. The Township's Zoning Ordinance should be reviewed and amended, as needed, to reduce the amount of impervious surfaces while increasing the amount of filtration area.

C. Wellhead Protection.

New Garden should adopt wellhead protection standards for the areas surrounding existing and potential public water supply well(s). The first step in implementing such an Ordinance is the identification all existing and potential public water supply wells. Next, wellhead protection zones are established around each public well. The delineation of the protection zones requires the assistance of a professional hydrogeologist or engineer. The location of these zones is based on the area that contributes water directly to the well.

D. Groundwater Withdrawal.

Pennsylvania does not currently have statutory authority to regulate groundwater withdrawals, except within the framework of review and permitting sources of public water supplies. The New Garden Subdivision and Land Development Ordinance should be amended to require a statement of well water withdrawal impacts for large developments. The purpose of the statement, is to evaluate the proposed development's impact on groundwater resources and evaluate whether adequate potable water will be available to service the proposed development, without negatively impacting adjacent uses dependent on the same water source. The Subdivision Ordinance would outline in detail the information to be provided with the impact statement. In addition, the Township should consider the adoption of a Well Drillers Ordinance, which would regulate the procedures, locations, and construction of wells within New Garden, and may contain application procedures, design standards and specifications, flow requirements, well certification requirements, and permit procedures.

Red Clay Groundwater Model - The Brandywine Valley Association (BVA) and Red Clay Valley Association have developed a user-friendly computer model that can be used to simulate the impact of proposed development on groundwater within the Red Clay Creek Basin. A particularly useful application of the model would be in the early planning stages of a subdivision or land development proposal when it can be used to assess the optimum locations for groundwater withdrawals, wastewater recharging, and for stormwater control basins on the site. New Garden should discuss the use of this groundwater model with BVA, including the type and size of development to which it should be applied. The Township can then determine how to best incorporate the use of the model into the subdivision and land development review process.

- **Adopt groundwater protection standards for areas underlain by carbonate geology.**

As noted in **Chapter 4, Natural Resources Inventory** and on **Map 4-1**, areas of the Township are underlain by Cockeysville Marble. This type of carbonate geology is susceptible to contamination because of its porosity and the potential for the formation of underground solution channels. The Township should adopt a special groundwater protection zoning overlay district for these areas. Such ordinance provisions would regulate uses or actions that might pose potential threats to groundwater quality in these areas and establish a set of environmental performance standards. The ordinance would require developers to take reasonable actions to minimize the risk of contamination to ground and surface waters within the areas underlain by Cockeysville Marble. Also, the use of public water and sewer should be encouraged in these areas to further minimize problems associated with this type of geology.

Regional Natural Resource Protection and Educational Efforts

Because many natural resources cross municipal borders, addressing them at a regional scale can provide a more effective approach to their protection. The recommendations below consider how regional protection efforts could be accomplished.

- **Work with the Kennett Area Regional Planning Commission municipalities on addressing regional natural resource issues.**

New Garden is a member of the Kennett Area Regional Planning Commission (KARPC). Many of the efforts this regional planning group sought to undertake were related to natural resource protection, including water resources, biotic resources, scenic resources, stormwater management, and wastewater facilities. The KARPC's most important effort was *The Kennett Area Regional Comprehensive Plan, 2000*, applicable principles of which have been incorporated into this Plan. Such regional efforts can be the most effective approach to addressing protection of the many natural resources that cross municipal borders. New Garden should continue to work with and participate in the KARPC and strive to implement the recommendations of the *Regional Comprehensive Plan*.

- **Work toward enacting consistent natural resource protection measures at the regional level.**

New Garden should work in cooperation with surrounding municipalities to enact consistent and effective natural resource protection standards throughout the region. For instance, consistent stormwater management standards (NPDES Phase II) are an important element of such an effort and all members of the Kennett Area Regional Planning Commission (KARPC), and the White Clay and Red Clay Creeks watersheds, should be encouraged to update and improve their stormwater management requirements. In addition, consistent standards for steep slopes, wetlands, woodlands, riparian buffers, and other resources throughout the region would provide a more comprehensive approach to protecting these valuable resources. A majority of the municipalities in the KARPC have adopted a full range of consistent natural resource protection standards. The Township should take advantage of this effort and consult the KARPC for information in order to add consistent regulations into the Township Ordinance.

- **Work with the White Clay and Red Clay Creeks watershed communities and associations to establish a greenway and trail system within the watersheds.**

The White Clay and Red Clay Creeks watersheds and their floodplain lands provide a valuable source of open space for passive recreational pursuits. Keeping these creek corridors open for passive recreational use would preserve one of the most important features of New Garden's (and the region's) natural beauty, insure that development would not take place in areas which are unsuitable for building, establish important connections with the Mason-Dixon Trail system, and enable residents to take full recreational advantage of the Township's unique natural assets.

London Grove, Avondale, and West Grove are working on a series of trails and on-road bike routes that would create a closed loop connecting the two boroughs with a loop extending through southern London Grove. If an additional trail segment was made through New Garden (going up the East Branch of White Clay Creek), this trail would link New Garden with Avondale, West Grove, and the White Clay Preserve with links to the many trails in Northern Delaware.

New Garden should work with the municipalities within the watershed, preferably through the KARPC, to link existing and potential parks, open space areas, and trails so that they create a system of greenways and trails along the White Clay and Red Clay Creeks and their tributaries.

- **Facilitate resident education on natural resource protection issues.**

Landowners can benefit from learning about the importance of protecting natural resources and what they can do on an individual basis to protect water and land resources. Information on such topics as the importance of protecting vegetation along stream banks (riparian buffers), woodland management, control of non-native plant species could be covered in the New Garden newsletter. Contacts where residents can obtain additional information on various subjects from county, state, and federal agencies should also be made available at the Township Office and on the website. State natural resource programs may prove valuable to Township residents. For example, the Forest Stewardship

Program directed by the PaDCNR-Bureau of Forestry assists forest landowners with better management of their forest lands.

Conclusion

The protection of natural resources will play an important role in preserving what many residents view as the Township's most attractive qualities. There is a wide variety of implementation actions that can be undertaken ranging from ordinance amendments and regional planning initiatives, to private preservation efforts. The most effective natural resource protection strategy will be one that incorporates as many techniques as possible into an integrated approach to preservation.

References

Community Planning Handbook: A Toolbox for Managing Change in Chester County, Vol. I and II. Chester County Planning Commission, West Chester, PA, 1997 and 1999.

The Kennett Area Regional Comprehensive Plan, Kennett Area Regional Planning Commission, 2000.

New Garden Township Act 537 Plan Update, Volumes 1, 2, and 3, Government Specialists, Inc., 59 South Third Street, P.O. Box 336, Oxford, Pennsylvania 19363, 1996.

Open Space, Recreation, and Environmental Resources Plan, New Garden Township, Government Specialists, Inc., 59 South Third Street, P.O. Box 336, Oxford, Pennsylvania 19363, 1993.

Landscapes :Managing Change in Chester County 1996-2020, Chester County Planning Commission, West Chester, PA, 1996.

Linking Landscapes: A Plan for the Protected Open Space Network in Chester County, Pennsylvania, Chester County Planning Commission, West Chester, PA, 2002.

Watersheds: An Integrated Water Resources Management Plan for Chester County, Pennsylvania and Its Watersheds, Chester County Water Resources Authority, West Chester, PA, 2002.

Planning Bulletin #51: Native Plants in the Chester County Landscape, Chester County Planning Commission, West Chester, PA.

Taking Control of Your Land: A Land Stewardship Guidebook for Landowners, Chester County Planning Commission, West Chester, PA, August 2000.

Tool #10, Transferable Development Rights, Community Planning Handbook, Volume I, Chester County Planning Commission, West Chester, PA. 1997

Tool #4, Open Space and Cluster Developments, Community Planning Handbook, Volume I, Chester County Planning Commission, West Chester, PA. 1997

Tool #29, Lot Averaging, Community Planning Handbook, Volume I, Chester County Planning Commission, West Chester, PA, 1997.

Resources

Federal

US Environmental Protection Agency (<http://www.epa.gov/>)
US Environmental Protection Agency - Region 3 (<http://www.epa.gov/region03/>)
US Fish and Wildlife Service (<http://www.fws.gov/>)

State

Pennsylvania Department of Environmental Protection (<http://www.dep.state.pa.us/>)
Pennsylvania Department of Conservation and Natural Resources (<http://www.dcnr.state.pa.us/>)
Pennsylvania Natural Areas Program (PNDI) (<http://www.dcnr.state.pa.us/forestry/pndi/pndiweb.htm>)

County

Chester County Government (<http://www.chesco.org/home.html>)
Chester County Planning Commission (*Landscapes and Linking Landscapes*) (<http://www.chesco.org/planning/>)
Chester County Conservation District (<http://www.chesco.org/conservation/>)
Chester County Health Department (<http://www.chesco.org/health/>)
Chester County Department of Parks and Recreation (<http://www.chesco.org/ccparks/index.html>)
Chester County Water Resources Authority (*Watersheds*) (<http://www.chesco.org/water/index.html>)

Local

New Garden Township (<http://www.newgarden.org/>)

Other

White Clay Creek Watershed Association (<http://mercury.ccil.org/~wccwa/>)
White Clay Creek Watershed Management Committee (http://mercury.ccil.org/~wcc_ws/)
Red Clay Valley Association (<http://www.redclayvalley.org/>)
Delaware River Basin Commission (<http://www.state.nj.us/drbc/drbc.htm>)
Christina Basin Water Quality Management Strategy (<http://www.wr.udel.edu/cb/>)
Pennsylvania Rural Water Association (<http://www.prwa.com/v1/index.htm>)
Brandywine Conservancy (<http://www.brandywineconservancy.org>)
Natural Lands Trust (<http://www.natlands.org/>)
The Nature Conservancy (<http://nature.org/>)
Brandywine Valley Association (<http://www.brandywinewatershed.org/>)

Chapter 13

Open Space and Recreation Plan

New Garden Township has expressed the desire to retain the remaining rural character and open spaces of the community. Prior plans have maintained this objective and provided strategies to retain open space and increase recreational opportunities in the Township. The primary direction for such efforts has been the 1993 *New Garden Township Open Space, Recreation, and Environmental Resources Plan* (Open Space Plan). A number of the recommendations, such as the development of the Township Park, have been completed. Additional tasks such as the development of a protected greenway trail along the White Clay Creek have begun but need further direction and effort.

Protection of open space has become the priority for New Garden Township. Major recommendations in regard to the preservation of both public and private open space and natural resources are discussed in **Chapter 12, Natural Resources Protection Plan** and protection is supported by the goals and objectives in **Chapter 9**. The survey conducted for this Comprehensive Plan revealed that, along with curbing rapid residential development, open space preservation was the most important planning issue in the Township. There have not been significant additions to recreational opportunities for Township residents, aside from the development of the Township Park.

This Chapter provides strategies for the identification and protection of open space and general recommendations for recreational lands within the Township as a supplement to the 1993 Open Space Plan. Many of the goals and objectives and some of the information and recommendations from the 1993 Open Space Plan remain relevant. However, since that time there have been significant changes to the population of the Township and that document focused primarily on the protection of natural resources and planning of recreational facilities in terms of services and numbers of ball fields. While this is important, the purpose of this Plan is to develop strategies for the identification, prioritization, and protection of the remaining open lands within the Township, as well as for potential additional parklands. This Plan is not intended to address specific recreational opportunities such as individual volleyball courts. Several important developments have occurred that make it necessary to update policies and recommendations of the Open Space Plan. The planned adoption of progressive zoning amendments to protect open space and natural resources; the continuance of the agricultural preservation easement program; the adoption of *Landscapes*, the Chester County Comprehensive Plan; the establishment of the County Vision Partnership Program to aid Townships; and the completion of the Chester County Open Space Plan element *Linking Landscapes*; have all had impacts on open space and environmental resources in New Garden Township. Some references, concepts, and data from *Linking Landscapes* have been incorporated into this Chapter, as this information is important in aiding the Township to secure future grants.

Connected Open Space

Open space isolation is a concern in New Garden, because individual open spaces cannot function properly. For example, an open space that is designated as a wildlife preserve promotes the health and well being of the plants and animals that live within it. But if a nature preserve becomes surrounded by development, the animals will become isolated. Such isolation promotes inbreeding, and if a drought or disease should strike, the animals will have no place to flee. Isolation of tracts of open space also contributes to animals, such as deer wandering along roadways and through residential areas due to lack of natural connections between open spaces. For this reason it is necessary for open spaces that promote wildlife to be linked together. Without such links open spaces cannot function optimally.

Open spaces set aside for human recreation are also negatively impacted by isolation. Parks and playgrounds that are isolated are more difficult to access and are less likely to be used. A playground that can only be reached by automobile is less likely to be used during working hours. Playgrounds that can be reached by a walking path that connects it to a residential neighborhood is more likely to attract children, the elderly, or young parents with baby strollers, who can visit the facility all through the day. A playground that is used throughout the day is a more efficient use of public funding. It is also less likely to be vandalized or used for other criminal activity. Linking recreational open spaces through pedestrian trails can therefore improve the safety, quality, and cost effectiveness of public parks.

Viewing Protected Open Space as Public Infrastructure

For many residents the term “public infrastructure” conjures up images of electric high-tension lines, sewage treatment plants, or other man-made structures associated with a utility. “Infrastructure” is not a word people often associate with protecting open spaces, but it is quite appropriate. Unlike utility infrastructure, a protected open space network does not include poles or buildings. Instead it is composed of meadows, forests, stream corridors, parklands, and protected farm fields each of which provides benefits to the community as a whole. The public infrastructure of a protected open space becomes a connected series of naturally occurring resources that contribute to the quality of life for township residents by protecting natural areas and places for recreation.

The Township should begin viewing the open space network as a public infrastructure built up incrementally over time by a variety of independent groups all working with a common goal. Parts of the network, like large parks and wildlife preserves, may be best established by federal, state, or county agencies. The Township can establish recreational parks and local trails, or non-recreational natural resource preserves. Schools, local conservation groups, or neighborhood associations can implement smaller projects and make their facilities available to the public. Even corporations and residents can get involved by creating and managing trails or wildlife corridors in corporate campuses or on private property that link into other nearby facilities.

Benefits of Open Space/Terminology

New Garden should recognize the benefits of open space in three key areas. It improves the overall quality of life, improves the ecology, and provides tangible economic benefits. An important aspect of open space is that there is no one set definition for it. The general term “open space” is defined very broadly as any land that is not covered by buildings or pavement. This definition covers all forms of open space from a multi-acre state game land to a ten-foot wide public walking path around the edge of an industrial park. A variety of terms are used to describe different types of open space. These definitions are important because each of the three sections, open space, recreation, and environmental resources, could all conceivably be covered by the broad title of “open space” because they are all interrelated. Furthermore, it is important that each of these is clearly defined in order to plan for each of these “types” of open spaces appropriately and to reduce confusion during discussion of these topics. For the purposes of discussion in this Plan, the following terms will be used throughout the remainder of this Chapter:

- “Active open space” refers to recreation areas like playgrounds or sports fields.
- “Passive open space” refers to land set aside for natural conservation or wildlife preserves.
- “Public open space” is commonly used to describe areas owned or administered by a government or other public agency.
- “Private open space” denotes private property, which is not available for public use.
- “Quasi-public space” is used when discussing properties such as school campuses or nature centers, which do not fit nicely into either of the other categories.

Methodology

In order to provide a method of discussion, recommendations, and clarification for each of these categories within this Plan, open space will be considered as lands permanently protected by land trusts, cluster developments, and conservation or agricultural easements. Recreation will cover primarily active recreational areas, and environmental resources will refer to resources protected by the Township zoning ordinance such as steep slopes and floodplains. There will be some cross referencing between the categories to help explain the overlap of these resources. Several recommendations in this Chapter are similar to those in **Chapter 12**, however a slightly different viewpoint is expressed to relate these recommendations to the larger open space framework.

The recommendations of this Chapter are organized into the following major headings:

- Protected Open Space Resources
- Recreation/Trails
- Environmental Resources
- General Recommendations

Protected Open Space Resources

New Garden began efforts to further the protection of open space by creating the the Township Open Space Task Force to generate preservation strategies. Additionally, the Township continues to work with organizations, such as Chester County, land trusts, and consultants, to protect additional lands. The protection of open space through cluster developments is a strategy that the Township continues to perfect. The Township has an agriculture security area and there are two farms that have been protected by agricultural easements. There are several utilities that traverse the Township that provide the opportunity for additional open space protection and connections. The open spaces discussed in this section are considered “protected” open spaces primarily due to either the ownership or easement of these parcels or portions of parcels. These open spaces are not recreational in nature, and in most cases are not intended for public access. The parks covered in the recreation section, are a form of public open space that address the overall recreation and public access goals of this Plan.

The concept of “greenways” is an additional strategy for preserving and connecting open space resources in New Garden. A greenway is loosely defined as any linear open space. In June 2001, *Pennsylvania Greenways: An Action Plan for Creating Connections*, was published by the Pennsylvania Greenways Partnership Commission, and is chaired by the secretaries of the Pennsylvania DCNR and the Department of Transportation. In this document, “greenways” were defined as narrow to wide corridors used for recreational or environmental protection. The Action Plan called for the establishment of a network of greenways on public and private properties that connect “Pennsylvania’s open space, natural landscape features, scenic, cultural, historic and recreation sites, and urban and rural communities.” The Action Plan also recommends that all of the Commonwealth’s 67 counties complete and adopt a Greenway Plan by 2007. *Linking Landscapes* serves as Chester County’s Greenway Plan.

The following recommendations address the preservation of open space, as defined for this Chapter, and in conjunction with the resource protection recommendations in **Chapter 12**:

- **Develop a strategic plan for evaluating and making determinations on the preservation of available open space parcels.**
The first step in creating a protected open space network is identifying those areas that may be included in the network. These areas would include both concentrated areas of open space, such as parks or future park areas and nature preserves, and the corridors that might be used to link the larger

open space areas. Not all of the open spaces will serve the same purpose or should be located near each other. For example, active recreational uses, such as a playground, should not be located next to a sanctuary for migratory birds. In some cases the links might be wildlife corridors, where minimal or no disturbance is desirable and, in other cases, the links might be part of a trail network.

The Township should develop a strategic plan to guide decisions on the preservation of open space parcels. The strategy should be developed by a task force made up of representatives of the Planning Commission, Supervisors, Parks and Recreation Board, Open Space Task Force, and other groups as applicable. The criteria developed in the strategic plan should help to prioritize the lands within the Township so that funding for open space may be targeted to provide the greatest overall benefit. The strategies can also provide guidance to the Township in evaluating lands that may be proposed for development where the Township may be interested in purchasing all or a portion of the property. In order to create a strategic plan for open space that considers all of the ramifications and potential methods of preservation, the Township should consider retaining a consultant who has extensive experience in recreation, natural resource conservation, and trail planning.

The strategic plan should examine potential open space parcels within the network and recommend how they could best be preserved and whether they should be publicly accessible, used for active or passive recreation, or set aside for wildlife preservation with little or no public access permitted. The Township should be able to answer key questions before seeking to preserve a property, such as:

- For what purpose will the open space be used?
- Will its use be compatible with that of adjacent properties?
- What kinds of activities will be permitted, limited, or forbidden on the protected open space?
- How will it link to other protected open spaces?
- What type of funding is available?
- How will the protected open space be managed in perpetuity, and how will that management be funded?

In addition to the fee simple purchase of open space or easement of a parcel, the Township's resource protection standards will also help to preserve the open space network. The floodplain standards help to preserve the land immediately along the streams. Other protection standards, including wetlands, steep slopes, riparian buffers, and woodlands, are critical to protect open space. The Township may want to encourage developers to donate this land to the Township to further the creation of the protected open space network. For key pieces of land, the Township may decide it is worthwhile to purchase the land. Parcels targeted for eventual Township acquisition can be included on the Township Official Map.

- **Continue to develop and modify Zoning and Subdivision and Land Development Ordinance regulations that further protect natural resources and open space.**

New Garden has limited regulations protecting natural resources. Specific recommendations to address additional protection standards are discussed in detail in **Chapter 12** of this Comprehensive Plan. However, it is important to note that protecting natural resources through ordinance regulations is also an important aspect of protecting open space. The selection of a parcel for protection may be due to the initial protection through ordinance standards either directly or indirectly. Protection of a riparian buffer by zoning and further protection by a conservation easement is one example of this progression. The further development of ordinance standards provides for greater amounts of land to be protected in this "initial step", before additional protection of larger parcels by easements or fee-simple purchase.

- **Consider an open space referendum to create specific Township funding for open space.**
New Garden should evaluate the potential for passing an open space tax referendum to create a specific fund in the budget for open space preservation. In preparation for a referendum, it is important that residents are informed about the process, what the money will be used for, and how much it will cost each household. Public meetings before the referendum may be critical to the outcome. It is important to ensure that the referendum has a high potential to pass before instituting a vote due to time and effort that is necessary to undertake this process. The cost of preserving open space as opposed to the overall cost of services should be communicated to residents in the presentation of the referendum. Essentially, residential housing creates an overall loss in terms of revenue to the Township. The taxes gained by new housing is less than the cost of services necessary to accommodate those units. The net loss over time may exceed the cost of simply purchasing the land for open space preservation and result in a low cost and overall reduction in costs for Township residents. See the recommendation below for additional discussion.

Having a Township source of money for open space is important for several reasons. The funding can be used to aid in funding applications for easements, as “seed” money to leverage greater sums from other county, state, or other source, and finally for direct purchase by the Township if necessary.

- **Evaluate the cost of development as opposed to the cost of purchasing open space when considering the purchase and funding of open space.**
Several studies consider the long term loss of revenue due to the failure of residential development to “pay for itself” in terms of taxes as justification for the purchase of open space, in that the open space voids the purchased acreage from potential residential development and in effect “pays for itself” in the long term. The Township should continue to evaluate these studies and consider how they may be useful to the Township strategy for protecting open space. The potential for passing an open space referendum to fund open space preservation is one opportunity that may benefit from the positive justification these studies offer.
- **Coordinate with land trusts in efforts to protect open space in conjunction with the priorities of the Township.**
New Garden should communicate with local land trusts in order to promote the protection of open spaces within the Township. When asked where more Township funding should be allocated to, in the Survey completed for this Comprehensive Plan, some of the highest responses from residents were to acquire conservation easements. Therefore, the Township should investigate the possibility of using Township funds to protect open spaces, possibility through coordination with local land trusts. It is essential that the goals and recommendations of this Comprehensive Plan be communicated to land trusts to facilitate the objectives of the Township because land trusts are not directly controlled by the Township. Priorities and lands identified by the mapping through this Comprehensive Plan process should be clearly conveyed to provide guidance on which lands should be secured along with the necessary justification and identification for establishing additional easements. Under the guidance of this Comprehensive Plan and the additional direction of *Linking Landscapes*, the Township and land trusts have access to a great amount of information and potential additional funding sources.

The parcels identified on **Map 13-1** developed as a part of this Comprehensive Plan and *Linking Landscapes* provide one means of identifying priority lands for conservation easements. These parcels comprise the remaining undeveloped parcels within the Township, and are important because larger parcels are those that are typically targeted for and funded by open space preservation efforts.

- **Consider the development of a New Garden Township Land Trust in efforts to protect open space in conjunction with the priorities of the Township.**

The Township should consider the development of a New Garden Township Land Trust, and should support the Trust as the primary means of procuring easements within New Garden Township. Because the Land Trust would be a single and separate entity with no direct control by the Township, it is essential that the goals and recommendations of this Comprehensive Plan be communicated to the Trust to facilitate the objectives of the Township. The priorities and lands identified by the mapping through this Comprehensive Plan process should be conveyed to the Trust to provide guidance on which lands should be secured, along with the necessary justification and identification for establishing additional easements. Under the guidance of this Comprehensive Plan and the additional direction provided by *Linking Landscapes*, the Trust has access to a great amount of information and potential additional funding sources. There are additional funding sources available for the development of a land trust.

- **Encourage owners of agricultural properties to consider easing their land.**

The Township should provide the owners of the remaining agricultural parcels in the Township with information on agricultural easement programs to ensure that the land owners are aware of the program and encourage them to participate. While agricultural easements do not provide open space useable by the public, and are essentially used to protect the use or “industry” of agriculture, in many cases agriculture easements protect large parcels that aid in the preservation of scenic viewsheds and character of the township. The Chester County Agricultural Land Preservation Board should be contacted for more information.

The Township should consider assisting farmers with the application process. Providing aid in the form of funding applications or assistance filling out forms and communications between farmers and the agency administering the easement program are several ways the Township may increase the potential for additional properties to participate in the agricultural easement programs.

- **Consider utility easements and corridors for open space protection and greenway connectors.**

The general location of three utility easements are identified on **Map 13-1**. These easements provide the opportunity for open space connections throughout the Township and furthermore as regional open space connections. The Township should investigate the potential for additional preservation and development of these corridors for connectivity of greenways or recreation corridors. (see discussion of connectivity under the Introduction). The Township should encourage utility companies to purchase the easement corridors, particularly when properties containing easements or rights-of-way are sold.

The Township should investigate possible ordinance revisions that may encourage this process, such as providing smaller setbacks for properties where easements are sold as fee-simple parcels to utility companies. Lastly, the utility easements should be considered as potential municipal and regional trail opportunities for hiking and pedestrian activity. This is discussed further under Recreation. Altogether, it is important for the Township to understand and communicate the value of these easements and their potential for providing additional open space, recreation, and environmental resource uses.

- **Establish a greenway network throughout the Township.**

A greenway can be a linear open space for walking, hiking, jogging, and biking. Greenways are also established to preserve natural areas such as stream corridors. Connecting residential neighborhoods with various parts of a community is another function of greenways. There are numerous ways to control the necessary property for a greenway short of paying for fee-simple acquisition. Additional methods to create greenways include the following: donation, easement, mandatory dedication,

reserved life estate, purchase-leaseback, and land cooperatives. The Township should consider adding the recognition of, and consideration for, donation of lands within the designated greenway network on **Map 13-1** into both the Township Subdivision and Land Development Ordinance and Official Map. Developers should be made aware of the Township policy to secure these areas at the beginning of the subdivision process so that developments may incorporate greenways during the beginning of the process. Addressing acquisition early in the development process is essential to both ensuring the protection of the greenways and that this protection occurs in a consecutive manner to protect entire linear greenway corridors. The Township should include the protection of greenways as a priority for the open space required in conservation subdivisions. The Township may want to investigate additional incentives to developers to encourage them to preserve greenways as a part of new subdivisions. The Township should adopt riparian buffer standards into the Township Zoning Ordinance as a primary method of establishing a greenway network along streams. More information on this topic is available in **Chapter 12**.

A primary opportunity for a greenway within the Township is along the White Clay Creek. Due to the topography and limited development along the creek, this is one of the greatest opportunities in the Township to establish a greenway. The further potential for a trail corridor linking from London Grove Township to the White Clay Preserve should be investigated. Local recreation and trail groups, the Chester County Planning Commission, and local land trusts should be contacted to begin the process.

Donation of land or an access easement for public open space can be tax deductible as a charitable contribution. Property tax incentives for keeping land as open space generated the greatest response from residents in the Survey completed for this Comprehensive Plan, when asked where more funds should be allocated. The Township should make landowners along greenway corridors aware of this option and investigate additional incentives it could offer to encourage the donation or easement of land for greenway corridors.

- **Refer to *Linking Landscapes* for the protection of open spaces and greenways as well as for documentation and funding sources.**

The Township should review the materials in *Linking Landscapes* and use the information in that document in the identification, planning, and funding of open spaces and greenways. In some cases, large documents such as this Plan for Chester County, seem overwhelming and not relevant to individual municipalities. However, *Linking Landscapes* has a wide variety of information, maps, references, and tasks for both the County and the Township, some of which are important for securing grants. The Township Supervisors, Planning Commission, and Open Space Task Force members should all make efforts to be familiar with *Linking Landscapes* to aid in the further protection of open space in the Township.

- **Review and revise open space design option standards.**

Despite the best efforts of the cluster, open space, or conservation design methods, in some cases the resulting open space may not result in meaningful open space for the residents. The Township should continue to revise its open space design option in the zoning ordinance so that the resultant open spaces are “meaningful” for residents. The open space resulting from developments should accomplish some means, either providing large areas for recreation, an adequate buffer including mature vegetation as a buffer against adjacent uses, or to protect some natural or historic feature. Open space such as scattered “strips” of open space surrounding the periphery of developments, or spots of “open space” around the entrance to the development should be avoided. Open spaces within developments should be of sufficient size or location to provide a sufficient buffer or be large enough to be useful to community residents. Furthermore, the Township should encourage the placement of open space within developments to be contiguous to adjacent existing open space or to open spaces or

greenways identified by this Plan. The Cluster Design Guide, 2003, by the Chester County Planning Commission, should be referenced for further information.

- **Ensure a regular maintenance program for parks and open spaces.**

The Township should consider regular inspections of existing parks and active open spaces, including the open spaces within residential subdivisions. These facilities should be thoroughly inspected on a regular basis. A formal checklist could be developed so that the inspections and records are consistent and thorough to cover the following:

- Immediate need for grounds work (regrading, clearing of overgrown vegetation, trash pickup)
- Structural repairs
- Condition of recreation facilities
- Identify improvements that may be needed in the near future
- Other safety and security concerns

Such inspections should be conducted to detect and repair faulty facilities and ensure the safety and enjoyment for Township residents. In the case of homeowners association property it is to the Township's benefit to inspect these areas due the provision that the Township will undertake management of such facilities in the case maintenance by the homeowners association is neglected.

- **Revisit the standards for the maintenance and inspection of open space within residential developments.**

The Township should review the standards within the Zoning and Subdivision and Land Development Ordinances that regulate how open spaces within residential developments are permitted, maintained, and inspected. It may be necessary to modify the regulations to be more specific about maintenance requirements or to give the Township additional flexibility to inspect and enforce the maintenance of these open spaces.

Recreation

For the purposes of this Chapter, recreation involves park facilities and recreational programs. Parks are a form of open space, with a primary purpose of providing lands open to the public for active and/or passive recreation. In some cases, parks exist in areas that are protected by regulations specifically to conserve natural resources such as floodplains, because a park is one land use that coincides with the protection of such resources in terms of limited buildings, impervious surfaces, and impacts. Therefore, areas where there are many restrictions due to natural resources may be primary locations for park facilities. The open spaces referred to in the previous section that are protected by land trusts and other forms of easements, are typically to provide protection of wildlife habitats, particular woodlands, historic structures or sites, or agricultural uses, none of which are suitable to uses as recreational facilities for the general public, but are more specific to simple preservation. This does not mean that land trusts cannot acquire property for either primary or secondary recreational purposes, and in fact, should be encouraged to do so. The purpose of this section is to evaluate the parks within New Garden Township and plan for future parks and recreational facilities to serve the community. The Survey conducted for this Comprehensive Plan revealed that residents would like to see additional Township funds be allocated towards the expansion of parks and recreation facilities and programming and for the construction of public trails and recreation facilities. Provision of parks and recreational facilities is important for the quality of life within the Township and will become an increasing issue as the population, particularly children, continues to increase. The Township Parks and Recreation Board should take a progressive role in furthering parks and recreation throughout the Township.

Map 13-2 displays the parks and recreational areas in the Township and surrounding region. The only park within New Garden is the 29 acre Township Park northwest of the intersection of Route 41 and Newark Road. The park is owned and operated by the Township. The park contains both active and passive recreational opportunities with items such as volleyball courts, ballfields, and picnic areas.

The Township owns additional areas that may provide potential parkland. These include several smaller undeveloped wooded parcels, as well as spray fields that may hold potential for recreational opportunities.

Previous recreational planning efforts, mainly in the Township Open Space Plan, evaluated existing park facilities using National Recreation and Park Association (NRPA) guidelines to project park needs into the future. At one time these “guidelines” from NRPA were held as “standards,” however, during the development of the Open Space Plan they were considered as “guidelines.” In 2004 it has been determined that these “guidelines” may still be used for rough estimations but, because of their initial attempt at providing nation-wide regulations for park standards, it is recognized that this was an incorrect assumption and such standards or guidelines have essentially been abandoned except as references for facilities planning. *Linking Landscapes* provides an updated philosophy and guidelines for future parkland needs particular to Chester County communities to supplement the previous NRPA guidelines. The guidelines established by *Linking Landscapes* will be used within this document because they were uniquely developed to suit the needs of Chester County municipalities.

Figure 13-1: Chester County Recreational Park Standards

Type of Recreational Park	Service Radius	Minimum Acreage Standard	Maximum Population	Size of Recreational Park
Regional Park	30 Miles (Equal to a 60 minute drive)	20 acres per 1,000 people	None	1,000 acres or more
Sub-regional Park	7.5 miles (Equal to a 15 minute drive)	8.5 acres per 1,000 people	100,000	400 acres to 999 acres
Community Park	2.5 miles (Equal to a 5 minute drive or a 30 minute walk)	3.0 to 6.0 acres per 1,000 people	25,000	20 acres to 399 acres
Neighborhood Park	0.5 miles (Equal to a 15 minute walk)	2.5 to 3.5 acres per 1,000 people	5,000	0.5 acres to 19.9 acres
Mini Park	0.25 miles (Equal to an 8 minute walk)	0.25 acres per 1,000 people	2,000	0.01 acre to 0.49 acres

Source: *Linking Landscapes*, Table 4.1

Linking Landscapes created the 2002 Chester County Recreation Park Standards listed in **Figure 13-1** that divides recreational parks into five categories from regional parks to mini-parks. A discussion of the federal, state, and county parks in the area follows and, most importantly, *Linking Landscapes* divides each municipality into density classifications and provides the amount of parkland in each community in 2002, as well as recreational park needs projected to 2020. Using these standards and the population projections from **Chapter 2, Demographics**, the projected parkland needs for New Garden can be calculated. See **Figure 13-2**.

Figure 13-2: Projected Parkland Needs

Type of Park	2000	2010	2020
Community Park	(9,083 population/1,000) x 4.5acres= 41 acres	(11,560 population/1,000) x 4.5acres= 52 acres	(13,710 population/1,000) x 4.5acres= 62 acres
Neighborhood Park	(9,083 population/1,000) x 3.5acres= 32 acres	(11,560 population/1,000) x 3.5acres= 40 acres	(13,710 population/1,000) x 3.5acres= 48 acres
Total	73 acres	92 acres	110 acres

Source: *Linking Landscapes*, Table 4.1, 4.13; Chapter 1, *New Garden Demographics*, Figure 2-2.

New Garden is listed as a municipality of medium density needing one community park and several neighborhood parks totaling approximately 73 acres in 2000. The same analysis carried out to 2020 projects the Township as a medium density municipality needing one community park and several neighborhood parks totaling approximately 110 acres. Based solely on this analysis and the existing facilities, it is evident that the Township needs to develop additional parkland over the next 20 years.

One important factor is that the Township should not rely on passive recreation facilities or facilities built by other municipalities to meet the active recreation needs of their residents. As recommended in *Linking Landscapes*, "A municipality should fulfill the active recreation needs of its residents with recreational parks fully or partially owned and operated by the municipality, and not rely on federal, state, or county parks, or parks wholly owned and operated by another municipality" (Vision 19.1, p. 19.7). To fully meet the recreational needs of its residents, the Township should attempt to provide as many options for both passive and active recreation as is practical.

Demographic information is an additional factor when considering the development of recreational facilities. **Figure 2-3** in **Chapter 2** displays population data for the Township broken down by age groups. It is evident that, while not the largest age groups, the under 5 and 5-17 age groups are the fastest growing groups in New Garden, particularly since 1990. Because these groups include school age children, many of which are involved in sports, or typically need areas for such activities, this data further supports the need for the Township to develop parks for active recreation to accommodate for the needs of this growing segment of the Township population.

The development of recreational facilities is a process that takes considerable planning, time, and funding and thus the Township should begin this process immediately to ensure that adequate facilities are available for the future population. A variety of assistance and funding is available for the development of parkland. The last recommendation on page 18 offers more information on funding sources.

Additional insight can be attributed from the Public Opinion Survey conducted for this Comprehensive Plan. When asked about the adequacy of services in regards to parks and recreation, 20 percent stated that these services were "inadequate". Similarly, when residents were asked whether they would be willing to pay additional charges or fees for additional parks and recreation areas and programs, 36 percent answered "yes". While this does not account for a majority, it was the highest response for all of the services in question.

For these reasons the Township should initiate the process of creating additional passive and particularly active recreational facilities to supplement the existing Township Park.

The following recommendations address parks and recreational needs for the Township:

- **Conduct a Township-wide study to more specifically identify recreational needs and how they can be addressed.**

In addition to the data, information, and recommendations in this Section, the Township should conduct a more refined study to accurately identify the recreational needs of Township residents. The Survey for this Comprehensive Plan identified the top three recreational facilities residents are interested in as hiking trails, passive open space, and playing fields (soccer, football, baseball). This may involve a survey of Township residents, community groups, public meetings, a questionnaire on the Township website, or hiring a recreation consultant to study the needs and accommodation of active recreation within the Township. The study should identify particular types of active recreation and potential locations for these activities, such as the village of Toughkenamon. Traffic, safety, and noise are all considerations that should be taken into account for the location of active recreational uses within the Township. It is important for the Township to directly assess the needs of its residents as this Plan is not meant to provide specifics in terms of individual recreational activities.

- **Consider the development of parkland on Township owned parcels.**

Township owned parcels in four areas in 2004 including the location of the Township building and park near the intersection of Route 41 and Newark Road and several undeveloped parcels that total approximately 45 acres. These areas should be evaluated for the potential for both active and passive parkland to increase the distribution of parklands within the Township. Because these parcels are owned by the Township, they present a more immediate opportunity to broaden the amount and location of recreational facilities for Township residents. The Township should identify the potential use of each of these parcels and develop a master plan for them. The Township should also consider the sale or exchange of existing, undeveloped parcels in order to obtain larger or more desirable parcels for parkland.

- **Develop active recreation facilities within existing and future parks/Township properties.**

The Township should begin the development of additional active recreation facilities. It is clear in the Public Opinion Survey that residents would like to see the Township plan more recreation and open space uses. Typically, the areas needed for field sports such as soccer cannot be accommodated in residents back yards and schools do not typically leave goals out and sometimes do not allow games due to wear and tear on school property. The Township should initiate additional efforts to make facilities for field sports available to residents. Trails and walking paths are additional considerations for active recreation that were identified by residents in the Township survey. Considerations for safety of both motorists and pedestrians should be a priority when determining the potential for future facilities.

- **Continue to identify and prioritize parcels for their potential as future parks.**

The Township should identify those parcels that have the greatest potential for future Township parks, including larger undeveloped parcels, and existing parcels owned by the Township. (See: **Map 13-1**) Larger undeveloped parcels, that do not have significant changes in topography or little value in terms of wildlife habitat or historic value, would be prime candidates for potential active recreation sites. A majority of these parcels exist in the northern section of the Township where there is less topography and greater concentrations of development. The Parks and Recreation Board should be the primary facilitator of this effort in conjunction with the other data and mapping efforts the Open Space Task Force has undertaken for natural and historic resources. Once parcels have been identified, the Township should prioritize them and initiate efforts to secure parcels for future development as parkland.

- **Pursue the acquisition of land for future parks.**

The Township should pursue the acquisition of land for future parks for both active and passive recreation identified through the prioritization process described above. These parcels should be identified on the Township Official Map as a preliminary step to facilitate the following strategies. There are a variety of methods to accomplish this. Fee-simple acquisition by the Township is one option. The Township should communicate with the various land trusts on coordinating acquisition of land for parks either by fee-simple purchase or easement through land trusts.

Parkland dedication negotiated as a part of a cluster subdivision or other type of development is an additional method for gaining parklands. The Township should inform developers of targeted parkland identified as a part of the prioritization process so that negotiations may begin early in the subdivision process. The dedication of parkland, or location of open space in cluster subdivisions within adjacent developments, may result in substantial parkland as development within the Township continues. The Township should consider adding top priorities for potential parkland and trails to the Township Official Map. The Township should include requirements for dedication of parkland, trails, and location of open space in cluster subdivisions to be adjacent to those lands established in prior developments. The acquisition of lands for future parkland should be a priority over the development of parks in the short term due the diminishing number of large parcels available within the Township. While the acquisition process may take time, even more time is required for the completion of the planning, funding, and development of parkland once the land has been secured. In order to have recreational facilities in place to adequately serve future needs, securing lands for future parkland should begin immediately.

- **Carefully consider design aspects of parks.**

It is anticipated that any parks developed by the Township will be patrolled primarily by New Garden Township Police. The police, fire departments, and Township Parks and Recreation Board should all be included in the development of any parkland. Evaluating the appropriateness of a parcel for playfields, lighting, placement of parking and access points, buffers, and consideration of adjacent uses, among others, should all be considered during the development of a parcel for a future park facility. The Township should adopt parking standards specifically for parks, to allow appropriate parking facilities while minimizing maintenance by incorporating permeable paving such as gravel or other means. Additionally, facilities and access for handicapped persons should be considered in the development of parks.

- **Continue to support the development and management of Township Park.**

The Township is actively engaged in the continued development of Township Park. The Township should promote further addition of land to the Park on adjacent parcels through assistance with grants and other funding sources. Further enlargement of the Park and additional facilities, with active recreation in particular, should be a priority to the Township. The Township should continue to follow the master plan developed for the Park and consider any revisions that may be appropriate.

- **Encourage public accessibility to quasi-public open space areas.**

While such areas as those surrounding the two schools are not included in the Township calculated open space as discussed above, the Township should ensure that these areas continue to be available to the public for both passive and active recreational purposes. The Township should continue to communicate with the Kennett Consolidated School District on the availability and use of the school grounds to residents when they are not being used for official school purposes. The Township should communicate with organizations that have potential areas for public recreation and investigate the eventual use by residents. There may be additional areas within the Township that may result in additional opportunities for recreational opportunities for Township residents.

- **Support recreation programs.**

New Garden should identify and initiate communications with public and private recreational providers within the Township. The Township should help publicize the events, facilities, and programs of these organizations so that residents are aware of the recreational opportunities. The Township should consider initiating a meeting of the areas recreational providers, possibly on a regular basis such as bi-annually, at either a Township Supervisor work session or possibility at the Kennett Area Regional Planning Commission (KARPC) level to encourage communication, development of programs, interaction between municipalities and recreation providers, and between recreation providers themselves. There is a need to assess existing programs and promote new programs to meet the growing population and to correctly match the types of programs that residents are interested in.

The KARPC has initiated an effort to inventory recreation uses, programs, and parks within the Region and develop a strategy for recreational uses on a regional basis. The Township should actively participate in this effort to increase recreational opportunities.

- **Use a variety of media to publicize recreation opportunities.**

The Township newsletter, website, events, and other means should be used to provide information on recreational opportunities available to Township residents.

Trails

Trails are a subset of the recreational category. In the Survey conducted for this Comprehensive Plan, hiking trails were chosen as the most desirable type of recreation facility by Township residents. In general, trails can be considered passive recreation and should be used to promote connectivity between existing park facilities and open spaces. Trails exist on parkland, through easements, through private property where allowed, or in places along low volume or scenic roadways. Generally a variety of these access options are used to provide a continuous segment. The Appalachian Trail is a good example of this, and more locally, the Horse-Shoe Trail across the northern part of Chester County. The Mason-Dixon Trail is a lesser known "traditional hiking route" that passes along the southern boundary of New Garden Township. The Township has been interested in establishing both a greenway and trail system along the White Clay Creek. In the Borough of Kennett Square, a trail system is already underway through participation with the Kennett Area Park Authority (Township Park), the Borough, and Kennett Township. Similarly, Kennett Township is actively engaged in the creation of a greenway and trail along the west bank of the Red Clay Creek, which crosses the northeastern most corner of New Garden. *Linking Landscapes* provides additional potential trail alignments and justification along with identification of several trail networks connecting to New Garden Township in the state of Delaware to the south. There are a variety of funding sources available for the purchase of land for the creation of trail corridors and the planning and construction of trails. See the recommendation on page 18 for more information on funding.

The following recommendations address the development of trails within the Township and connectivity to the surrounding region:

- **Identify potential trail corridors throughout the Township for passive recreation and connections between open spaces and parklands.**

The Township should continue to identify and map existing and potential trails both within the Township and the surrounding area to maximize connectivity and coordination. **Map 13-2** displays a variety of potential trail corridors within New Garden Township and the surrounding region. The Open Space Task Force should be the primary procurator and distributor of mapping for this effort. *Linking Landscapes* suggests that the Township identify and consider all trail links within one mile

of its border in order to develop linkages with these existing corridors and coordination with the appropriate entity in charge of such trails. In particular, the Township should coordinate with both Kennett and London Britain Township to coordinate efforts to establish a trail system.

The Township should also consider accommodations for bicycles discussed in **Chapter 14**. Bicycling is a popular recreational activity as well as an alternative means for residents to travel throughout the Township. New Garden's scenic roads should be considered along with the Chester County Planning Commission's *Recommended Bikeway Network for Chester County Map* for potential bike trails within the Township. Additional signage such as "share the road" or reduced speeds along such roads may be appropriate along with widened or improved shoulders to accommodate bike safety along priority roads. (See **Map 13-2** for the Recommended Bikeway Network for Chester County.) The State of Delaware should be contacted for coordination on bike routes and trails between New Garden Township and Delaware to maximize the potential of these facilities.

- **Pursue the development of trails along the utility easements and Octorara Railroad.**

Because of their potential for connecting potential parklands, the Township should investigate the potential for trails to be established along utility corridors. The need to investigate the legality of trails along utility easements should be investigated and communication with the utility providers should be initiated. The development may initially be simply more frequent mowing of a continuous strip thorough the utility corridors and posting signs along roadways announcing the permission of the utilities for public access. The Township solicitor should determine whether or not utility companies would be willing, legally, to allow for public use of their easement corridors.

The Octorara Railroad is used on a limited basis as a freight railroad. If the railroad becomes inactive, the Township should take steps to ensure the corridor continues to be protected by some means, possibly as an easement or purchase by the Township or some organization. Additionally, if the railroad ceases to function, the Township should initiate efforts for the railway to be developed as a rails-to-trails facility.

- **Pursue the development of trails along stream corridors, particularly the White Clay Creek.**

The Township should evaluate each parcel along each of the stream corridors and a detailed inventory of property owners, pictures, aerial photography, mapping, and other resources should be compiled. Information on each parcel should be gathered to identify at least the following data:

- Whether or not the parcel is developed,
- What the land use is (residential, commercial),
- Who the owner of the parcel is,
- What condition the stream corridor is in (wooded, eroded banks, structures near the stream bank, meadow),
- Potential for improvement, and
- Potential for inclusion of a trail (steep slopes, sensitive vegetation, flat, meadow).

The Township's Open Space Task Force, a consultant, or a newly formed committee should begin this compilation of data and formulate a preliminary strategy for the trail system. Meetings with property owners, land trusts, the Township, adjacent municipalities, and Chester County agencies, individually or as a whole, will be essential to progressing with this concept. Planning for these trails is essential to realizing the full potential of the trail corridors as well as increasing potential funding sources. Policies outlined in *Linking Landscapes* on page 12.40 encourage municipalities to plan for trails in a multi-municipal basis through offering additional funding, giving priority to grants that are multi-municipal projects, and offering additional services to facilitate multi-municipal efforts.

The White Clay Creek is identified as a portion of an undeveloped regional recreation corridor delineated as the Oxford-Avondale Regional Recreation Corridor by *Linking Landscapes*. This corridor links with additional corridors to form a potential trail loop in southeastern Chester County and connects the White Clay Creek Preserve with the Nottingham County Park. Chapter 12 of *Linking Landscapes*, and particularly page 12.18, should be examined for more information on this corridor. London Grove Township has implemented measures to create a trail system creating a loop linking Avondale and West Grove. There is a feasible connection to this initiative to the White Clay Creek Preserve through New Garden Township through the White Clay Creek corridor. The Township should initiate efforts to begin efforts to establish a protected corridor and trail system through easement, donation, or other means, with the potential to utilize the abandoned railroad as a primary alignment.

Smaller tributaries should also be considered for their potential. Egypt Run and Broad Run, for example, have particular potential as trail corridors due to the undeveloped nature of the properties through which they run, as well as protected parcels and municipally owned lands.

- **Pursue the further development of the Mason Dixon Trail.**

The Mason-Dixon trail is more accurately described as a traditional hiking route. It does not have constructed facilities and does not have a permanent alignment. The alignment of the hiking route is facilitated primarily by hiking clubs and is not dedicated as a public facility. The trail traverses along roadways and through private property via “hand-shake” agreements with property owners. The primary purpose of this corridor is to provide New Garden Township and other southeastern Chester County communities with access to the White Clay Creek State Park Preserve and Fair Hill Natural Resource Areas. It is identified in *Linking Landscapes* as the Delaware Arc Regional Recreation Corridor. This corridor has the potential to be linked to the corridor along the White Clay Creek mentioned above. The Township should investigate the potential for the development of this trail. It is crucial that the hiking clubs involved with the trail and property owners along the trail are involved from the beginning. Development may eventually be as simple as posted signs or as complex as a regional walking trail linking from the Brandywine Battlefield to the White Clay Creek Preserve. *Linking Landscapes* Chapter 12, and specifically page 12.47, should be referenced for more information.

- **Coordinate with other trail development efforts in the Kennett Region.**

The Township should coordinate with the larger Kennett Region as a part of the Kennett Area Regional Planning Commission on the planning and development of trails to maximize the corridor length, connectivity, and funding for trails throughout the Region.

Environmental Resources

New Garden Township has a variety of natural resources that should be protected. The Township has adopted limited ordinance regulations to protect environmental resources. Recommendations for the further protection of these resources are included in **Chapter 12, Natural Resource Protection Plan**. As discussed within the previous sections, environmental resources are considered a type of open space that typically overlaps with the other types of open space identified above.

The following recommendations address environmental resources with respect to open space:

- **Modify Zoning and Subdivision and Land Development Ordinance regulations that protect natural resources, water quality, native vegetation, biodiversity, and wildlife habitat.**

Aside from protecting natural resources, such as floodplains, to reduce the potential negative impacts on the health, safety, and welfare of Township residents, the protection of these resources contributes to biodiversity and wildlife habitat. These are important effects of regulations in addition to the financial implications of protecting environmental resources. The Township should continue to enhance and add regulations that either directly or indirectly protect environmental resources due to the wide range of benefits, including open space, recreation, and quality of life associated with a healthy environment.

- **Gather further information on and consider prioritizing the protection of biological resources within identified wildlife biodiversity corridors.**

There are a variety of protected open spaces within New Garden such as municipal parks, home owners association open spaces, and the White Clay State Preserve. What are less common are linear wildlife corridors along which animals can travel. In Chapter 13 of *Linking Landscapes*, wildlife biodiversity corridors are identified and encouraged to be protected. At risk habitats such as PNDI sites, large woodlands, and water resources are all considered as part of wildlife biodiversity corridors. Although the term “wildlife biodiversity corridor” may sound similar to the “regional recreation corridors” discussed under trails in the Recreation section above, the two terms refer to very different land uses. A wildlife biodiversity corridor is specifically set aside for wildlife to move from one habitat to another without being extensively exposed to contact with humans. As a result, the public is often discouraged from using wildlife biodiversity corridors for active recreation. However, active public recreation is strongly encouraged within regional recreation corridors, which only promote wildlife as a secondary use. The Township should consider the benefit of an protection for wildlife recreation corridors by adopting additional resource protection initiatives and open space protection measures. Wildlife biodiversity corridors are displayed on **Map 13-2**.

It is apparent that a number of protected open space areas, such as within the developments of Broad Run and Somerset Lakes, along with a few undeveloped parcels exist within the primary biodiversity corridor. Furthermore, a considerable portion of this corridor remains undeveloped, including several larger parcels that may be prime candidates for easements or other protection measures. Because of the relatively undeveloped nature of the biodiversity corridors, the Township should incorporate parcels within these corridors into the prioritization for protected open space. The mapping and information within this section should be referenced for grant writing and justification for the protection of such parcels. The Pennsylvania Natural Diversity Index (PNDI) sites registered by the state are within the secondary biodiversity corridors and are fortunately on undeveloped parcels. The Township should begin measures to protect these parcels. *Linking Landscapes* Chapter 13 can also be consulted for more information.

General Recommendations

In addition to the recommendations above for the three “categories” of open space, general recommendations are given to cover concepts such as strategies for identification of open space parcels and regional coordination. The following recommendations address additional issues relating to open space:

- **Continue to maintain a Township organization for the development of open space initiatives.**

The Township should continue to maintain a task force or committee to be a primary source for **collecting and maintaining** data, as well as providing a means of mapping and developing priorities for areas, parcels, greenways and trails, to create an open space network with input from the Township Planning Commission and Supervisors. This body should continue to identify, prioritize, and recommend open space strategies, parcels for protection, and recreational needs. Communication with

the Park and Recreation Board, the Planning Commission, the Supervisors, and residents should be a priority for effective implementation.

- **Review Land Developments for open space planning.**

The Township should retain a qualified professional open space planner to review development submissions. There are two methods to implement this. The Township may amend the SLDO provisions to require the review of development plans by the Township's open space planner at the sketch plan level or the Board of Supervisors may retain an open space planner by resolution, with costs incurred through plan submission fees. It is important that the review process refers to the Township Open Space Plan and this Comprehensive Plan as the policy document for open space planning in the review of development plans in regard to open space. Requiring a well developed open space management plan for open spaces created by new developments is essential.

- **Educate residents on the importance of open space preservation and methods of preservation.**

The Township should develop a brochure that could be placed in the newsletter, on the website, or mailed out individually to residents. Information on the importance of open space and methods such as agricultural easements, donations (tax-exempt), easements, and other means, should be included. Current Township initiatives and organizations that deal with open space protection and planning should be mentioned. Appropriate Township contacts and meetings should be listed.

- **Support the KARPC to implement regionally consistent resource protection standards.**

A current effort being undertaken by the KARPC is to implement consistent protection standards for environmentally sensitive features including wetlands, woodlands, riparian buffers, steep slopes, and floodplains. An evaluation of each of the participating municipal ordinances was undertaken and recommendations made for improving and expanding their current protection standards. In particular, the need for specific, measurable limitations on disturbance of resources was emphasized in the evaluation. Expansion and improvement of protection standards currently under consideration will make the Township's ordinances more comprehensive. New Garden Township's regional representatives should continue to communicate with member municipalities to ensure cooperation and coordination in terms of equal and appropriate regulation of natural resources throughout the Region.

- **Communicate with the KARPC efforts to implement open space protection strategies on a regional basis.**

Current efforts, such as the greenways and trails along the White Clay Creek and both branches of the Red Clay Creek, should be continued and additional identification of potential protection efforts, trail corridors, and developments should be initiated. Cooperation with surrounding townships and the larger Region is essential to greenway corridors, wildlife corridors, protection of natural resources, and trails. Without protection or cooperation on a regional basis, the result of such efforts is stunted when efforts are localized to a single municipality. Trail networks need to be established and continued on a regional basis and connected to existing efforts in other municipalities and across state boundaries to be successful. The Township should share the methods it has used to identify potential parcels for open space potential with the remainder of the Region and encourage each municipality to begin such a process. The Region should attempt to achieve consistent methodology with this process to ensure that lands within the Region are evaluated on a similar basis as well as allowing the potential for pursuing regional funding for open space preservation. The KARPC should pursue a Region-wide open space study or plan for developing parks, greenways, and a trail network. Furthermore, New Garden will need to communicate with neighbor municipalities outside the KARPC, namely Avondale and London Grove, to continue these strategies along all borders.

- **Communicate with the State of Delaware with open space, greenway corridor, trail network, and bike route strategies.**

The State of Delaware has a progressive strategy for developing an open space network including greenway corridors, trail networks and bikeways. These are displayed on **Map 13-2**. The Township and Region should coordinate with the State of Delaware to ensure that efforts for potential greenways, trails, and bike routes in Pennsylvania connect with the Delaware efforts.

- **Investigate, compile, and pursue a variety of funding sources for the acquisition of open space and greenways.**

There are a variety of funding sources available for the acquisition of parks, open space, and greenways as well as the planning, development, and construction of trails. The Township should begin developing a file for these various programs so that adequate information is available as different opportunities arise. Grants are available for the Township individually, but in the case of greenways and trails, as well as coordinated efforts by the KARPC, larger grants may be available when sought on a multi-municipal basis. Grants may be used directly for open space preservation or to leverage additional money.

Funding is available from federal, state, county, and private sources. A major source of funding in the past was the federal Intermodal Surface Transportation Efficiency Act (ISTEA) which provided approximately \$155 billion for highway, safety, and mass transportation projects including recreational trails from 1991 to 1997. The Transportation Equity Act for the 21st Century (TEA-21) continued and expanded programs established by ISTEA. See *Linking Landscapes* Chapter 16, for more information on funding opportunities. The Pennsylvania Department of Transportation (PennDOT) and the Delaware Valley Regional Planning Commission (DVRPC) should be contacted as the administrators for current federal funding and programs. The Commonwealth of Pennsylvania has established a number of programs for open space and recreation, such as the Recreational Trails Program and the Pennsylvania Heritage Park Funds. Grant manuals, current programs, and funding levels are available by contacting the Pennsylvania Department of Conservation and Natural Resources (PA DCNR) Bureau of Recreation and Conservation. The Pennsylvania Department of Environmental Protection (DEP) and Pennsylvania Department of Community and Economic Development (DCED) are two other sources of funding for parks, recreation, and natural resources planning and protection. Chester County has provided a variety of funding sources for planning, open space acquisition, and construction of open space, parks, and recreational facilities.

- **Develop a strategy that incorporates the mushroom industry with the preservation of open space within the Township.**

The mushroom industry is the largest economic contributor and employer in the Township and a predominate land use. Despite the large acreage owned by the industry, much of the land devoted to this use is open, primarily used to spread used compost after the growing process is continued. The industry needs significant amounts of land in order to facilitate this portion of their operations. In the past there was adequate land for this, however, there is decreasing lands available. Because of this, some operations must pile compost instead of spread it out. Inadequate spreading of compost is the primary reason for the increased odor that is a persistent issue within the region. Some mushroom facility owners have purchased land in Lancaster County in order to have adequate land to spread compost. The Township should begin efforts to discuss this issue with the mushroom growers for a joint benefit. There may be a possibility for the permanent protection of portions of mushroom properties that would amount to protected open space for the Township and some financial or operational benefit for the mushroom growers. The goal of this strategy would be to increase the amount of protected lands within the Township in conjunction with maintaining the health of the environment and the Townships most important industry.

- **Consult Linking Landscapes for additional recreation and open space information including potential funding sources.**

The Township has copies of this document and should reference it for further information on open space and recreation concepts, data, contacts, and funding sources. Funding by Chester County is available and applications for funding from the County should be thorough, use information from *Linking Landscapes*, and be consistent with that document in order to increase the amount and successfulness of grants being awarded. The Chester County Planning Commission should be consulted for additional information, funding, and recommendations.

The following Chapters of *Linking Landscapes* are directly applicable to this Chapter:

- Chapter 1 - Introduction - Discusses the open space network as a “new infrastructure,” defines the many types of open space, and provides an overview of how *Linking Landscapes* can be used by municipalities.
- Chapter 4 - Recreational Parks - Inventories, evaluates, and provides visions and actions for national, state, county, municipal, and multi-municipal parks.
- Chapter 6 - Open Space Protected by Non-Profit Land Trusts - Inventories, evaluates, and provides visions and actions for open space protected by regional and local land trusts. Also includes an inventory and evaluation of parcels with easement potential.
- Chapter 9 - Protected Farmlands - Includes a discussion of farmland as open space and agricultural preservation options available in Chester County.
- Chapter 10 - Open Space Restoration Opportunities - Discusses opportunities for restoring large open spaces located on already developed properties such as industrial parks, golf courses, college campuses, and hospital grounds and their potential use for the extension of trails and wildlife corridors.
- Chapter 12 - Regional Recreation Corridors - Defines and identifies regional recreation corridors, covering such topics as undeveloped and informally used corridors, partially developed corridors, bicycle routes, potential trail loops, and a vision for the Chester County Trail Network.
- Chapter 13 - Wildlife Biodiversity Corridors - Discusses the importance of identifying and protecting these corridors. New Garden Township has already taken a major step in achieving the recommendations of this chapter through their mapping of Woodland and Stream Corridors.
- Chapter 14 - Recycling Lands and Infrastructure for Open Space - Inventories and evaluates the potential use of rail corridors, major utility corridors, and brownfields. Scenic byways are also inventoried and discussed in this chapter.
- Chapter 15 - Open Space Preservation Techniques - Describes some of the techniques discussed in other sections of this chapter including open space/cluster zoning, TDRs, and conservation easements.
- Chapter 16 - Open Space Funding Programs - Describes a multitude of funding opportunities that can be used to promote open space preservation.
- Chapter 18 - Extending the Open Space Network into the Built Environment - Discusses improving existing developments, and rehabilitating riparian buffers and wildlife habitat.

- Chapter 19 - Planning a Protected Open Space Network - Discusses open space planning, recreational parks, trail links between recreational parks, distinguishing trails from wildlife corridors, and limiting development in naturally sensitive areas. (See discussion under first recommendation.)
- Chapter 20 - Establishing the Protected Open Space Network - This chapter establishes the initial actions needed to be taken by County departments to establish the open space network, including actions to assist to municipalities with municipal parks and open space programs.

Chapter 14

Transportation and Circulation Plan

There is a direct correlation between land use planning, economic development, and the planning of transportation networks. The opportunities and limitations provided by the transportation system have substantial bearing on the location and suitability of different land uses and the movement of goods and services. Modifications to the existing transportation network must be made with consideration to this interdependency.

Chapter 8, Transportation and Circulation Inventory, examined New Garden's circulation system, commuting patterns, roadway function and classification system, traffic volumes, level of service, anticipated traffic growth, accident data, roadway and bridge conditions, alternative forms of transportation, capital improvements, scenic road preservation, and planning implications.

This Chapter includes recommendations for strategies, tools, and techniques the Township can implement that will address the goals and objectives for transportation facilities and services in New Garden. Specific recommendations for the future functional classification of roadways, access management, roadway improvements, intersection improvements, non-vehicular circulation, and regional participation address the planning implications stated in **Chapter 8**. Several recommendations denote specific actions for a particular location, while others are more general in nature. A few require additional planning efforts to be completed before implementation can be initiated. Several may be directly implemented, others should be considered as long term, while some may not be feasible due to funding, opposition, or other unforeseen complications.

New Garden's goal and objectives for transportation and circulation are as follows:

Goal:

To maintain, improve, and provide a safe, affordable, efficient, environmentally sound, and integrated transportation network that promotes expanded economic and community development and maintains a rural quality of life.

Objectives:

- Provide and encourage development, improvement, and maintenance of alternative modes of transportation.
- Encourage development, improvement, and maintenance of existing rail facilities and services.
- Enhance and promote affordable public transportation.
- Encourage sensible and intelligent land use and natural resource management decisions along the transportation systems.
- Encourage programs that minimize air, noise, and water pollution from transportation systems.
- Develop, improve, and maintain transportation systems that are safe and more user-friendly.
- Maintain the functional capacity of existing and future transportation routes through appropriate land use controls and design standards.
- Continue to prioritize needed transportation improvements in an effort to effectively address safety and maintenance issues.
- Integrate development with transportation infrastructure so that higher intensity land uses are located in the vicinity of transportation routes with sufficient carrying capacities.
- Ensure that new and existing roads are designed, constructed, and maintained in accordance with their functional classification.

- Create, enhance, and protect the aesthetic and scenic qualities of local roads.
- Coordinate efforts with the Chester County Planning Commission, Transportation Management Association of Chester County, SEPTA, AMTRAK, and Krapf's Coaches to improve the community's perception and awareness of public transportation opportunities in the region.
- Support an affordable and accessible public transportation system that links urban centers, suburban neighborhoods, employment centers, and special uses.
- Improve public transportation facilities and services to comply with the minimum design standards and requirements of the Americans with Disabilities Act.
- Coordinate transportation planning efforts with the Pennsylvania Department of Transportation, the Chester County Planning Commission, the Delaware Valley Regional Planning Commission, as well as other local, state, and federal agencies.
- Encourage access management strategies along the Township's major transportation corridors and discourage strip commercial development that creates multiple access points along these corridors.
- Support regional efforts to create, design, construct, and maintain an integrated regional system of trails and bikeways.

Roadway Functional Classification

The Functional Classification System covered in **Chapter 8** discussed the existing hierarchy of roadways in the Township. The following **Figure 14-1**, Roadway Functional Classification, portrays recommended criteria for classification of roadways. Each road is classified based on a number of factors including traffic volume, roadway design capacity, relationship of roadway to other roads, and the function of the roadway or segment. The classification was developed to establish consistency within each designation while creating a linear relationship among the classifications. For example, traffic volumes on Expressways are the highest and decrease in an overlapping fashion until reaching the lowest volumes in the Local classification. The functional classification may be used for a variety of purposes, including but not limited to: establishing priorities for improvements, creating levels of access management, establishing traffic speeds, and preserving scenic roadways.

Figure 14-1: Roadway Functional Classification.

Variables	Expressway	Major Arterial	Minor Arterial	Major Collector	Minor Collector	Local Distributor	Local
Daily Traffic Volume Range ¹	15,000 to Over 100,000 Vehicles	10,000-60,000 Vehicles	8,000-20,000 Vehicles	4,000-10,000 Vehicles	1,000-5,000 Vehicles	Less Than 1,500 Vehicles	Less Than 1,000 Vehicles
Mobility	Strict Priority to Moving Vehicles	Mobility More Critical Than Property Access	Mobility More Critical Than Property Access	Even Priority to Mobility and Access	Even Priority to Mobility and Access	Access More Important Than Mobility	No Priority to Mobility
Access	Only Through Interchanges	Strict Median Access Control	Some Control of Property Access	All Roads and Properties Have Access	All Roads and Properties Have Access	Priority is Given to Property Access	Priority is Given to Property Access
Corridor Length	Over 15 Miles	Over 15 Miles	Over 10 Miles	4-15 Miles	2-10 Miles	Less Than 4 Miles	Less Than 2 Miles
Connections (Relationship to Landscapes)	Connects States, Regions, Counties, Cities and Landscapes Urban Centers	Connects Regions, Counties and Multiple Landscapes Centers	Connects Multiple Landscapes Centers Some Inter-County Trips	Connects Landscapes Centers And Villages, Primarily Intra-County Trips	Connects Villages and Multiple Neighborhoods Primarily Intra-County Trips	Connects Neighborhoods Some Inter-Municipal Trips	Links Individual Properties to Distributors and Collectors
Truck Traffic	Highest Truck Mobility	High Truck Mobility	High Truck Mobility	Moderate Truck Mobility	Moderate Truck Mobility	Local Delivery Only	Local Delivery Only
Basic Geometry and Design	Wide Lanes and Shoulders; Medians; More Than 2 Through Lanes	Wide Lanes and Shoulders; Occasional Median; Turning Lanes	Wide Lanes And Shoulders; No Medians; Turning Lanes;	Two Lanes; No Medians; Limited Turning Lanes	Two Lanes; No Medians; Limited Turning Lanes	Narrow Lanes	Narrow Lanes
On-Street Parking	Prohibited	Only in Urban Areas	Only in Urban Areas	Discouraged Outside "Centers"	Discouraged Outside "Centers"	Limited Use Outside "Centers"	Appropriate on Selected Streets
Through Traffic ²	Over 50%	Over 50%	Over 50%	25-50%	25-50%	Less Than 25%	Less Than 10%
Vehicle Speed (Posted)	55-65 MPH 40 Minimum	35-55 MPH	35-55 MPH	35-55 MPH	35-55 MPH	Less Than 45 MPH	Less Than 35 MPH
Bicycle Pedestrian Access	Only Through Separate Facilities	Specially Designed Facilities	Adjacent Facilities and Crossings	Adjacent Facilities and Crossings	Adjacent Facilities and Crossings	High Priority to Bike and Pedestrian Access	High Priority to Bike and Pedestrian Access

Source: Chester County Planning Commission, 2003

(1) Wide range of traffic volumes accounts for differences between urban, suburban, and rural areas.

(2) Through traffic has no origin or destination in the immediate neighborhood, community, village, or center

Continued development within the Township and region will lead to additional traffic volume, delays, and congestion. Newark Road, Hillendale Road, and Broad Run Road are the conduits for traffic to US Route 1, Route 41, and Baltimore Pike. These higher functioning roads connect population, employment,

and business centers and typically carry larger volumes of traffic traveling through and within the Township. Smaller local roads carry predominately limited residential traffic from the associated adjacent land uses to those higher functioning roads. These lower functioning roads see limited traffic growth each year, but a proliferation of development could substantially increase the volume on these local roads.

- **Revise the Township Functional Classification designations to reflect current conditions and future needs.**

Change to the Roadway Functional Classification is necessary to eliminate the inconsistencies between the State, County, and Township designations and to reflect the actual function served by roadways. **Figure 14-1** portrays the criteria for classification of roadways. The classification was developed to establish consistency within each designation while creating a linear relationship among the classifications. For example, traffic volumes on local roads are the lowest and increase in an overlapping fashion until reaching the greatest volumes in the Expressway classification. **Map 14-1, Roadway Functional Classification**, portrays the recommended functional classification and **Figure 14-2** lists Township roadways and their designations. These designations are based on traffic volumes, accident data, and data from the Public Opinion Survey, and replace the classification from the previous 1993 Comprehensive Plan listed in **Chapter 8**.

Figure 14-2: Roadway Functional Classification; New Garden.

Existing Functional Classification	Proposed Functional Classification	Road Name	State Road Number	Segment
Expressway	Expressway	US Route 1	-	
Major Arterial	Major Arterial	Route 41	-	
Major Arterial	Major Arterial	Limestone Road	3013	Route 41 to Delaware State Line
Minor Arterial	Minor Arterial	Baltimore Pike	3046	
Minor Arterial	Minor Arterial	Cypress Street-West	3046	Baltimore Pike to Kennett Township
Major Collector	Major Collector	Newark Road	3033 ¹	
Minor Collector	Minor Collector	Hillendale Road	-	Newark Road to Kennett Township
Minor Collector	Minor Collector	Broad Run Road	3024	Newark Road to London Britain Township
Local Road	Minor Collector	Landenberg Road	3024	Newark Road to Penn Green Road
Local Road	Minor Collector	Scarlett Road	-	Baltimore Pike to South Street
Local Road	Minor Collector	Penn Green Road	3009 ²	Baltimore Pike to London Britain Township
Local Road	Minor Collector	Buttonwood Road	-	Newark Road to Broad Run Road
Local Road	Minor Collector	Starr Road	-	
Local Road	Local Distributor	Bucktoe Road	-	
Local Road	Local Distributor	Laurel Heights Road	-	
Local Road	Local Distributor	Sunny Dell Road	3024	
Local Road	Local Distributor	Southwood Road	-	
Local Road	Local Distributor	Buttonwood Road	-	Newark Road to Southwood Road
Local Road	Local Distributor	Ellicot Road	-	Avondale to New Garden Station Road

Local Road	Local Distributor	Church Road	3035	
Local Road	Local Distributor	Cedar Spring Road	-	
Local Road	Local Distributor	Scarlett Road	-	South Street to Hillendale Road
Local Road	Local Distributor	Reynolds Road	-	
Local Road	Local Distributor	Chesterville Road	3024	
Local Road	Local Distributor	New Garden Road	-	Route 41 to Newark Road

¹ 3105 South of Broad Run Road.

² 3009 South of Route 41 to Chesterville Road, 3024 between Chesterville Road and Landenberg Road, 3009 from Landenberg Road south.

*Changes from previous comprehensive plan in bold.

Expressway

US Route 1 is the only limited access Expressway in the Township and will retain this designation.

Major Arterial

Route 41 and Limestone Road are recommended Major Arterials within the Township based on their heavy traffic volume and mobility function along the majority of their length. They are major interstate roadways that connect the entire region northwest of the Township to the State of Delaware to the south and tend to carry high volumes of trucks because of this connectivity. Ensuring mobility should be a priority on these major roadways, while providing carefully planned access to ensure the proper functioning of these primary roadways.

Minor Arterial

Baltimore Pike is the primary east-west roadway across the Township. There are moderately high traffic volumes on this roadway and it serves a considerable access function, particularly around the developed areas such as the New Garden Shopping Center area of the Township. Baltimore Pike is used heavily by local traffic and also provides access to and from US Route 1 and Route 41. Providing access while enabling sufficient mobility must be carefully balanced to ensure the proper functioning of this roadway.

Major Collector

Newark Road south of US Route 1 is recommended to remain as a Major Collector. This road has moderately heavy traffic volumes and moves traffic north and south from local residential areas to higher functioning roads with through traffic and is a means for traffic to circumvent the Borough of Avondale. This road serves as a major connection from Baltimore Pike to residential areas in the southern portion of the Township and to employment and shopping areas in the state of Delaware. This roadway is rural in nature with a narrow cartway, numerous vertical and horizontal curves, and several difficult intersections.

Minor Collectors

Hillendale Road, Newark Road north of US Route 1, Broad Run Road, Line Road, Landenberg Road, Scarlett Road, Penn Green Road, Buttonwood Road, and Starr Road are all important roadways and recommended to be Minor Collectors in New Garden. These roadways experience moderate traffic volumes and primarily serve an access function to residences and neighborhoods.

Hillendale Road is a locally maintained Minor Collector that runs east/west from Newark Road into Kennett Township in the central portion of the Township. Hillendale Road experiences moderate traffic volumes because of its connectivity with Newark Road, other roadways to the east, and traffic to and from the New Garden Shopping Center area. Increases in volume on this roadway is of particular concern because of its narrow shoulders, rolling topography, and some sharp turns which

are not designed for higher speeds. It is important that New Garden maintain Hillendale as a Minor Collector.

Newark Road north of US Route 1 serves a slightly lower function than the portion of that same road south of US Route 1 and is designated a Minor Collector. This is due to the connectivity to Baltimore Pike, the significance of residential development in the southern portion of the Township, and connection to the State of Delaware that create increased traffic on the portion of Newark Road south of US Route 1.

Broad Run Road is a state maintained Minor Collector that travels east/west between Newark Road and London Britain Township in the southern portion of New Garden. Broad Run Road serves as a link between Newark Road and the southern terminus of Penn Green Road and with Good Hope Road (and eventually Route 896) in London Britain.

Line Road crosses the northern border of the Township and provides a connection to northern residential areas to Newark Road and further to US Route 1.

Landenberg Road is presently a locally maintained east/west roadway between Newark Road and the Landenberg Bridge in the village of Landenberg. The bridge, over the East Branch of White Clay Creek, is a PennDOT-owned bridge constructed in 1898 that was closed in 1999 until structural improvements could be made. Rehabilitation efforts are underway for the restoration of this historical landmark. Once the rehabilitation is complete the ownership and maintenance of the bridge will be taken over by the Township, and Landenberg Road will become an important through road for east/west traffic.

Scarlett Road is a locally maintained north/south route connecting Baltimore Pike and Hillendale Road in the northeastern portion of the Township. Scarlett Road experiences a great deal of use because of its connectivity with Baltimore Pike, South Street in Kennett Township, Hillendale Road, and traffic to and from the New Garden Shopping Center area.

Penn Green Road is a state maintained (south of Route 41) north/south route connecting Baltimore Pike, Route 41, and the southwestern portion of the Township. A 1998 intersection improvement, which included the installation of a traffic signal, was made at Penn Green Road and Route 41 to help reduce the accident rate at this intersection. Penn Green Road will continue to witness higher volumes of north/south traffic as local residents continue to seek an alternative route to increasing congestion on Route 41. Additionally, this roadway is heavily used by the mushroom industry due to the number of mushroom related uses in the area.

Buttonwood Road (west of Newark Road) is a locally maintained north/south road connecting Newark Road and Broad Run Road in the southern section of the Township. Buttonwood Road will continue to be an important connector road for traffic traveling north/south within the Township. Buttonwood Road also serves as a portion of the Mason-Dixon Trail through New Garden.

Starr Road is a locally maintained east/west roadway within the central area of New Garden linking Route 41, Newark Road, Penn Green Road, and points west of the Township. Starr Road serves as an important collector of traffic moving eastward to Route 41 and points south in Delaware. Starr Road will continue to be an important connector road for traffic traveling east/west within the Township and access for the New Garden Town Office.

Local Distributors

Bucktoe Road, Laurel Heights Road, Sunny Dell Road, Southwood Road, Buttonwood Road (east of Newark Road), Ellicot Road, Church Road, Cedar Spring Road, Reynolds Road, Chesterville Road, and New Garden Road are all important local roadways and recommended to be Local Distributors in New Garden. These roadways experience moderate traffic volumes and primarily serve an access function to residences and neighborhoods.

Reynolds Road and Southwood Road are locally maintained distributor roadways (Reynolds Road-north/south and Southwood and Buttonwood Roads-east/west) adjacent to the Somerset Lake area in the south-central portion of the Township. They serve a connectivity function for traffic seeking an alternative route, using Sunny Dell Road, between Limestone Road (and Delaware) and Route 41. In addition, both Reynolds and Southwood Roads feed traffic to Buttonwood Road, an important east/west road connecting with Newark Road, through to London Britain and beyond. Reynolds, Southwood, and Buttonwood Roads will continue to be important connector roads for traffic traveling east/west within the Township.

Chesterville Road is a state maintained distributor roadway in the southwest portion of the Township running from Penn Green Road in the Landenberg village area westward into London Britain to an eventual connection with Route 841 in Franklin. Chesterville Road will become an important east/west travel route within New Garden and the region once the Landenberg Bridge repairs are completed and Landenberg Road reopens for traffic.

New Garden Road is a locally maintained east/west distributor roadway in the center of the Township between Route 41 and Newark Road (the eastern portion from Newark Road to Route 41 is a local roadway). New Garden Road will continue to be important roadway for traffic traveling east/west within the Township.

Access Management

Unrestricted access to roadways results in traffic congestion and safety problems. As growth occurs along a road, the cumulative effect of numerous driveways on the road causes mobility friction that impedes the flow of through traffic. Good access management, the careful planning of land uses, driveways, and intersections, can reduce safety issues and maintain efficient mobility. Access management techniques include: controlling the number of access points per lot, the location of the access points, the spacing between accesses, and the use of curbs, wheel stops, and sharing driveways.

Access management is a key element for New Garden to bear in mind when considering land development and roadway improvements, especially along Baltimore Pike and Route 41. It is important for the Township to control new access points and to work with property owners who currently have multiple or uncontrolled accesses to reduce or combine their number of accesses. This can be achieved by installing curbs, planted buffer strips, retaining walls, and using wheel stops. The control of new, and a reduction in the number of existing, access points is crucial to the functioning of the Township's roadway network.

Access management is important, particularly on roadways with competing functions that predominantly serve a mobility function, but also provide access to both residential and non-residential areas. In addition, as New Garden considers ways to encourage economic development, efficient transportation access to employment and shopping sites is an important consideration to businesses and developers when considering expansion or relocation. A good transportation system is an important selling point to communities that desire to attract development, is important to the movement of people and goods to and

from an area, and therefore has a direct impact on sound economic growth and productivity. There are a variety of techniques that are possible to reduce the impact of new accesses on Township roads.

- **Consider an access management study of Baltimore Pike, Route 41, and Newark Road to provide data for implementation measures.**

Baltimore Pike and Route 41 are currently the two primary concerns for access management. These two roadways carry the majority of the traffic in the Township and are the primary corridors for commercial and industrial development. This development trend will continue in the future. As development continues to occur along these roadways their function as major travel-ways will be challenged. With an increase in the number of access points (new driveways, new roadways, new parking areas, etc.), it will become increasingly important to maintain posted speed limits and to assure traffic safety and efficiency. New Garden should undertake an access management study for Baltimore Pike, Route 41, and Newark Road to identify areas that may be improved by access management measures, to include the locational identification of existing access points, strategies for a reduction in the number of existing access points, as well as appropriate methods and standards that would be necessary for incorporation into zoning and/or subdivision language to control the number of access points. Analysis of multiple strategies, such as right in and right out access points, should be considered. Utilizing proper access management techniques will enable the carrying capacity of the existing roadway network to increase by decreasing the frequency and number of access points along a road segment which will increase the efficiency of vehicle movements.

- **Encourage sharing of driveways and access points.**

Continue to coordinate existing and future development throughout New Garden Township to control the number and location of access points. New Garden will continue to take steps to coordinate existing and future development throughout the Township in an attempt to properly control the number and location of access points, particularly along the arterial and collector road network. The Township requires use of shared driveways and access points within the subdivision ordinance and should continue to enforce this provision where appropriate.

- **Review and update regulations in Township ordinances regarding access management.**

New access points along Baltimore Pike, Route 41, and Newark Road will be an issue deserving further consideration. As noted above, when the number of access points increases, conflicts between these points and traffic will inevitably lead to traffic congestion and safety issues. As development occurs, the Township should continue to encourage the use of shared curb-cuts with adjacent developments and work with property owners on the amalgamation of existing uncontrolled "curb-cuts", whenever necessary. Connection to an existing parking lot or driveway should be preferred to an additional curb cut. The Township should review current standards to update and create appropriate additions to maximize the effectiveness of these regulations. A majority of the access management standards are in the Subdivision and Land Development Ordinance (SLDO). The Township should consider the correct placement of specific regulations and whether they are more appropriate in the Zoning Ordinance or SLDO. The ordinance standards should be flexible enough to encourage innovative development designs that minimize access points and maximize traffic flow. In addition, New Garden, with the aid of the Township Solicitor, should prepare a sample agreement between property owners that defines maintenance, ownership, and liability of shared driveways. Providing a well-written sample document may aid in the implementation of this technique by clearly spelling out the terms of use for shared driveways and increase the comfort level of the users.

Roadway Improvements

Roadways are the primary means of transportation in New Garden, as the private automobile is the predominate mode of mobility for residents. Overall, the Township has a solid circulation system. Most

roads, including the local roads, are sufficient in width and most are surfaced appropriately. However there are some roadways that have insufficient width or shoulders, these areas need to be identified and prioritized for improvements. It is evident that both the Township and PennDOT are meeting the expectations of Township residents with respect to maintenance, however, the continuing increase of traffic volumes and safety problems need to be addressed. These and other characteristics are discussed in **Chapter 8, Transportation and Circulation Inventory**, with the recommendations in this section addressing those issues.

- **Review and Update as necessary Sections 603-613, Section 804, and Appendix B of the Subdivision and Land Development Ordinance relating to Township roads.**

New Garden's Subdivision and Land Development Ordinance standards for roads, Sections 603-613, Section 804, and Appendix B, were adopted in 1999. A review of these standards indicate they are suitable but may be improved to current standards. The Township should investigate and update design and construction standards, where necessary, for each road type based on their functional classification. The Chester County Planning Commission, *Circulation Handbook*, 1994, and publications by the American Association of State Highway and Transportation Officials are sources for such information. The appropriate Sections and Appendix B of the Subdivision and Land Development Ordinance will be updated to reflect the accepted changes. Finally, the updated standards should also reflect the Township objective to retain the rural character of the roadways.

- **Evaluate road sections where there is a high level of traffic accidents and initiate improvements that will reduce the number of accidents.**

Road sections where a large number of accidents have occurred are identified in **Chapter 8, Transportation and Circulation Inventory**. New Garden will evaluate these road segments in more detail to determine if the roadway conditions can be improved to reduce the number of accidents. For example, a significant number of accidents have been reported on Hillendale Road between Newark Road and Chambers Road. This roadway segment should be evaluated to determine if the cause of the accidents is due to poor visibility, the geometry of the roadway, the road surface, speeding, or some other factor. It may be possible to modify the geometry of the roadway, improve visibility, increase signage, and/or reduce the posted speed limit. One or more of these items may be necessary to improve the safety on this segment.

- **Evaluate road segments for installation of traffic calming measures.**

There are numerous sections of roadways throughout the Township that experience higher volumes of traffic, safety concerns, a tendency for excessive speeding, and/or to avoid busy intersections, in particular in Toughkenamon. The probable reason for accidents within this location is that motorists use the local streets of Toughkenamon as a cut-through to avoid the intersection of Baltimore Pike and Newark Road. As traffic volumes increase, this may become an escalating issue for Toughkenamon. These roadways should be evaluated for the installation of traffic calming measures to reduce vehicle speeds and/or through traffic. Traffic calming techniques need to be carefully evaluated so that problems on one roadway are not shifted to another. It is important to include local emergency service providers in the development of any traffic calming initiatives. There are two major types of traffic calming measures, passive and active, defined as follows:

Passive calming measures are those that notify drivers to slow down or increase awareness, but do not physically force them to do so. Signals, signs, and painted road markings are all examples of passive measures. These techniques are relatively inexpensive, but effectiveness may be reduced without some measure of enforcement.

Active calming measures are those that physically force drivers to alter their behavior. Speed bumps, median barriers, and rumble strips are examples of active measures. These measures can

be moderately expensive, but can be effective in calming traffic. One item of note is that these measures can have an effect on emergency response times. The local emergency services must always be involved before deciding on the installation of such improvements.

New Garden will review these actions and decide whether the installation of any traffic calming measures should be completed. Coordination and approval from PennDOT will be necessary if the Township wishes to install traffic calming measures on a state owned roadway.

- **Monitor the condition of bridges, culverts, and roadway sections that are flood prone.**
The Township should continue to monitor the condition of bridges within the Township to supplement the evaluation conducted by PennDOT every other year. In addition, the Township should consider conducting an inventory of culverts and other potential areas of roadway that may be effected by flooding. Culverts should be periodically evaluated to ensure they are clear and to monitor the condition of the roadway over culverts. Portions of roadways that are subject to flooding should be monitored for upheaval, cracked pavement, and potential improvements to reduce hazards. Potential improvements relating to any of these issues should be noted and prioritized. Top priorities should be considered for improvements and funding, with potential consideration for additional aid from the Kennett Region and the PennDOT 12-Year Program where applicable. The Township should be aware of bridges and roadway issues in adjacent municipalities that may effect travel for Township residents and work with other municipalities or the Kennett Region to address potential maintenance or improvements.
- **Consider the creation of a Road Maintenance Board to deal with roadway maintenance, construction, funding, and similar issues.**
The Township should consider the institution of a Township Board to deal with roadway issues. The Board would assist with funding, planning, and maintaining Township roads as well as coordination with the Roadmaster, Planning Commission, and Supervisors. The Board may complete tasks such as inventories and evaluations of roadways and bridges, and creating a road improvements plan that will involve annual reevaluation.
- **Work to preserve scenic roads.**
Several of New Garden's roadways have scenic qualities or viewsheds that should be preserved, and many of these qualities continue past municipal boundaries. The Township, through its *Open Space, Recreation, and Environmental Resources Plan (1993)*, has identified specific road segments of scenic quality. New Garden will build on this inventory and develop standards to preserve these scenic roads and viewsheds.
- **Work to enhance the gateways into New Garden.**
The entrance ways into New Garden can create a positive image for the community. There are a number of significant entrances into the Township, including: US Route 1, Baltimore Pike, Limestone Road, Route 41. New Garden should apply for grant funds to design, construct, and install better, more "welcoming" gateway signs. Signs may instill a feeling of pride and belonging and enhance the look and feel of the community for people using these roadways.

Roadway Intersections

New Garden has numerous stop-sign and light controlled device intersections. There are a number of problem intersections that have been identified in **Chapter 8, Transportation and Circulation Inventory**, most notably at Newark Road and Bucktoe/New Garden Roads (5-point intersection), and Baltimore Pike and Bancroft Road. (Note: The problem at the intersection of Route 41 and Penn Green Road has apparently been mitigated through reconstruction and signalization.)

- **Request PennDOT conduct a study to evaluate the causes of accidents at the intersection of Newark Road and Bucktoe/New Garden Roads.**

Newark Road is one the heaviest traveled roadways in the Township with average daily traffic of approximately 5,700 vehicles. Newark Road joins New Garden Road and Bucktoe Road at a 5-point intersection with one of the highest accident rates in the Township. This is potentially due to the five-point intersection, traffic volumes on Newark Road, the design of the intersection, and the tendency for speeding on Newark Road. This intersection currently has stop signs on both New Garden Road and Bucktoe Road. Newark Road is a major collector, with New Garden Road (west) and Bucktoe Roads designated as local distributors. The Township will request PennDOT conduct a study of this intersection to determine the causes of the accidents and to evaluate and implement options to mitigate those causes.

- **Request PennDOT conduct a study to evaluate the causes of accidents at the intersection of Baltimore Pike and Bancroft Road and initiate improvements to increase safety.**

Baltimore Pike is a minor arterial roadway that carries high levels of traffic traveling at significant speed. Bancroft Road intersects Baltimore Pike east of Toughkenamon and west of where Baltimore Pike splits into two one-way segments. The increase in accidents may be due to poor sight distance because of a rise along Baltimore Pike and the propensity for motorists to speed along this road segment. The Township should initiate a study of this intersection to evaluate the cause of the accidents and improvements to increase safety. Potential improvements such as improved signs, painted roadway markers, reflectors, lighting, and the necessity for either stop signs or a signal should be evaluated. Coordination with PennDOT will be necessary.

- **Initiate improvements to the intersection of Hillendale Road and Newark Road.**

This intersection has both a vertical and horizontal curve as well as moderately high traffic speeds on an important Township road. Because of these conditions, this intersection is potentially hazardous and some improvements should be made to increase sight distance and reduce traffic speeds to increase safety at this intersection. The Township should apply to the PennDOT 12 Year Program for improvements to this intersection along with proper justification and potential improvement concepts. Grading and realignment may be necessary to improve sight distances and the installation of a three way stop should be evaluated.

The intersection of Hillendale Road and Newark Road falls into the category of a moderate problem (7-12 accidents were reported between 1996-2000. Note: accident data reported throughout this section is from 1996-2000, the most recent data available when drafting this Plan.) and is included in the 2003 Pennsylvania Twelve Year Transportation Program for "Congestion Reduction/Channelization". The intersection occurs both at the peak of a ridge line, as well as a curve in the roadway, therefore a majority of accidents at this location occur due to poor sight distances.

- **Initiate a study to mitigate issues at the intersection of Newark Road and Baltimore Pike.**

This important signalized intersection in the center of the northern portion of the Township continues to need improvements. The northern leg of Newark Road is a particular issue that should be addressed. This portion of road is important as it serves as the connection from Baltimore Pike and the remainder of the Township to US Route 1. The slope and curves create issues in terms of traffic speeds, sight distance, safety, and hazards during winter months. There is development at all four corners of the intersection and along each approach. The Township should consider doing a feasibility study for physical improvements to this intersection.

The primary candidate for improvements would be to regrade and realign the northern leg of Newark Road. This would require the purchase of one or more properties and significant regrading. The intersection may also benefit from turn lanes. Regardless, the Township should advocate

improvements to the intersection, particularly the northern leg, but appropriate measures should be taken to protect the existing businesses at the intersection and ensure that the area surrounding the intersection continues to function as a commercial center of the Township and the gateway to Toughkenamon. It may also be possible to reroute Newark Road to a location that may require less grading and reduce cut through traffic in Toughkenamon. See **Map 14-1** and the recommendations in the Toughkenamon section, below.

- **Continue to monitor the intersection of Route 41 and Penn Green Road.**

A traffic signal was installed at this location in 1998. Prior to the improvement the intersection had one of the highest accident rates in the Township. The Township should continue to monitor the accident rates at this intersection as well as to evaluate improvements to increase safety. Additional signs, reflectors, road striping, and other warnings should be evaluated for appropriateness. Continued coordination with PennDOT should be made in reference with monitoring and improvements.

Non-Vehicular Pedestrian Transit

Roadways are the primary means of transportation in New Garden, as the private automobile is the predominate mode of mobility for residents. However, it is evident that residents within the Township frequently walk along major roadways, such as Baltimore Pike. Bicycles are another form of transportation that residents utilize for both transportation to work and shopping, as well as a popular form of recreation. The Township should begin efforts to make improvements to increase safety for pedestrians along routes that have already been established, as well as initiate the creation of specific improvements to facilitate pedestrian and bicycle transportation.

- **Continue pedestrian improvements to Baltimore Pike.**

Shoulder improvements to increase safety for pedestrians along Baltimore Pike between West Grove Borough and Toughkenamon were recommended to, adopted, and funded by the PennDOT 12 Year Program. The improvements were constructed in the first half of 2004. The Township should recommend that similar or better improvements be made to Baltimore Pike east of Toughkenamon to the New Garden Shopping Center and Kennett Square Borough. Despite the limited pedestrian facilities, there is significant pedestrian traffic occurring along this portion of Baltimore Pike. The Township should coordinate with both Kennett Township and Kennett Square Borough to submit concurrent applications to the PennDOT 12-Year Program for a uniform approach to implementing pedestrian facilities along the south side of the roadway. The Township should also bring this issue to the Kennett Area Regional Planning Commission, and attempt to have this project submitted by the Region to increase the potential for funding.

- **Consider roadway improvements, including both resurfacing and reconstruction, to provide adequate shoulder widths to facilitate bicycles and pedestrian mobility.**

The Township should consider widened or improved shoulders coordinated with other scheduled roadway improvements or resurfacing efforts to facilitate pedestrian and bicycle transportation. In general, a shoulder width of four feet¹ is necessary to provide adequate width for bicycling and pedestrian activity on roadways. The addition of adequate shoulders should be a priority on roadways that connect residential areas near commercial uses. The County Bicycle Network, developed for the update of the Chester County Transportation Plan, should be considered for roadway improvements. See **Map 13-2** in the **Open Space and Recreation Plan** for these designations. Any improvements should also consider the roadways identified on the Recreation Lands and Facilities Plan Map in the 1993 *New Garden Open Space, Recreation, and Environmental Resources Plan*. The Township

¹ Chester County Planning Commission, *Circulation Planning Handbook* 1994, pages 4-10.

should consider adopting a specific set of design standards for road improvements to accommodate bicycles and pedestrians into the Township Subdivision and Land Development Ordinance and/or Zoning Ordinance, where appropriate.

- **Initiate the planning of and creation of trails throughout the Township.**

The Township should begin planning a pedestrian trail network throughout the Township to provide both recreation and pedestrian transportation between residential areas, and pedestrian transportation between residential areas and commercial and employment centers. Since pedestrian transit is already occurring along specific roadways within the Township, the creation of an alternative to the use of roadways for Township residents is an important consideration and the planning of a trail network should begin to rectify the use of roadways by pedestrians. This process was begun to a limited extent by the Open Space Task Force in 2003, and should be given a higher priority in conjunction with the preservation of open space. Trails should connect residential developments with parks, the Township building, schools, and commercial areas. The use of easements, requirements for trails within new residential subdivisions, and the use of trails within riparian buffers are all methods of creating a trail network. See **Chapter 13, Open Space and Recreation Plan** for additional discussion of trails.

Public Transportation

In 2004 there are limited public transportation options were available to New Garden Township residents. The Township should actively evaluate the needs for public transportation within the Township and begin implementing strategies to provide appropriate service to help reduce congestion.

- **Support the continuation and expansion of the SCCOOT bus service.**

SCCOOT was the only provider of public transportation in the Township as of 2004. The Township should continually communicate with the Chester County Transportation Management Authority and provide information, strategies, and ideas for expansion or route changes. The Township should publish the availability of and changes to the SCCOOT system on the Township website and in the newsletter in order to increase public knowledge of the service. This may help to increase ridership and the potential of expansion of the service to more residents.

- **Identify organized park and ride locations.**

The Township should identify possible locations for park and ride lots. Parking lots near major commercial, office, or institutional uses are ideal locations. Providing adequate and visible signage is important. Toughkenamon, the New Garden Shopping Center, and the future New Garden Town center are potential locations. Due to traffic patterns, a park and ride location in the vicinity of Route 41 and Limestone Road (DE Route 7) may be particularly successful and would aid in the reduction of congestion on those roadways. The Township should coordinate with the State of Delaware (DART) for information sharing about park and rides, in particular the location in Hockessen. It will be necessary to communicate with local businesses and institutions that may be ideal locations for park and ride lots, as well as adjacent municipalities. The establishment of park and ride lots should also be discussed at the Kennett Area Region Planning Commission, of which the Township is a member. The initiation of park and ride lots may be a step in establishing more organized public transportation such as coordinating park and ride lots with SCCOOT, SEPTA, or the Delaware State Transit Authority. If the park and ride lots prove to be successful, they may lead to established bus routes in the future. There are funds for park and ride lots available through the PennDOT 12-Year Program.

- **Coordinate with the TMACC to establish ridesharing programs.**
In conjunction with park and ride lots, the Township should coordinate with the Transportation Management Authority of Chester County (TMACC) to establish ridesharing programs to reduce congestion on roadways.
- **Encourage a private paratransit operation.**
The Township should work with area municipalities to encourage the establishment of a private paratransit operator that would offer non-fixed route transportation for fees on an individual basis. A cab service or other such organization is one potential example. Seniors, disabled persons, and other Township residents would be a potential market for this service.
- **Initiate a feasibility study to determine the potential for public transportation to New Castle County.**
Data from the census and traffic patterns indicate that there is a strong flow of traffic from the Township and the surrounding region oriented towards Wilmington, DE and New Castle County. The Township should initiate a study, along with neighboring municipalities and/or the Kennett Regional Planning Commission, to investigate the potential for public transportation to areas across the Delaware line to reduce congestion along Township Roads and particularly Route 41.
- **Preserve and evaluate the SEPTA rail line.**
The SEPTA rail line runs directly through the northern portion of New Garden, paralleling Baltimore Pike. Presently, the line carries limited freight traffic from Wilmington to the Herts facility in Nottingham village in western Chester County. When operating, the line will carry minimal amounts of freight traffic, but has the potential to be an important hauler throughout the region. The Township, and the region, should work with SEPTA to ensure that this rail corridor is preserved for continued freight use and for the potential for passenger rail service in the future. This issue should be handled at a regional level, possibly through a reactivated Avon-Grove Regional Planning Commission and the KARPC to increase the success and amount of participation.

Toughkenamon Village Improvements

Toughkenamon is the primary “center” within the Township that is promoted for additional appropriate residential and commercial development to serve the Township. The intersection of Newark Road and Baltimore Pike has considerable impacts on Toughkenamon due to vehicles cutting through the village to avoid the intersection. The Township should focus on improving pedestrian facilities within the village as well as to other important areas such as commercial areas along Baltimore Pike.

- **Consider traffic calming within Toughkenamon.**
The Township should evaluate the roads within Toughkenamon for the potential of traffic calming measures. Newark Road within the village is a prime candidate due to the higher speeds on this roadway. Because of the businesses that front onto Newark Road, and additional road intersections within the village, traffic calming strategies should be considered to increase safety for both vehicles and pedestrians. There is significant cut-through traffic within the village from motorists avoiding the intersection of Baltimore Pike and Newark Road. Traffic calming should be considered to reduce the amount and speeds of cut through traffic and potentially mitigate some of this traffic.
- **Consider the expansion of the grid system of roads in Toughkenamon.**
The Township should consider the addition and improvement of roads to the village to facilitate re-development within the village and provide an appropriate alternative to the intersection of Newark Road and Baltimore Pike to reduce cut through traffic. The development of this concept should be

carefully considered and residents of the village should be included in the process from the outset. See **Map 14-1** for potential alignments.

- **Adopt a Township Official Map.**

The Official Map is an underutilized planning tool that can protect future road right-of-ways that the Township may wish to develop in the future. The Township should adopt an Official Map in order to take advantage of the additional power this tool provides. The Official Map legally establishes the location of existing and proposed streets rights-of-way, railroad rights-of-way, waterways, parks, open space reservations, pedestrian ways, trails, historic sites, and other public lands and facilities. This map identifies existing public lands and facilities and provides notification to property owners and land developers about the location of future public improvements needed based on analysis and planning, usually in the Comprehensive Plan. The Official Map provides a municipality with a one year time period in which to purchase a property or obtain an easement for that property once the property owner has notified the municipality through written notice of the intention to subdivide or build on the mapped lands. However, in cases where public improvements, such as streets, are being dedicated by the developer to the municipality, the purchase or easement of land is not necessary, but the Official Map is still a very useful planning tool by establishing a desired pattern, for example the extension and continuation of a street system. The Official Map serves as a tool for a municipality to plan ahead regarding lands that are needed to carry out future public purposes. The Official Map document is adopted with an accompanying written ordinance that provides an explanation of the map and its purpose. Enabled under the Municipalities Planning Code, the Official Map and Ordinance must be adopted by the municipal governing body. Funding for the creation of an official map is available through the Chester County Planning Commission.

New Garden Airport / Business Park

The New Garden Airport to the northwest of the intersection of Baltimore Pike and Newark Road is privately owned. However the owner has interest in selling the airport with the condition that it remains an active airport. The airport is particularly suited for continuance due to its location. It is on a major roadway with good access to US Route 1. There is no significant residential development in proximity to the airport and it is well buffered from adjacent uses. Because the Borough of Avondale is lower topographically, landing aircraft come in high enough not to be an nuisance to Borough residents. The airport may serve as an increasing economic benefit to the Township and region and should be protected as a working airport.

- **Evaluate the New Garden Airport and the surrounding area for economic development opportunities.**

The potential for increased use of the airport such as corporate jet headquarters, additional hangers, storage of materials, and even smaller passenger air service should be investigated. The potential for future office or commercial operations on the airport property and the surrounding area may prove beneficial to the Township. A variety of options including the purchase of the airport by the Township or creation of a Township Authority to handle purchasing, management, and development of the area, should be considered. This issue should be carefully handled. The Township should consider a feasibility study for the operation of the airport and the potential for economic development in the surrounding area and the impacts of those developments. The residents of the Township should be included in every step of the process to ensure public acceptability of this potential opportunity.

- **Support future continuance and development of the Airport.**

In the case the above recommendation does not come to fruition or does not result in any direct activity by the Township, the Township should remain active in the process of what occurs on this property. The Township should communicate with owner and offer assistance in order to ensure the continuing operation of the airport. Regardless of ownership, the Township should support the continuance and improvement of the airport as an important economic issue, a unique use, and a viable business within New Garden and the region.

Funding

- **Continue to research new sources of funding for transportation improvements.**

New Garden should evaluate and apply for transportation funding opportunities that are available to assist municipalities in the implementation of needed transportation improvement projects. These programs include, but are not limited to: the Pennsylvania 12-Year Transportation Program; the Transportation Equity Act for the 21st Century (TEA-21); the Pennsylvania Statewide Transportation Plan (PennPlan MOVES); the Pennsylvania Traffic Impact Fee Law (PA Act 209); and other transportation and funding alternatives listed below. In addition, the Township will solicit the guidance of the PennDOT, Delaware Valley Regional Planning Commission (DVRPC), the Chester County Planning Commission (CCPC), the Transportation Management Association of Chester County (TMACC) and/or a transportation consultant to provide guidance as to match the appropriate program. The Township should continue to take advantage of the available funding sources listed in **Figure 14-2** and monitor new sources that may facilitate future improvements and planning activities.

Figure 14-2: Major Transportation Capital Funding Opportunities

Source	Funding Title	Basic Description	Funding Split	Eligibility	Required Programming
Federal (TEA-21)	National Highway System (NHS)	Construction or reconstruction of "major" roads	80% Federal 20% State	Roads must be on the designated National Highway System	DVRPC TIP, PennDOT 12 Year Program, State Capital Program
Federal (TEA-21)	Surface Transportation Program (STP)	Construction, reconstruction and operational improvements for highways and bridges; transit capital costs; and travel demand reduction improvements	80% Federal 20% State or Local	For use on any roads which are not classified as local or rural minor collectors	DVRPC TIP, PennDOT 12 Year Program, State Capital Program
Federal (TEA-21)	Safety component of STP	Various types of improvements which mitigate documented safety problems	80% Federal 20% State	For use on any roads which are not classified as local or rural minor collectors	DVRPC TIP, PennDOT 12 Year Program, State Capital Program
Federal (TEA-21)	Transportation Enhancement component of STP	Bicycle and pedestrian facilities; acquisition of scenic easements and scenic or historic sites; landscaping and beautification; and other environmental related programs	80% Federal 20% State or Local	12 eligible programs as defined in PennDOT's TE Program Guide	DVRPC TIP, PennDOT 12 Year Program, State Capital Program
Federal (TEA-21)	Bridge	Construction, reconstruction or rehabilitation of bridges	80% Federal 20% State or Local	For any bridge on a public road	DVRPC TIP, PennDOT 12 Year Program, State Capital Program
Federal (TEA-21)	Congestion Mitigation and Air Quality (CMAQ)	Projects that contribute to the attainment of National Air Quality standards. Examples include trails, traffic signal systems, transit and travel demand projects	80% Federal 20% State or Local	Projects must demonstrate air quality benefits	DVRPC TIP, PennDOT 12 Year Program, State Capital Program
Federal (TEA-21)	Toll roads	Construction and rehabilitation of toll facilities including roads, bridges and tunnels	50% Federal 50% State or Local	For use on publicly owned facilities and, in some cases, privately owned facilities	DVRPC TIP, PennDOT 12 Year Program, State Capital Program
Federal (TEA-21)	Railroad Grade Crossing Program	Safety improvements at grade crossings of railroads and highways	90% Federal 10% State	Various improvements that reduce hazardous conditions at any railroad highway grade crossing	DVRPC TIP, PennDOT 12 Year Program, State Capital Program
Federal (TEA-21)	Federal Transit Administration (FTA) Funds	Public transportation projects including such items as vehicles, infrastructure, parking and stations	80% Federal 16.6% State 3.3% Local	SEPTA must apply to FTA for individual grants	SEPTA Capital Program, DVRPC TIP, PennDOT 12 Year Program
Federal (TEA-21)	Job Access Reverse Commute (JARC)	Public transportation services and vehicles that help to connect welfare recipients and other low income persons to jobs	50% Federal	Transit vehicles, communications equipment and services	SEPTA Capital Program, DVRPC TIP, PennDOT 12 Year Program Dept. of Public Welfare approval

(Continued)

Chapter 14 - Transportation and Circulation Plan

Source	Funding Title	Basic Description	Funding Split	Eligibility	Required Programming
Federal	Community Development Block Grant (CDBG)	Construction and rehabilitation of streets, bridges, pedestrian or parking facilities	100% Federal (HUD)	Project must benefit low-to-moderate income neighborhoods	Co. Dept of Community Development State Dept. of Community and Economic Development
State	Bridges	Construction, reconstruction or rehabilitation of bridges	100% State or 80% State & 20% Local	For use on state and local bridges	DVRPC TIP, PennDOT 12 Year Program, State Capital Program
State	Bridges	Construction, reconstruction or rehabilitation of bridges	100% State or 80% State & 20% Local	For use on state and local bridges	DVRPC TIP, PennDOT 12 Year Program, State Capital Program
State	Cooperative Agreements	Limited safety and maintenance improvements on State roads	Materials or funds by PennDOT, labor by municipality	Based on negotiation between PennDOT and municipality	Formal agreement between PennDOT and municipality
State	Betterment Or "3-R"	Minor reconstruction or major resurfacing of roads and bridges	100% State	For use on State Roads	PennDOT 12 Year Program, DVRPC TIP (If federal funds are used)
State	Pennsylvania Infrastructure Bank (PIB)	Low interest loans to assist in the design or construction of transportation projects	Low interest loans	Roads, bridges, signals, transit and ITS projects	PennDOT contract required
State	Public Transportation Assistance Program (Act 26)	Public transportation projects including such items as vehicles, infrastructure, parking and stations	16 2/3% State 80% Federal 3 1/3% Local	Rebuilding, replacing and maintaining transit infrastructure	SEPTA Capital Program, DVRPC TIP, PennDOT 12 Year Program
State	Supplemental Public Transportation Assistance (Act 3)	Public transportation projects including such items as vehicles, infrastructure, parking and stations	16 2/3% State 80% Federal 3 1/3% Local	Rebuilding, replacing and maintaining transit infrastructure	SEPTA Capital Program, DVRPC TIP, PennDOT 12 Year Program
State	Research and Demonstration Grant	Innovative projects and studies that enhance attractiveness of public transportation	80% State 20% Local	Research studies, advanced technology applications and innovative service projects	PennDOT contract
State	Temporary Assistance to Needy Families (TANF)	Transportation of low-income individuals to work and child care services	Can be used as 100% funds	Programs to assist low-income individuals	PA Department of Public Welfare approval PennDOT coordination

(Continued)

Chapter 14 - Transportation and Circulation Plan

Source	Funding Title	Basic Description	Funding Split	Eligibility	Required Programming
County	Bridges	Construction, reconstruction or rehabilitation of bridges	100% County (Liquid Fuels Fund)	For use on county bridges	County Facilities Office Program
County	Community Revitalization Program	Selective urban infrastructure improvements	Typically, 75% County 25% Local	Consult County Dept. of Community Development grant manual	Grant application and agreement between county and municipality
State/ Municipal	Transportation partnership	Various safety and capacity improvements	Federal or state shares vary by project	Based on the requirements of State Act 47 of 1985	Municipal CIP DVRPC TIP (for federal funds) PennDOT 12 Year Program State Capital Program
State/ Municipal	Traffic impact fees	Various capacity improvements as defined in the required land use and traffic studies conducted by the municipality as specified in the municipal capital improvements program (CIP)	Share determined in CIP; maximum state participation is 50%	Based on the requirements of State Act 209 of 1990	Municipal CIP DVRPC TIP (for federal funds) PennDOT 12 Year Program State Capital Program
Municipal	Debt financing	Various capacity, safety or maintenance improvements as defined by appropriate statute	100% Local	Limit of indebtedness regulated by state statute; projects must be approved by the governing body, and in some cases, by the electorate	Municipal Budget
Municipal	General fund	Various capacity, safety or maintenance improvements as defined by appropriate statute	100% Local	Projects must be approved by the governing body; restrictions are identified in the municipal code	Municipal Budget
Municipal	Liquid Fuels Fund (LFF)	Construction, reconstruction or maintenance of bridges and roads	100% State; allocations based on legislative formula	Project approval by the governing body and PennDOT; road must be on the approved liquid fuels system	Municipal Budget PennDOT approval

Source: The Chester County Planning Commission, 2004

Regional Participation

Roadways are the primary means of transportation in New Garden and the region, as the private automobile is the predominate mode of mobility. As such, the Township recognizes the importance of the surrounding region when considering transportation issues. The regional role of US Route 1, Baltimore Pike, Route 41, and Limestone Road; and the sub-regional function of Newark and Kaolin Roads, connect New Garden to other municipalities, regions, and states, and have direct implications for the Township. Regional freight rail service is at a standstill as rail reconstruction occurs. However, once improvements have been made the continued use of the rail line for freight service is promising for industrial and commercial use. The long-term potential of limited passenger rail service remains as a credible future opportunity. Consideration is being made to the future of the New Garden Airport, it is important to ensure the continuance and viability of the airport due to the potential for economic development and increased capacity. Participation by New Garden in regional transportation efforts of an active Avon-Grove Regional Planning Commission (in the meantime the individual municipalities) and the Kennett Area Regional Planning Commission (KARPC), along with regular local decision making on issues related to transportation, is necessary to identify needed improvements caused by growth and development within and outside of the Township.

- **Maintain the regional importance of US Route 1, Baltimore Pike, Route 41, and Limestone Road.**

US Route 1, Baltimore Pike, Route 41, and Limestone Road are the most important roadways in the Township and region based on their heavy traffic volumes and mobility functions. They will continue to be vital regional roadways in the future, connecting the southeastern area of Pennsylvania with Delaware and Maryland to the south, Philadelphia to the east, and Lancaster County to the west. These routes experience heavy levels of traffic and carry significant volumes of truck traffic and as development in the southern portion of New Garden increases, and workers to/from Delaware and Maryland continue to pass through the Township, traffic volume, and its ancillary issues, are likely to increase. New Garden will work with regional transportation entities to retain the primary mobility function of US Route 1, Baltimore Pike, Route 41, and Limestone Road in order to reduce the pressure on lower functioning roadways.

- **Plan for the mitigation of traffic impacts during the reconstruction of US Route 1.**

PennDOT has determined that a long term reconstruction of US Route 1 will be necessary and is beginning the design process as of 2004. The total reconstruction of US Route 1 will occur within the next 10 years. This will have significant impacts on traffic during the reconstruction period and the Township should begin planning for the potential impacts in conjunction with neighboring municipalities and the Kennett Area Regional Planning Commission.

- **The Township should aggressively pursue options for improvements to Route 41.**

The Township should continue to monitor and comment on the potential improvements to Route 41. The need for additional capacity is well documented between US Route 1 and the Delaware State line and the Township should continue to formulate an opinion of what scale of improvements should be undertaken to mitigate congestion and access issues along Route 41 while protecting businesses and serving Township residents. The Township should consider the Land Use / Growth Management Alternatives Study for the Route 41 Corridor, November 2003, prepared by McCormick, Taylor and Associates under the guidance of the Chester County Planning Commission and funded by the Delaware Valley Regional Planning Commission, for guidance on potential improvements and impacts regarding Route 41.

- **Work with the Avon-Grove municipalities and the Kennett Area Regional Planning Commission (KARPC) to achieve a safe and adequate transportation network.**

As the region continues to grow and develop, the municipalities will need to manage their transportation network as a common resource and recognize that certain roads can and will influence all the municipalities they pass through. These regional roadways should not be managed on a municipality-by-municipality basis, instead, more coordination among all affected municipalities is necessary. The KARPC should be the agency to oversee and coordinate the region's transportation network.

Roadway traffic volumes within the region are increasing, while no new regional roadways have been constructed. The actions defined for New Garden within this Chapter will relate to the transportation network throughout the region. The location of future development in the Township and the region will be an important influence on these transportation systems. New development will alter existing circulation patterns, create additional congestion, and contribute to the construction of more roadways throughout the region. New Garden will work with the Avon-Grove municipalities and the KARPC communities to discourage sprawl, encourage access management, and promote the efficient use of existing transportation facilities and services. These actions will primarily involve inter-municipal coordination of the roadway system, conducting improvements that relate to the regional system, and adopting policies that will contribute to the efficient use of the existing roadway system.

As noted, current roadway conditions within the region will likely worsen with increased development and traffic. One tool to address this issue is to have uniform roadway functional classifications. The designation of roadway functional classification varies between the municipalities within the region and could result in a less efficient use of the roadway system. New Garden will work with the Avon-Grove municipalities and with the KARPC to review current classifications and coordinate and establish a consistent regional roadway functional classification system.

- **Continue participating in regional planning efforts to supplement the transportation goals and objectives of this Comprehensive Plan.**

This Comprehensive Plan provides the overall vision for New Garden. However, regional planning efforts should be implemented through the Avon-Grove municipalities and the KARPC to further refine transportation strategies. It is vital that the Township participate in joint planning efforts with neighboring municipalities with respect to transportation issues. New Garden should ensure that any regional plans that effect the Township are consistent with the goals and objectives of this Comprehensive Plan.

- **Continue to participate in and monitor adjustments to the regional transportation plan.**

New Garden will continue to monitor and provide information to update the transportation plan to the Chester County Planning Commission and the Delaware Valley Regional Planning Commission to ensure the beneficial use of this effort. The Township will maintain awareness of regional developments, particularly where projects effect areas within New Garden.

- **Continue planning a local and regional trail network with connections to the sub-regional spur trails.**

In conjunction with the recommendations of other chapters within this Plan and the *New Garden Open Space, Recreation, and Environmental Resources Plan*, 1993, the Township should continue efforts to create a trail system to link key areas within the Township and the region. These trails would accommodate pedestrians, bicyclists, or a combination of both, depending on their design and location. The Open Space Plan recommendations focus on developing trails through undeveloped areas and separate rights-of-way. This recommendation focuses importance on trails along regional roadways or on road shoulders to connect the various urban centers, employment centers, and shopping centers; for example along Baltimore Pike, especially in the Toughkenamon area, to provide

pedestrian access to the New Garden Shopping Center area and to Avondale. The Township should ensure that there are adequate means for residents to access these trails. Communication with the adjacent communities is essential to ensure that links are continued past the Township's borders. Tool #58: Pedestrian and Bicycle Facilities Design, in the *Chester County Community Handbook Volume II*, provides further information on these trails and their support facilities.

- **Support efforts to mitigate existing problem areas.**

The layout of many of the roadways within the region were designed and constructed in the 18th and 19th centuries. Today, these historic roadways reflect the placement of buildings during those centuries and can not be easily moved. Opportunities for improving the regional road network are therefore limited in many cases by narrow rights-of-way or the presence of these buildings adjacent to the roadways. These impediments of the Township's and region's roadways can hamper the ability to widen or otherwise improve these roads without acquiring private property or encroaching upon the structures. The Township will support regional and local efforts to mitigate these difficult areas by working with property owners and undertaking selected projects to improve road safety, such as increasing sight distances and improving shoulders and signage without compromising the aesthetic character of the Townships scenic roadways.

- **Support efforts to maintain and improve existing public transit facilities and opportunities.**

Public transit within the Township and region is limited. It is more easily used by patrons and is most efficient when it serves densely developed areas. As new development and redevelopment takes place within the region there will be an increased need for convenient public transit to the urban centers, employment centers, and shopping centers of the region and of Delaware. New Garden should work to support efforts to maintain and improve the provision of public transit opportunities within the Township and region. In addition, the Township should work to encourage new development in areas that can take advantage of public transit opportunities.

Resources

Circulation Handbook, Chester County Planning Commission, West Chester, PA, 1994

Tool #58: Pedestrian and Bicycle Facilities Design, *Chester County Community Handbook Volume II*, Chester County Planning Commission, West Chester, PA, 1999

Federal

National Highway System	(http://www.fhwa.dot.gov/hep10/nhs/)
TEA-21 (Program Fact Sheets)	(http://www.fhwa.dot.gov/tea21/factsheets/index.htm)
Surface Transportation Program	(http://www.fhwa.dot.gov/tea21/factsheets/stp.htm)
Congestion Mitigation and Air Quality	(http://www.fhwa.dot.gov/tea21/factsheets/cmaq.htm)
Federal Transit Administration	(http://www.fta.dot.gov/)
Job Access Reverse Commute	(http://www.fta.dot.gov/w1w/jarcgfs.htm)
Americans with Disabilities Act	(http://www.justice.gov/crt/ada/adahom1.htm)

State

Pennsylvania Department of Transportation	(http://www.dot.state.pa.us/)
Pennsylvania Infrastructure Bank	(http://www.dot.state.pa.us/)

Chapter 15

Housing Plan

This Chapter presents a housing plan aimed at preserving the existing housing stock and ensuring that a variety of housing alternatives continue to be made available to both present and future residents of New Garden. These recommendations are not intended to be considered independently, but should be evaluated in conjunction with the future land use recommendations, since housing issues are linked to land use policies.

Monitoring housing opportunities and conditions is a role of the municipal government as a function of its responsibility to maintain the health, safety and welfare of local residents. New Garden contains one large village area, Toughkenamon, and a variety of large subdivisions and trailer parks, which offer a range of housing alternatives. The Township provides or oversees many essential services used by residents. These services, along with the availability of large tracts of land and infrastructure, have encouraged development in New Garden. Along with easy access to the major regional transportation routes, including US Route 1, Route 7, Route 41, Route 82, and Baltimore Pike; and employment opportunities in Delaware, all of these factors have influenced increasing amounts of new residential development.

New Garden's goal and objectives for the provision of housing opportunities are as follows:

Goal:

To have a wide variety of housing opportunities, including housing for older residents and special needs groups, and to meet the needs of various types of households and income levels, while assuring that the housing is decent and safe.

Objectives:

- Ensure land use regulations are consistent, adhered to, and enforced to meet housing needs.
- Encourage safe, decent, and affordable housing for all residents.
- Educate residents about various housing groups to take advantage of programs and services.
- Allow higher densities for residential development in and around the village areas, subject to connection to public services.
- Continue to improve the code enforcement program in an effort to meet the minimum certification requirements of the state building code.
- Encourage future development to locate near existing and proposed water and sewer services.
- Designate new areas for residential growth and development in keeping with the existing character of the community and providing opportunities to continue the existing mix and diversity of housing types and values, including opportunities to provide senior housing with various levels-of-care.
- Encourage creative site design and flexible land use ordinance standards to accommodate housing that blends into the character of the surrounding landscape.
- Protect the character of existing residential neighborhoods by ensuring land use controls do not allow incompatible uses.

The Pennsylvania Municipalities Planning Code (Section 301(a)(2.1)) specifically states that a Comprehensive Plan must include a “plan to meet the housing needs of present residents and of those individuals and families anticipated to reside in the municipality.” Although the MPC stops short of mandating affordable housing, it does reference the “accommodation of expected new housing in different dwelling types and at appropriate densities for households of all income levels.” In addition, the

MPC indicates that the Plan should address, as needed, the conservation of sound housing and the rehabilitation of housing in declining neighborhoods. This Housing Plan will address these issues within the framework of the Township's established goals and objectives.

Residential Development

Proximity to Wilmington, Delaware and the rolling, picturesque landscape are two of the factors that have determined the existing pattern of residential development in New Garden. Single-family detached units make up the majority of the Township's housing stock. Residential land use is the most extensive type of development, accounting for over 25 percent of the total land area, within four (4) zoning districts, R-1, R-2, R-3, and UD. The following is a look at the potential for residential development in New Garden using existing conditions within each residential zoning district. (Note: PS = Public Sewer / PW = Public Water / DU = Dwelling Unit)

R-1 Residential: The R-1 District was established primarily for low-density single-family development on lots of one acre (43,560 SF). Cluster development is permitted within the district on 20-acre parcels, with a minimum lot size of 12,500 SF and the provision of public sewer and public water. Any proposal for development containing 10 or more DUs is required to cluster their development. There are 6,091 total acres within this zoning district, of which 1,953 are currently developable, with a development potential of 1,953 single-family units if totally built-out.

R-2 Residential: The R-2 District was established primarily for high-density single-family, semi-detached, and single-family attached units on various sized lots based on whether or not public sewers and/or public water is provided. Cluster development is permitted within the district on 20-acre parcels, with a minimum lot size of 12,500 SF for single-family detached and 8,000 SF for single-family semi-detached provided public sewer and/or public water are available. Any proposal for development containing 10 or more DUs is required to cluster their development. There are 1,462 total acres within this zoning district, of which 288 are currently developable.

R-3 Residential: The R-3 District was established primarily for high-density single-family, semi-detached, and single-family attached units on various sized lots based on whether or not public sewers and/or public water is provided. Cluster development is permitted within the district on 20-acre parcels, with a minimum lot size of 12,500 SF for single-family detached and 8,000 SF for single-family semi-detached provided public sewer and/or public water are available. There are 42 total acres within this zoning district, of which 8 are currently developable.

UD Unified Development: (Note: This reflects the existing UD District and not the proposed district.) The UD District was established primarily for mixed use development and residential uses in combination with mixed uses in a unified development. For residential development there is a minimum of 100-acres in the tract of which up to 50 percent and a minimum of 5-acres can be used for single-family detached and single-family attached residential development whether or not public sewers and/or public water is provided. There are 1,330 total acres within this zoning district, of which only one parcel qualifies (the 128 acre St. Anthony tract with 57 developable acres) for development.

Other District Residential Standards: The C/1 Commercial and the HC Highway Commercial Districts allow, as an accessory use, a single residential unit only for the owner/operator in the principal building. The BP Business Park District allows as a Conditional Use, 1-2 single-family detached units for every 10 contiguous acres with public sewer and public water.

Residential Recommendations

The following recommendations address issues in terms of providing for various housing forms. These should be considered in conjunction with the recommendations relating to residential development contained in **Chapter 16, Land Use Plan**.

- **Continue to provide for a range of housing types.**

The various types and sub-types of residential development allowed in New Garden are referenced in the Definitions of the Zoning Ordinance. The Township provides the opportunity to develop various residential types, thereby fulfilling key elements of the fair share obligation (See: **Chapter 16, Land Use Plan**, discussion of fair share obligations). The Township will review and update as necessary the various definitions to clearly define each term for a better understanding of where different residential types are permitted, and reducing ambiguity in reviewing development plans. For example, the Township Zoning Ordinance does not contain a definition for a commercial use with apartments on the second floor. This could be termed as a mixed use, or accessory apartments. As of 2004, the Ordinance references Apartments to the Multi-family use definition, which is essentially defined as more than three units with common walls. Existing definitions will need to be examined for potential modifications or terms added to add specificity and flexibility. See **Chapter 16, Land Use Plan**, for additional discussion of this issue.

- **Continue to allow for Residential Cluster Design.**

Residential Cluster Design serves as an overlay district permitted in the R-1 and R-2 residential districts and is required for all subdivisions of 10 or more lots, provided they are served with both public sewer and public water. Because of the potential for open space preservation, natural resource protection, and support in meeting fair-share obligations, New Garden should continue to allow for and encourage the residential cluster design option. However, it is recommended that the Township modify the cluster development regulations to permit a mix of housing types and ensure well designed open spaces within such developments. A maximum lot size and minimum open space of 50 percent should also be required. See **Chapter 16, Land Use Plan**, for additional discussion.

- **Continue to apply the Conditional Use or Special Exception processes to ensure that new housing development meets the objectives of the Land Use Plan.**

In each residential district, some residential uses are subject to the Conditional Use or Special Exception provisions of the Zoning Ordinance. This gives New Garden discretionary authority over the projects, in particular, the ability to specifically evaluate the effect of the proposed development on the neighborhood and set additional conditions for development. This discretionary authority should be used to ensure that the proposed development blends with the surrounding land uses, is buffered from adjacent development, provides for open space, and offers sufficient recreational opportunities. New Garden will continue to apply the Conditional Use or Special Exception processes to ensure that new housing development fits in with existing land uses.

- **Review and Update the R-3 District Regulations and Standards.**

The R-3 District is a high density residential district in the Toughkenamon area that provides for a range of residential type uses by-right and a plethora of mixed uses by Conditional Use. This area is reaching build-out, with a limited number of in-fill parcels, the Township should review and modify the R-3 district regulations considering, the amount of land available, the type of allowed uses, the various dimensional requirements, and the Town Center Option within the district. The opportunity for infill of vacant properties and redevelopment of existing properties should be carefully examined. Please see recommendations regarding Toughkenamon in **Chapter 16, Land Use Plan**, for more discussion.

Housing Affordability

The availability of affordable housing in New Garden is a topic that should be examined. Any lack of affordable housing limits housing choice and indirectly excludes those residents that desire housing, other than traditional single-family detached units. Not having enough affordable housing can result in a deficiency of diversity, and prevent, for example, older residents from remaining in the community if they desire smaller homes upon retirement, or, young people from purchasing their first home. This can also impact community stability, whereby a community would not be able to rejuvenate as its population ages. The lack of moderately priced housing can also affect employment patterns and the ability to fill many job types. If moderate income households cannot afford to live in a community, the quality of life for all residents can suffer. Addressing the barriers to affordable housing at the municipal level helps to facilitate the creation (and preservation) of housing forms that suit the needs of residents at all ages and income levels. The following recommendations relate to affordable housing in New Garden.

- **Encourage in-fill development.**

An important way to accommodate new housing and residential choice without promoting sprawl-type land consumption is by encouraging in-fill on parcels surrounded by development. Most of the lots available for in-fill in New Garden are along the major roadways, in the village areas, and on smaller lots with the potential to accommodate moderately priced homes. Toughkenamon still has open lots and presents opportunities for residential in-fill and should be viewed as a place to focus future residential development (See: R-3 recommendation, above). In order to maintain the existing scale, the Township should encourage in-fill residential options be similar to the size and type that is already existing. Rectifying existing and future stormwater and sewage issues will be a primary objective to achieve future goals for Toughkenamon. See recommendations above and in **Chapter 16, Land Use Plan**, for additional discussion on strategies to accomplish this task, such as changes to the Township Zoning Ordinance.

- **Support the development of elderly housing in the Township.**

An analysis of the 1980-2000 US Census demographic characteristics of New Garden indicates that the number of residents 65 and older was 345 in 1980, 656 in 2000, and is arithmetically projected to be 864 in 2020. To accommodate the growing number of elderly persons, the Township should ensure the potential for development of elderly housing, thereby providing the opportunity for residents to transition into such housing without relocating to another community.

Elderly housing within the Zoning Ordinance is accommodated in several different forms. It is allowed by Special Exception in the Highway Commercial District as "convalescent home..." ("convalescent home" is not defined within the Ordinance); in the Commercial Industrial District by Special Exception; and in the Unified Development District as a Conditional Use using the criteria within Section 1721 "Retirement/Community Care Facility". Continuing Care/Nursing Home is allowed by right and required to be part of age restricted housing (age 55+) developments. New Garden should continue to review the specifications, regulations, types of allowed uses, and definitions for elderly type housing in all Districts and update the ordinance as necessary.

The Township should consider allowing "Retirement/Community Care Facility" in a wider range of residential zoning districts, since they primarily differ from a standard subdivision only in their age restrictions. Other personal care facilities and "nursing homes" require a higher level of care and are more appropriately located where they are in closer vicinity to transportation, community facilities and services, and public sewer and water.

Housing Conservation

New Garden has a variety of homes and neighborhood settings that combine to create the Township's residential character and quality of life. Most of the homes have been constructed on individual lots as a part of subdivision development. The older homes are found along established roadways. Over the past decades, newer homes have intermingled with these older homes and have produced an eclectic pattern of housing development. The quality of housing stock overall appears to very good, but in some cases in need of routine maintenance and rehabilitation. Maintaining a quality home requires a concerted effort on the part of both the individual property owners and the Township, and having the finances to carry out the needed maintenance. The following series of recommendations addresses conservation of the housing stock in New Garden.

- **Continue to enforce and regularly update Township construction and property maintenance codes and place a high priority on enforcement of these Codes.**

New Garden will be opting in to use the Uniform Construction Code (UCC), the official Building Code of Pennsylvania. In addition, the Township will adopt the 2003 edition of the International Construction Code (ICC) codes required by the state and have inspections completed by contract. New Garden recognizes the importance of these codes and as such will regularly update the codes in order to help the Township maintain high standards and set expectations for building construction and maintenance.

One important section of the UCC contains a property maintenance element that can be used to reduce property and neighborhood decline due to poor maintenance. Currently, the Township uses the 1993 version of the Property Maintenance Code. This element, and the ICC Property Maintenance Code, can be very important for New Garden. The purposes of property maintenance standards include protecting esthetics and property values by establishing minimum standards for the maintenance, appearance, condition, occupancy, utilities, facilities, and other physical components and conditions to make residences fit for human habitation, and to make non-residential properties fit for use. The adoption and active enforcement of such a Code, on both rental and ownership units, can identify problems early on and prevent maintenance issues associated with residential structures from becoming rehabilitation issues in the future. Early identification of issues, and working one-on-one with property owners, in resolving any identified problems, can save the property owner and the Township both time and money. New Garden will enforce and regularly update all of the Codes to prevent the decline of property values, a circumstance that can be difficult to reverse once begun.

- **Use the Zoning Ordinance and Sewage Facilities Plan to direct medium and higher density housing to appropriate areas of the Township as defined by the Land Use Plan.**

The Zoning Ordinance (1997, as amended) and Sewage Facilities Plan (1996) should be revised as needed for consistency with the recommendations of the Land Use Plan for types and intensity of housing. Medium and higher density housing should be directed into areas as shown on the Land Use map and as described in detail in the Land Use Plan. The Sewage Facilities Plan should further support directing proposed public sewer extensions to those areas indicated as appropriate in the Land Use Plan. Conversely, public sewage should not be extended into areas where it would support higher density development than desired for that area. Community systems, where provided in conjunction with the cluster design option, should be sized to meet only the needs of developments they are intended to serve.

- **Promote housing rehabilitation in locations where home maintenance is declining.**

In general, the housing stock in New Garden is very well maintained and rehabilitation is not a significant issue. The following recommendations are applicable in limited areas or isolated instances where declining housing stock is an issue or has potential to become an issue in the future.

When the maintenance of a home declines to the point that it is in need of rehabilitation, the value of surrounding properties can be affected. Rehabilitation of homes and buildings in New Garden should be encouraged where necessary. The Township can help to encourage rehabilitation where needed by providing information and a point of contact. Offering information to residents about homeowner rehabilitation programs, and encouraging younger families to consider older homes, can facilitate rehabilitation at virtually no cost to the municipality. Municipal officials should be made aware of the basic provisions and general application procedures, and pass along this information to residents as the case warrants. A large number of housing assistance programs available to individuals and the Township to help with housing rehabilitation and purchase. The Township should consider making information on this issue available on the Township website and in the newsletter.

- **Support preservation options in the Historic Resources Protection Plan.**

A number of the older houses in New Garden are of historic significance. Maintaining the Township's sense of place is directly linked to preserving the older, often historic, homes and buildings. Allowing the option for converting historic homes and buildings into a range of different uses, provides one method of encouraging their preservation and protecting the character of the places in which they are located. Conversions must take place, however, in a manner that is sensitive to the structure and its environs in order to retain the neighborhood's integrity and character. Several of the recommendations in **Chapter 9, Historic Resources Protection Plan**, discuss providing incentives to owners of historic properties to maintain and preserve these structures. These recommendations also support the general maintenance and rehabilitation of the Township's older housing stock. Prior to implementing this recommendation, historic properties will need to be completely identified and inventoried.

- **Review and update as necessary regulatory provisions associated with home occupations.**

New Garden's Zoning Ordinance does address the issue of home occupations (Section 1711). Home occupation provisions establish standards by which a homeowner can undertake a limited amount of business activity in residential uses. Such business activity is usually divided into categories: "major" or "minor"; those uses meeting the definition of "minor" are permitted by-right, while those considered "major" may be permitted by conditional use or special exception. Although ordinance wording contains provisions that regulate their scale, home occupations can quickly expand and grow beyond their accessory use status. Home occupations that are not in compliance with established standards can have a negative impact on residential neighborhoods and their overall stability. To maintain the residential character of the neighborhoods and conserve the housing units for their intended use, home occupations in New Garden will need provisions that regulate their scale and be monitored to ensure continued compliance with zoning standards and the MPC. The MPC Section 107 contains standards for "No-impact home based business" or minor home occupations, the Township may also choose to include regulations for major home occupations that allow for somewhat more intensive uses to address issues such as deliveries, employees, and similar items.

Farm Worker Housing

Farm worker housing is primarily considered an issue in relation to housing for mushroom workers. Housing needs of most mushroom farm workers can be addressed by providing for varied, affordable housing options designed for both individuals and for families. Since this target population supplies labor specifically for the mushroom industry, the industry itself must participate in addressing the housing shortage. Farm worker housing was identified in **Chapter 5, Housing Inventory**, of this Plan, as an issue and the following recommendations address some of those issues. These recommendations also consider farm worker housing beyond that which is strictly related to the mushroom industry.

- **Conduct an inventory of existing farm worker housing in the Township; and review and improve zoning regulations for the provision of farm worker housing based on the results of the inventory.** The Township Zoning Ordinance currently does not mention “Housing for Farm Workers” as a permitted use or accessory use to agricultural uses. In order to better assess farm worker housing, the Township should inventory the amount and type of existing farm worker housing. This information would also help to identify any particular problems with the farm worker housing situation and whether any other actions are needed on the part of the Township. Farm worker housing regulations should be geared towards the more intense housing needs associated with mushroom production. However, the Township might also consider allowing for accessory farm worker housing on a much more limited scale in zoning districts where agriculture is still prevalent. For example, a maximum of one to two farm-related dwellings could be permitted as an accessory use on agricultural tracts subject to meeting standards defined in the zoning ordinance. These types of accessory dwellings would be regulated as a distinct use from those permitted in the district.
- **Support the region’s initiatives in regard to farm worker housing and the mushroom industry.** Housing for workers in the mushroom industry was a frequent point of discussion during the development of the *Kennett Area Region Comprehensive Plan (2000)*. The issue was of particular concern to Kennett Square where a significant number of mushroom employees reside. Kennett Township and East Marlborough Township both specifically include provisions for farm worker housing in their zoning ordinances. The Regional Plan included a detailed discussion of the issues related to farm worker housing and the mushroom industry. Four specific recommendations were included in the Regional Housing Plan element:
 - Support the efforts of the non-profit organizations in developing mushroom farm worker housing.
 - Encourage mushroom industry leaders to accept greater responsibility in addressing needs for farm workers.
 - Review zoning regulations affecting the provision of on-site farm worker housing.
 - Support the New Garden Township planning strategies aimed at increasing affordable housing opportunities.

The Regional Plan should be consulted for additional information regarding these recommendations.

Conclusion

A major responsibility of New Garden officials is to plan for the housing needs of both present and future residents, and to preserve and protect the existing housing stock. The Township has a policy to address a range of housing needs through the zoning ordinance by allowing for a variety of housing types aimed at accommodating individuals and families. According to population projections to 2020, the Township will see an increase in the number of residents. It is anticipated that through the implementation of this Housing Plan, the Township can strengthen the quality, variety, and availability of homes located throughout New Garden and encourage a program that will draw new residents of all ages and incomes and encourage housing that is decent and safe.

Chapter 16

Land Use Plan

This Chapter recommends a land use pattern for New Garden for the next ten years and provides recommendations for how to achieve the land use goals for the Township. The primary intent of the Land Use Plan is to achieve the Township's land use goals and objectives as outlined below. The Land Use Plan has factored the issues examined during the inventory and analysis phase, including transportation, existing land use, housing, natural resources, and community facilities, into the recommendations. It provides a framework for guiding other Plan section recommendations, such as community facilities and transportation, in terms of where improvements to infrastructure and community services are most appropriate and necessary. However, all the Plan chapters work together to implement the goals and objectives and many recommendations from other chapters are essential to actualize this Land Use Plan.

The first section of the Land Use Plan identifies land use categories in one of two primary categories, Resource Conservation and Growth. Explanations and recommendations are presented for each land use category. Several recommendations refer to the appropriate chapter where greater detail is given on a particular topic. The second section of the Land Use Plan is an analysis of the ability of the Plan to provide adequate housing for future populations and to address the capacity of the Land Use Plan to meet the "fair share" of housing issue.

The following Goal and Objectives for Land Use from **Chapter 9, Goals and Objectives**:

Goal:

To have orderly growth and development in appropriate areas of the Township, while protecting the community character and environment; making efficient use of public facilities, services, and infrastructure; considering existing land use; and preventing development sprawl.

Objectives:

- Direct growth and development to areas with adequate infrastructure while protecting open space, agriculture, forest lands, scenic viewsheds, steep slopes, water resources, and environmentally sensitive areas. Discourage scattered, unplanned development.
- Promote growth management and conservation development techniques, which endorse a balance of development and preservation strategies.
- Encourage in-fill development.
- Encourage innovative residential development.
- Maintain a diversification in residential uses considering densities and housing supply.
- Promote mixed-use residential developments containing retail, office, and recreational uses.
- Implement regulatory and non-regulatory methods and public and private initiatives for preserving open space and farmland and protecting important or unique natural resources.
- Encourage non-residential development that will provide a more diverse tax base, services for residents, and local employment opportunities without over-zoning for commercial, office, and industrial uses.
- Recognize the unique characteristics of the Toughkenamon and Landenberg areas through such methods as specialized zoning districts to maintain village character.

Foundation for Land Use Recommendations

The land use recommendations of this Chapter were developed based on a number of relevant issues discussed in the inventory phase of this Plan's development. The primary factors considered in the formation of the land use plan include the following:

- Existing land use patterns, particularly the Township's existing buildings and structures.
- The location and protection of sensitive natural resources.
- The location and functioning of the transportation network.
- The location of existing community facilities and services.
- The need to accommodate projected populations.
- The need to address housing concerns and fair share housing issues.
- The location and preservation of historic development patterns and cultural resources.
- Implementation of Township land use policies.
- Consistency with the land use plans and policies of adjacent municipalities and Chester County.

After careful comparison of the above factors, land use recommendations were developed and refined to best address the Township's goals and objectives.

LAND USE CATEGORIES

The Land Use Plan separates land use categories into two major planning areas, a Resource Conservation Area and a Growth Area. The purpose of these two primary categories is to direct growth to where it can best be accommodated and limit development in areas where growth is least appropriate to protect sensitive natural resources, provide open space, and promote groundwater recharge. Major infrastructure improvements or extensions should be avoided in the Resource Conservation Area. The Growth Area is considered where infrastructure improvements, such as public water and sewer, are most appropriate.

Map 16-1 displays the Land Use Categories and **Figure 16-1** contains recommended densities within each land use category.

- **Revise the Zoning Map and applicable district standards to make the Zoning Ordinance consistent with the Land Use Plan recommendations.**
The land use categories described herein serve as the framework for the ordinance revisions in terms of new district boundaries and permitted land uses, densities, and the planning techniques appropriate within each zoning district. The Future Land Use category boundaries are not necessarily intended to directly translate into potential zoning districts, but provide a framework and baseline for future zoning changes to be refined during zoning update processes. New Garden should amend its zoning ordinance so that they are consistent with the Land Use Plan.
- **Relate sewage and water facilities planning to the Land Use Plan.**
Public sewage and public water facilities planning is critical to the future growth of New Garden. The Township conducted a update to their *Act 537 Plan* (1996). If development is to be effectively directed, future extensions of sewage facilities and the installation of water facilities must be carefully planned accordingly. The Township should update the *Act 537 Plan* in relation to the Land Use Plan. The land use categories in the Growth Area are considered appropriate areas for the provision of public sewer and public water. Recommendations for both public sewage and public water facilities planning are included in **Chapter 11, Community Facilities and Services Plan**. Additional recommendations concerning their relationship to resource protection issues, and groundwater recharge in particular, are discussed in **Chapter 12, Natural Resources Protection Plan**. The

Township should coordinate with adjacent municipalities and the Kennett Area Regional Planning Commission on public water and sewer planning and consider completing a joint Act 537 plan with one or more adjacent communities.

Resource Conservation Area

The purpose of the Resource Conservation Area is to conserve the primary natural resources of the Township, while allowing limited growth and low intensity uses that are primarily not dependent on public water or sewer. Open space, recreation, agriculture, and low density residential uses are intended to characterize this area. The Resource Conservation Area is divided into two categories, Resource Protection and Site Sensitive Design. These two areas are meant to protect the most sensitive natural resources and avoid the extension of public water and sewer facilities to discourage higher intensity growth.

- **Adopt comprehensive Natural Resource Protection Standards.**

Natural resource protection standards are primarily implemented through the zoning ordinance. In 2004, the Township's Zoning Ordinance included protection standards for floodplains, with additional protection for steep slopes, woodlands, wetlands, and prime agricultural soils only within cluster developments. In order to fulfill the intent of the Land Use Plan, and particularly the Resource Conservation Area, a range of environmental resources, including watercourses (riparian buffers) and steep slopes, should be afforded protection throughout the Township. In particular, the creation of riparian buffers along streams identified in **Chapter 12, Natural Resources Protection Plan**, should be adopted as an effective means of protecting surface water and wildlife habitat. **Chapter 12** also discusses possible improvements to the woodland protection standards, including the expansion of the woodlands definition and the addition of individual specimen quality trees and hedgerows to the vegetation protection standards. The addition or improvement of these resource protection standards will be completed during zoning ordinance updates. See **Chapter 12** for more information on Natural Resource Protection recommendations. The Township should coordinate with the Kennett Area Regional Planning Commission for more information, as the majority of communities within that body coordinated on adopting a range of appropriate resource protection standards.

Resource Protection

The Resource Protection Area contains some of the last remaining large open lands within the Township and the major streams and sensitive natural areas, such as steep slopes and floodplains. The focus within this area is the protection of streams and sensitive natural features along with the protection of large tracts of land through easements, creation of parkland, or some other method. Adoption of progressive zoning regulations for natural features, and the strict enforcement of these regulations, are critical to achieving the goal for this area.

- **Adopt a Scenic Preservation Overlay District.**

The zoning ordinance does not include a Scenic Preservation Overlay District. This Overlay District will be used to implement the scenic resources recommendations discussed in **Chapters 13 and 14**. The implementation of ridgeline protection standards should also be considered during the Zoning Ordinance update to address the issue of homes situated above ridgelines where they could be detrimental to scenic vistas. As noted in **Chapter 12**, the expanded protection of natural resources will also facilitate the protection of the scenic qualities of the Township.

- **Place significant areas of land on the Official Map.**

The Township should identify significant parcels of land such as large remaining undeveloped lands or key parcels that may contribute to natural corridors and place them on the Official Map. The

Official Map is a tool whereby the Township may notify the public, developers, and other persons or agencies that a tract of land is recognized for a potential future use that the Township would like to preserve. The Township has one year to acquire a property listed on the Official Map if and when a property is sold, developed, or subdivided. For more information on the Official Map see **Chapter 14, Transportation Plan**.

- **Use conservation easements and land trusts to protect open lands.**

Conservation easements are legal documents that limit certain activities on the land and conserve specific natural features. The Township should identify parcels that may be candidates for easements and communicate preservation options to landowners.

Site Sensitive Design

The primary land uses in this area include low-density residential development and lands that are currently used by the mushroom industry. There are significant natural features within this area, although not to the extent of the Resource Protection Area. Many of the parcels in use by the mushroom industry do not utilize the entire parcel, and in several cases, these parcels are of significant size. The focus of this area is to continue to allow development and the continuance of the mushroom industry, but to focus on the protection of natural features through zoning regulations and allowing development that minimizes the effect on natural features such as progressive residential conservation design or “cluster”.

- **Modify Cluster Development Regulations.**

The primary purpose of this technique is to protect natural resources and to establish permanent open space while permitting a similar amount of development to what would have been possible under a conventional development pattern. New Garden provides for cluster development as an overlay district on lots of twenty or more acres with public water and public sewer in the R-1 and R-2 Zoning districts, and is required for all proposed subdivisions within these districts of ten (10) or more lots, provided they are served with both public sewer and public water. Minimum required open space for clustering in the Township is 40 percent and only one housing type is permitted. Single-family attached units and multi-family units are not permitted in the R-1, but are allowed in the R-2 district.

Because of the potential for open space preservation, natural resource protection, and potential support in meeting fair-share obligations, New Garden should continue to allow for and encourage the use of the residential cluster design option. However, it is recommended that the Township modify the cluster development regulations to: 1) permit a mix of housing types; 2) ensure well designed open spaces within such developments and linkages with adjacent open space areas; 3) require a minimum of 50 percent open space; 4) Require a maximum lot size and 5) reduce the threshold for clustering from 20 acres to 10 acres. The *Cluster Residential Design Guide* (2003) by the Chester County Planning Commission is one document the Township may use as a reference to modify the cluster regulations.

Growth Area

The purpose of the Growth Area is to provide opportunities for housing and areas for business growth to provide jobs, goods, and services for the Township’s population while bringing tax revenue to support the needs of the community. The Growth Area is divided into five categories; Suburban Residential, Village, Rural Center, Economic Development, and Business Park. Growth areas are where expanded public facilities should be focused to implement the intensions of the Land Use Plan.

Suburban Residential

The Suburban Residential area is almost fully developed by residential neighborhood development. However, there is still some land within this area that may be developed. The remaining areas within this category should be allowed to develop in a similar character to the development that has already occurred.

Village

The Village area consists of Toughkenamon and the surrounding area that may allow for the appropriate growth of the village to provide a mix of housing densities and uses. The Township should promote the development of a mix of uses within the Village area to provide both multi-family housing, as well as small-scale retail and service commercial uses that are appropriate to serve the needs of the community. The Village area should provide a mix of residential housing in order to increase the variety of housing in New Garden, as well as to provide housing adjacent to new and existing commercial and service uses.

There are sites within the existing area of Toughkenamon for infill development. However, this area should be expanded to create opportunities for appropriate larger uses and future development while protecting the original fabric of the central portion of the Village area. Infill and redevelopment should be of the same scale of the existing village and provide for a mix of uses. Additional development should also be of similar scale and continue the grid pattern of streets where appropriate roadway extensions are added. It will be necessary for the Township to amend the Zoning Ordinance in order to accomplish the intentions of this area.

- **Address potential for in-fill development and adaptive reuse.**

The use of in-fill development and adaptive reuse are particularly applicable in Toughkenamon, where there are opportunities for reuse of older buildings and in-fill development of vacant or underutilized properties. These techniques support both economic development, revitalization, and historic preservation objectives.

In-fill development is the process of improving underused or vacant parcels within areas that are otherwise largely developed. Such development intentionally mimics the area, bulk, and style of adjacent properties. Taking advantage of in-fill opportunities contributes to economic development by providing investment, vitality, and additional development opportunities. In-fill maximizes the use of existing infrastructure and focuses development in existing developed areas. In-fill can be encouraged in several ways including: creating an inventory of in-fill sites, providing design guidelines, and ensuring that zoning regulations and building codes are conducive to allowing the use of in-fill development. Adaptive reuse is the process of converting or altering a building to accommodate a viable new use other than the one for which the building was originally designed. The conversion of single family homes into apartment buildings, commercial uses, or apartments over commercial uses in the same building are examples of adaptive reuse. The Township should consider allowing for adaptive reuse of existing structures as well as allowing for mixed use structures for infill development.

- **Amend the Zoning Ordinance to facilitate appropriate infill and future development.**

The Township should consider expanding the R-3 District, or develop a similar appropriate zoning district, in order to extend the lot size and available uses to the area indicated on the Land Use Plan. The existing R-3 (2004) allows for single family residential units on a minimum lot size of 15,000 square feet and non-residential uses on lots of 20,000 square feet or greater with public water and sewer facilities. Additional development capacity is allowed on lots of 1 acre or greater (Town Development Option permitted by conditional use). The Town Development Option allows for single family residential units on lots of 6,000 square feet and non-residential development on lots of 10,000 square feet and greater. Due to the existing small size of the existing R-3, there are few parcels remaining that would allow for the Town Development Option, expanding the R-3 to match the

Village Area would increase the potential for the use of this regulation to contribute to the fabric of the village. The mean size of parcels within the Village Area is roughly 12,000 square feet as displayed on **Map 16-1**. The Township should consider either adopting the Town Development Option area and bulk standards as the by-right standards for the expanded R-3 District or allow the Town Development Option as a use by-right in the expanded R-3 District. Furthermore, the Township should reconsider the uses allowed by-right within the R-3 District. Some of the conditional uses, such as personal service shops and retail stores, should be reconsidered as by-right uses to increase the potential for economic development within the village.

- **Inventory infill sites and potential sites for redevelopment.**

The Township should develop an inventory of vacant or underdeveloped sites within the village area as well as lots and structures that have potential for redevelopment. Communication should be developed with property owners and the local business community to examine opportunities to develop and revitalize the Toughkenamon area.

- **Add potential future road alignments to the Official Map.**

The Official Map legally establishes the location of public lands and facilities, existing and proposed streets, waterways, parks, trails, and other public lands and facilities. The Township should consider the addition of potential future roadways in the Village area on an Official Map, in order to continue the traditional grid pattern of streets within Toughkenamon into areas where future development occurs. For inclusion on the Official Map, it is not necessary for these roadways to be surveyed or intricate details be determined, only an approximate alignment is necessary. It may be appropriate to include approximate cartway and right-of-way widths that are to the same scale with the remainder of the roadways within the existing village. For more information on the Official Map see **Chapter 14, Transportation Plan**.

- **Consider the addition of a Township park in the Village area.**

The Township should communicate with the residents in the Toughkenamon area to identify the need for and support of a future park in the Village area. A process should begin to identify where a park may be located within the Village area and strategies for the funding, development, and construction of the park. The Township should develop regulations in the Zoning Ordinance to allow public parks as a use by-right with the appropriate additional standards such as lighting, parking, landscaping, and buffering. When a potential location(s) is/are identified, the site(s) should be identified on the Official Map. For more information on the Official Map see **Chapter 14, Transportation Plan**.

- **Encourage infrastructure improvements within the Village area.**

As development and redevelopment occurs in the Village area, the Township should encourage the installation of appropriate infrastructure to encourage pedestrian activity, economic viability, transportation, and safety. Sidewalks and street lighting should be included in future development, as well as traffic calming measures. The Township should consider establishing more specific parking regulations for the Village area. Issues such as on street parking, access management, public parking lots, landscaping, and buffering should all be considered. Parking regulations should ensure an appropriate amount of parking for specific uses within a Village context, including well designed parking facilities and proper access management. Parking has been a challenging issue in developed areas, such as Toughkenamon, and this issue should be carefully considered and planned as Toughkenamon continues to develop so that it does not become a problem to be remedied after development and redevelopment has already occurred.

- **Address stormwater issues within the village area to address existing issues and to require appropriate management for future development.**

The Township should update its stormwater regulations to address the required NPDES II requirements and, furthermore, consider including progressive implementation standards such as those developed by the Chester County WRA to ensure installation of proper stormwater management infrastructure in new developments. This is important to address issues throughout the entire Township and is critical to address issues in the higher density areas such as Toughkenamon, in addition to providing for effective stormwater management for development and redevelopment in and around the village.

Rural Center

The area surrounding the intersection of Route 41 and Limestone Road, known as Kaolin, is recognized as a "Rural Center" by *Landscapes*, the Chester County Comprehensive Plan. This designation was reviewed and approved by the Township, and implementation of the Rural Center has begun through the continuing evolution of the Township's Unified Development (UD) Zoning District. However, a large portion of the UD District has developed as residential development along with proposals for large commercial developments. The intention of the Rural Center is to provide an area that is developed to provide a mix of uses, including businesses, to provide goods and services along with a mix of residential housing to provide a variety of housing options for Township residents. It is essential that uses in the Rural Center area are planned so that they function together with existing and potential future uses to function together in terms of access management, parking, scale of uses, and mix of uses. The Rural Center area should be developed to include pedestrian elements that may not be found in the Economic Development area, such as connecting sidewalks, traffic calming elements, open spaces or mini-parks with pedestrian elements, benches or playgrounds, and encourage uses that have a community element such as coffee shops and grocery stores.

- **Continue to amend the Unified Development District (UD) and other zoning regulations, and Subdivision Ordinance to implement the intentions of the Rural Center area.**

In early 2004, the Township made changes to the UD District to amend certain types of uses and to inhibit further development of inappropriate "big-box" retail development in the Township. The Township should also consider a boundary change to the UD District with respect to the Land Use Plan **Map 16-1**. The Township should continue to investigate the UD District for additional changes to implement the intention of the Rural Center area. The types of uses, scale of uses, minimum lot size, setbacks, access management, and parking regulations are examples of issues that should receive further review for potential changes to the UD District. The Township should also review the Subdivision Ordinance for potential changes that would help accomplish the vision for the Rural Center area.

Economic Development

The Economic Development area essentially delineates the major roadway corridors of Baltimore Pike, Route 41, and Route 7. These areas are meant to provide a tax base for the community to reduce the burden on residents, as well as to provide goods, services, and jobs for residents. The Baltimore Pike corridor is suited for less intense uses due to the size of the roadway and the existing mix of uses, including commercial, mushroom, and residential uses. The Route 41/7 corridor is more suited for larger commercial, office, and light industrial uses. As displayed on **Map 16-1, Land Use Plan Map**, development along Route 41 should not be allowed to create a continuous stretch of development along the entire roadway. Instead, development should occur in nodes, primarily at key intersections where existing development already exists. There are areas along Route 41 that provide a buffer between the developed sections of the roadway and allow for scenic views and contribute to traffic mitigation. Access management is a key

concern along each of these roadways. See **Chapter 14, Transportation Plan**, for specific recommendations and a more detailed discussion of access management.

- **Amend the Zoning Ordinance to reflect the area and intent of the Economic Development area.**
The Township made changes to the UD District in 2004 and continues to make changes to commercial zoning districts. The UD District designation, in particular, contains some parcels in the southern portion of the District which are recommended as potential open space or lands that should be developed with sensitivity to natural resources as designated by the Resource Protection category. The Township should make an effort to evaluate the appropriateness of the Highway Commercial (H/C), Commercial-Industrial (C/I, C/I-2), and UD Districts to accomplish the intension of the Economic Development area.

The Township should consider the types of uses that are appropriate along each of the two primary road corridors (Route 41/7 and Baltimore Pike). This may involve making wholesale changes to the Commercial/Industrial Zoning Districts to reflect the two individual corridors. One potential resolution may involve creating two separate commercial districts, one for each corridor.

- **Complete an economic development study.**
The Township should complete an economic development study to determine the needs of the businesses within the Township and the potential for additional economic development. The study should identify types and locations for future businesses as well as a strategy for marketing and development of these opportunities. The Route 41 and Baltimore Pike corridors should be carefully examined in addition to the Toughkenamon area and the New Garden Airfield.

Business Park

The Business Park area is in the northwestern portion of the Township and designates an area that may provide a significant area for the development of campus type office or business park. The proximity to US Route 1 and the inclusion of the New Garden Airfield within this area provides a unique opportunity for the Township to promote this type of use. See **Chapter 14, Transportation Plan**, for more information.

- **Continue to communicate with the owners of the New Garden Airfield as to their intensions.**
The Township should continue to examine the airport and the surrounding area for potential future development as an office/commercial development complex capitalizing on the continued use of the airport and proximity to US 1 as transportation opportunities.
- **Complete a Special Study of the Business Park area.**
The Township should consider undergoing a Special Study of the Business Park area to determine the feasibility of future uses and development, while simultaneously gauging public and private support of this option. The Master Plan for the New Garden Airfield should be referenced as a part of this effort. A Special Study is a planning process similar to a comprehensive plan, but generally for a smaller geographic area and typically for a specific purpose. Funding for a Special Study is available from Chester County.

Figure 15-1: Land Use Plan Categories

Land Use Category	Acreage	Percent of Township Acreage
Resource Conservation Areas		60%
Resource Protection	2,370	23%
Site Sensitive Design	3,904	37%
Growth Areas		40%
Suburban Residential	2,304	22%
Village	357	3%
Economic Development	724	7%
Rural Center	372	4%
Business Park	393	4%
Total	10,424	100%

Source: Map 16-1, CCPC, 2004.

Consistency with Adjacent Land Use Plans

The PA Municipalities Planning Code (MPC) requires comprehensive plans to include a statement regarding the relationship of the Plan with those of contiguous municipalities and the County of which it is a part. The following discussion briefly looks at the compatibility of New Garden's Land Use Plan with those of the surrounding municipalities and Chester County. There are eight municipalities directly adjacent to New Garden and they are examined here.

Kennett Township - Kennett Township parallels the entire eastern border of New Garden. The 2004 comprehensive plan shows four (4) land use designations along the Township line: Planned Residential, Economic Development, Resource Conservation, and Suburban Residential. The Planned Residential area, in the northwest corner of Kennett Township, provides for a range of medium density housing types, and includes twins, townhouses, apartments, and single-family developments on smaller lots. The Economic Development area is a small piece of commercial land uses along Baltimore Pike in Kennett Township between New Garden and Kennett Square Borough. The majority of land use along the border area is Resource Conservation and is predominately sensitive environmental resources (a PNDI site, Class I Woodland, steep slopes, stream valleys, and agricultural parcels). The Suburban Residential use is in the southwest corner of Kennett Township and is made up of traditional suburban developments. Except for a small portion of Economic Development use in New Garden (Routes 41 and 7) in the Kaolin area, the adjacent land uses are compatible.

East Marlborough Township - East Marlborough adjoins New Garden's northern border. Their most current comprehensive plan was adopted in 1990. Future land use designations along this border include Institutional (New Bolton Center), medium density residential (0.75- 1.0 units per acre), and several areas of "Primary Environmental Constraints". The environmental constraints include the Red Clay Creek stream valley, where development is severely restricted or prohibited, primarily due to floodplains and slopes greater than 20 percent. The land use designations along the adjoining border are compatible.

West Marlborough Township - West Marlborough shares a portion of the southern border with New Garden. The West Marlborough comprehensive plan was adopted in 1972. The majority of the shared border is designated as Agricultural and contains a portion of the New Bolton Center. This area is compatible with New Garden's designation of Site Sensitive Design since a large portion of the border area is the Loch Nairn Golf Links and Sherwood Pines. The township is in the process of updating it's plan in 2004.

London Grove Township - London Grove is situated on the western border of New Garden. The 1992 comprehensive plan indicates the entire border to be Residential with a density of 0.5-1.0 units per acre. This is somewhat consistent with the proposed Site Sensitive Design area in New Garden.

Franklin Township - Franklin is on the western border of New Garden south of London Grove. The 1991 comprehensive plan for Franklin shows the adjoining area to be in three (3) land use areas: Woodland, Agriculture, and Rural Residential. The Woodland area is predominately the White Clay Creek valley and has controlled development. The Agriculture area encourages agricultural development (10 acre minimum) and uses, exclusive of mushroom and substrate activities. The Rural Residential area supports single-family development of 1.0 units per acre. The 1996 zoning ordinance reflects an open space design option on lots of 15 or more acres. The New Garden designation of Resource Protection along the entire border supports the proposed land use activities in Franklin.

Avondale Borough - Avondale borders New Garden to the west and is the only Borough directly adjacent to New Garden. According to the land use plan element from the Avondale 1993 comprehensive plan, there are six (6) land use areas contiguous to the Township: Stream Protection, Medium Density Residential, Woodland Protection, General Commercial, Planned Development Residential, and Planned Business Development. The Stream Protection area is for the White Clay Creek and restricts development; the Medium Density Residential area is for single-family development (SFD) with a proposed density of 2-5 DUs per acre; the Woodland Protection use affords security to tracts of woodlands and allows SFD with a density of 2 DUs p/acre; the General Commercial area is for neighborhood commercial type development; the Planned Development Residential area encourages a density of 2-6 units per acre for SFD, single family semi-detached (twins or duplexes), apartments, and townhouses; and the Planned Business Development area is for a mixture of commercial, industrial, and office uses. These uses are somewhat consistent with those planned in New Garden. The only conflict appears to be minor and is a small portion of a Site Sensitive Design area west of Route 41 in New Garden with that of the Planned Business Development area in the Borough.

London Britain Township - London Britain borders New Garden to the southwest. The 1990 London Britain comprehensive plan indicates the area immediately adjoining the Township as three (3) land use categories: Residential, White Clay Creek, and Associated Constrained Lands. The Residential area supports agricultural activities and single-family development at a density of 1.75 units per acre. The White Clay Creek area was established for the purpose of preserving the diverse and unique plant and animal species, and the cultural heritage of the area. These uses are consistent with the designated uses in New Garden.

New Castle County, Delaware - New Castle County forms a majority of the Townships southern border. The County's Current Zoning Map indicates the shared border with New Garden as primarily "Suburban" and "NC21 (21,000 square foot lots)". The Suburban residential district includes newly developing areas designated as growth areas in the Comprehensive Development Plan and permits moderate to high density development and a full range of residential uses in a manner consistent with providing a high quality suburban character. Significant areas of open space and/or landscaping shall be provided to maintain the balance between green space and buildings that characterize suburban character. NC-21 (Neighborhood Conservation) is a single family residential district intended to protect the residential character of existing neighborhoods or planned subdivisions that were or are being developed under previous zoning regulations. The County's 2002 Comprehensive Development Plan designates the shared border with New Garden as "Suburban" with a density of 1 to 3 units per acre. These uses are generally consistent with the Land Use Plan designations for the Township adjacent to New Castle County, Delaware.

Relationship To Landscapes

Chester County's comprehensive policy plan, *Landscapes (1996)*, promotes focusing future development in locations supported by infrastructure. This overriding policy seeks to maintain existing commercial centers while preserving the County's open lands and its natural, environmental and historic resources. The land use plan contained in *Landscapes*, as negotiated, identifies a majority of New Garden, particularly through the central section, as a Rural Landscape with the western area along the White Clay Creek as a Natural Landscape. Two Rural Center areas are indicated for the village of Toughkenamon and the area surrounding the intersection of Route 41 and Limestone Road (DE Route 7). The village of Landenburg is identified as a Village on the *Landscapes* map. A minor amount of Urban Landscape stemming from the Borough of Avondale overlaps into the Township.

The Rural Landscape is a land pattern comprised mainly of farms, agricultural lands and a low density residential pattern. The land use in New Garden is fairly consistent with these designations, however, sprawling residential and commercial development could jeopardize the Rural Landscape that remains. This Comprehensive Plan update should continue land use policies that focus new growth as appropriate, particularly the commercial and industrial development, and protect the farms and agricultural areas that remain. The following includes a definition of each *Landscapes* category in the Township.

Natural Landscapes are typified by woodlands, stream corridors, steep hillsides, ridge tops, wetlands, and marshes. These resources are permanent and essential elements of the physical environment, and are the foundation of all landscapes. *Landscapes* encourages the preservation of these sensitive natural areas and discourages development from occurring in natural areas.

Rural Landscapes is characterized by farms, farm-related businesses, villages, and scattered housing sites. Development proposed within the Rural Landscape is encouraged to occur in Rural Centers in order to preserve agriculture and the rural character typified within this landscape.

Rural Centers have been designated as the focus of development in the Rural Landscape. Development in the Rural Center should include a mix of residential and locally oriented retail uses. The design, scale, and intensity of uses should be compatible with the rural character.

Urban Landscapes serve as focal points for economic, cultural, and transportation activities. They also serve as major population centers with all required infrastructure and human services in place to support higher density populations. *Landscapes* encourages housing rehabilitation, infill development, and economic development within the Urban Landscape.

- **Pursue an amendment to *Landscapes* after adoption of the Comprehensive Plan.**
Once this Plan is adopted, the Township should contact the County for an amendment to the *Landscapes Map* to more accurately reflect the **Land Use Plan Map (Map 16-1)**. The *Landscapes Map* is not intended to be a detailed land use map, and to some extent the Map becomes outdated as development occurs and municipalities develop updated Comprehensive Plans.

Linking Landscapes: The Plan for the Protected Open Space Network in Chester County, PA, (2002)

Linking Landscapes serves as the Open Space Element of the Chester County Policy Plan. *Linking Landscapes* provides a vision for multi-municipal open space planning on a countywide basis. It presents a set of actions to coordinate the activities of various County government departments, as well as providing municipalities with general guidelines they can use to responsibly protect open space. The Plan focuses not only on planning and protecting open spaces, but also on restoring and maintaining them so as to ensure that they will retain their ecological and recreational qualities in perpetuity. *Linking Landscapes* includes several elements that are designed specifically to assist municipalities in their local planning efforts. The Plan also provides guidance on open space protection techniques, trail planning and development, protection of sensitive resources, municipal park planning, and many other open space and resource protection related topics. This Comprehensive Plan supports *Linking Landscapes* and the development of a system of greenways throughout the Township. (See: **Chapter 12, Natural Resources Protection Plan**, for a thorough discussion on trails and *Linking Landscapes*.) New Garden's land use plan is consistent with the vision, goals, and objectives of *Linking Landscapes*.

Watersheds: An Integrated Water Resources Management Plan for Chester County, Pennsylvania and Its Watersheds, (2002)

Watersheds serves as a functional element of the County's policy plan. The purpose of the Plan is to assist local governments and other entities in more effectively integrating water resources and land use decisions. It provides scientifically sound goals, objectives, and strategies for accommodating existing land uses and planned growth while maintaining the integrity of Chester County's watershed resources. The Plan includes extensive background information to provide a better understanding of how watersheds work and the current state of water related issues in the County and municipalities. Most importantly for New Garden, the Plan includes numerous implementation strategies for municipalities to more effectively protect and manage water resources while accommodating planned growth. New Garden's land use plan is consistent with the goals and objectives of *Watersheds*. (See: **Chapter 12, Natural Resources Protection Plan**, for a thorough discussion on water resources and *Watersheds*.)

Kennett Area Regional Comprehensive Plan, 2000

The Kennett Area Regional Planning Commission (KARPC) Regional Comprehensive Plan (Plan) was a collaborative effort of the Municipalities of Kennett Square Borough and East Marlborough, Kennett, Pennsbury, and Pocopson Township; and was approved by KARPC in 2000. The Plan contains inventories, goals, policies, and strategies for natural resources, transportation, housing, community facilities and services, economic development, and land use. The Plan addressed the preservation of environmental resources, outlined protection measures, described the resources, and presented recommendations to address the goals and objectives. The Plan pointed to the need for significant resources to be protected at the regional level through a regional approach. Important resources are rarely contained exclusively within one municipal boundary. For example, another municipality could not fully protect and preserve stream quality when a municipality upstream had less restrictive conservation regulations. Regional cooperation was needed to truly protect and preserve environmental resources. The recommendations presented in the Plan needed to be accepted at a regional level and then adopted by each individual municipality. Though inactive in the KARPC at the time the Plan was completed, New Garden has resumed participation and agrees with the fundamentals of the Regional Plan. The KARPC serves as the coordinating agency and monitors implementation. Recommendations for protecting the resources are found within the Plan. The Plan reinforced a key goal addressed in all chapters, which was to promote a positive perception of the Region. New Garden's land use plan embraces the vision, goals, and objectives of the *Kennett Area Region Comprehensive Plan*.

ACCOMMODATION OF FUTURE GROWTH

In developing these land use recommendations, New Garden must consider whether future population growth can realistically be accommodated within the land use areas the Township has designated for growth, (as described above). In addition, the Township must address whether or not the Township meets its fair share obligation to provide for multi-family¹ housing. The estimate of potential future development is determined based on **Map 16-1, Land Use Plan**, and the accompanying description of each land use category.

The municipal fair share obligation outlines the responsibility of the Township to provide a reasonable opportunity for the development of varied housing forms. Zoning provisions that permit multi-family units along with single, twin, and other-attached units, are a necessary part of fulfilling the Township's "fair share" housing obligations. The fair share obligation extends beyond simply allowing for such housing forms, adequate land must be zoned for these uses as well. To estimate the Township's fair share of various housing forms, an analysis must be performed that consists of applying the three "tiers" from the *Surrick V. Upper Providence Township* 776 Pa. 182A2d 105 (1977) court case to local conditions and using the results to assess the adequacy of the land areas and locations designated for different housing types. The test consists of three questions or tiers, each intended to be applied individually at the municipal level. They are:

- Tier 1 Is the municipality a logical area for population growth and development? (i.e., Is it in the path of growth?)
- Tier 2 Is the municipality a developed or developing community?
- Tier 3 Is the amount of land zoned/available for multi-family development disproportionately small, in relation to population growth pressure and present level of development?

The analysis below will apply a similar test applied to the Land Use Plan to determine if it will enable the Township to meet its fair share obligation in the future. Instead of analyzing the Township Zoning Ordinance, the analysis will take into account each of the Land Use Plan categories, the types of uses, and approximate densities, particularly where multi-family housing is intended to be located in the future.

Tier One: Is the Township in the Path of Growth?

The first tier of *Surrick's* fair share test asks if a community is a logical area for population growth and development. Whether a municipality is in the "path of growth and development" is an objective determination. To make this determination, information for New Garden, as well as the adjacent municipalities, has been included for comparison. (See **Chapter 2, Demographics**, for more information)

Population Projections: In terms of location, development history, and growth patterns, New Garden is in the path of growth. According to the 2000 US Census, from 1990-2000 within the Kennett region, New Garden grew by 67.3 percent (118.7 percent since 1970); Kennett Township had 39.5 percent and Franklin Township 38.5 percent growth. Population projections for 2000-2020, show a 50.9 percent increase for New Garden (third highest including the adjacent municipalities), Franklin had the largest percentage increase with 58.2 percent. Clearly, population increases are projected for New Garden and the surrounding communities.

¹ Please note that in the context of the fair share analysis, the term "multi-family" means any housing type of three (3) or more dwelling units, including, but not limited to; single family attached homes/townhouses, quadrplexes and apartments as defined by the Township Zoning Ordinance.

Housing Units: In 2000, New Garden had a well distributed housing stock that totaled 2,831 units. From 2000 to 2002, 338 dwelling units were proposed for construction in the Township. Within the region, according to Act 247 referrals to the Chester County Planning Commission for 2000 to January 2003, all of the adjacent municipalities had increases in the number of dwelling units, indicating that new residential development is happening within and around New Garden.

Projected Housing Need: According to population projections in **Chapter 2**, New Garden is projected to have a population of 13,710 residents by 2020. Theoretically, the Township will need an additional 1,464 housing units to meet the projected population. Therefore, new housing will need to be accommodated; whether through new construction, rehabilitation or reconstruction of uninhabited buildings, or conversion of non-residential uses to residential.

Developable Lands/Location: Approximately 3,537 acres or thirty-four percent of the land within New Garden can still potentially be developed. In terms of location, the Township is accessible from several major roadways; regionally by US Route 1 and Route 41, and Baltimore Pike; and sub-regionally by Newark Road and Limestone Road.

Conclusion: Based on an analysis of the available data and information above, it is clear that New Garden could be considered in the "path of growth". The Township is continuing to experience development and is surrounded by communities that are and will continue to experience growth and development. The remaining question is whether New Garden and this Plan provide for a reasonable mix of housing types.

Tier Two: Is the Township a Developed or Developing Community?

The second tier of *Surrick's* fair share test requires a determination of the extent of developed land in the Township. There are several key factors that help with that inquiry and determine the level of development:

- **Developable Land, by Land Use Plan Category.** The percentage of remaining undeveloped land, which shows approximately how "built out" a community is.
- **Potential Future Development by Land Use Category.** The percentage of potential housing units available for multi-family units per the Land Use Plan.
- **Land Available for Multi-Family Units.** The amount of land available for the development of multi-family units as a percentage of lands within the Land Use Plan.

Developable Land by Land Use Plan Category

To develop a conclusion, it is necessary to determine the amount of developable land remaining in the Township.

Developable, Developed, Constrained, and Protected Lands.

To determine the amount of developable land by future land use category, it is necessary to subtract constrained, protected lands, and developed lands from the total lands in each future land use category. It is also important for the following calculations to know which land use designations permit multi-family units.

- a. **Acres of Natural - Constraints** One hundred year floodplain, slopes of 25% or greater, wetlands/hydric soils, and streams and ponds.
- b. **Protected Lands -** Eased lands/trusts, home owners association lands, public parkland.

- c. **Developed Lands** - Existing development and approved subdivisions, single family residential (4 acres or less), commercial, industrial, roads/road rights-of-way, and other developed land.
- d. **Developable Lands** - Unprotected agricultural areas, undeveloped areas, selected single family residential lots of 4+ acres².

Figure 16-2 shows the data for these items by Future Land Use category:

Figure 16-2: Developable and Constrained Lands by Future Land Use Category, 2004

Future Land Use Category	Constrained and Protected Lands (acres)	Developed Lands (acres)	Developable Lands (acres)	Total Lands in Category (acres)	Percent of Total Developable Land in Township
<i>Resource Conservation Areas:</i>					
Resource Protection	682	491	1,197	2,370	34%
Site Sensitive Design	531	2,090	1,283	3,904	36%
<i>Growth Areas:</i>					
<i>Suburban Residential</i>	340	1,632	332	2,304	9%
<i>Village</i>	44	184	129	357	4%
Economic Development	95	482	147	724	4%
Rural Center	9	236	127	372	4%
Business Park	24	47	322	393	9%
Totals	1,725	5,162	3,537	10,424	100%

Source: Chester County Planning Commission, 2004

Multi-family units permitted

Conclusion: The total amount of developable land in New Garden is 3,537 acres, approximately 34% of the total area of the Township; conversely, the Township is 50 percent developed with the remaining land being constrained or protected. Due to the amount of developable land remaining, the Township is still considered a developing community (Case law suggests that until a community is 95 percent built out, it is considered a developing community). Because the Township is still developing, it is required to accommodate additional housing units, including multi-family housing units.

Potential Future Development by Land Use Category

Number of Units Needed to Accommodate Projected Population (Projected Units).

Another important determination in the fair share analysis is the number of future dwelling units needed to accommodate projected population between 2000 and 2020. This number is calculated by dividing the projected population increase (projected year 2020 population of 13,710 – year 2000 population of 9,083 = increase of 4,627) by the average household size for the Township (3.16 average household size based on 2000 Census data). Based on this calculation, an additional **1,464 housing units** will be needed to accommodate the expected population growth to the year 2020.

² This category includes parcels of four acres or greater with one single-family home. These existing houses have been taken into account when determining the potential new residential units in Figure 16-3.

Population Increase divided by Household Size = 4,627 / 3.16 = 1,464 additional housing units

Number of Multiple Family Units to be Accommodated

Once the total number of anticipated housing units is determined, the next important question is, how many of the units should be multi-family? A review of Pennsylvania case law indicates, to fall within fair share parameters, at least 15 percent of projected housing needs should potentially consist of other than single family detached units. In the case of the Township, of the approximately 1,464 total housing units needed to accommodate the projected population to the year 2020, the Township should allow for a minimum of **220 multi-family units**.

1,464 projected housing units x 0.15 = 220 needed multi-family units

Number of Units at Build-Out

Figure 16-3 shows the build-out numbers calculated for this Land Use Plan. The developable lands acreage is taken from Figure 16-2.

Figure 16-3: Potential Development by Future Land Use Category

Future Land Use Category	Approximate Density or Building Coverage**	Developable Lands (acres)	Less 15% Infrastructure (acres)	Potential Development (DU or SF)
Resource Conservation Areas:				
Resource Protection	0.5 DU/acre	1,197	1,017	509 DUs
Site Sensitive Design	50% open space + 1.0 DU/acre	1,283	(+less 50%*) 546	546 DUs
Growth Areas:				
Suburban Residential	1.0 DU/acre	332	282	282 DUs
Village	8.0 DU/acre	129	110	880 DUs
Economic Development	30% building coverage**	147	125	1,633,500 SF
Rural Center	30% building coverage**	127	108	1,411,344 SF
Business Park	30% building coverage**	322	274	3,580,632 SF
Totals		3,537		2,217 DUs+ 6,625,476 SF

Source: Chester County Planning Commission, 2004

Multi-family units permitted

*Open Space

**Building coverage applies to non-residential uses only.

Once it is determined how many total and multi-family units are needed to accommodate future population growth, it is necessary to complete a build-out analysis to see if the Township can accommodate the number of units when fully developed. Using the data in Figure 16-3, there is a potential for **2,217 new residential units** to be built in the Township. In comparison, there are approximately 2,831 existing units³ in the Township as of 2000.

³ U.S. Census, 2000.

Proper planning principals point toward fifteen to twenty percent of all housing units should potentially consist of multi-family units. The future land use categories that permit multi-family housing in the Township include Suburban Residential and Village. Based on the data in **Figure 16-3**, there is a potential for approximately **1,162 multi-family units** to be built in those categories.

1: *Formula: Total Potential Units ÷ Potential Multi-Family Units = Percentage of Potential Multi-Family Unit*

1,162 ÷ 2,217 = 52% of potential units in 2020 may potentially be multi-family units

2: *Formula: [Total Units (2000) + Total Potential Units (2020)] - [Multi-Family Units (2000) + Potential Multi-Family Units(2020)] = Percentage of Multi-Family Units at Build-Out.*

(426+1,162) ÷ (2,831 + 2,217) = 31% of all units in 2020 may potentially be multi-family units

Conclusion: The calculations above show that 52 percent of potential units and 31 percent of all units in 2020 per the Land Use Plan may consist of multi-family units. This exceeds the 15-20 percent threshold, and therefore the Land Use Plan meets the requirement of the fair share test.

Land Available for Multi-Family Units

The final factor in analyzing the present level of development is the amount of land available for multi-family units. The courts have not specifically defined the term “available” as used in *Surrick*. While the courts may have assumed a general definition of the word, and intended it to mean developable land only, the cases include discussions on total lands. Therefore, for calculation purposes, it is unclear from the cases what constitutes “available.”

The methods below show two possible approaches for determining how much land is available for multi-family development, progressing from the most conservative (developable land only) to the least conservative approach (total lands). These approaches are based on review and interpretation of the fair share case law. The “Developable Lands” approach is most relevant in rural and less developed suburban areas where there is little existing multi-family development.

Available Land may be defined as follows:

- **“Developable Lands”** - This category includes only developable lands; i.e., those lands that have not already been developed and that are not protected or constrained. (the most conservative approach)
- **“Total Lands”** - This category includes all lands designated for multi-family uses, including developed, developable, constrained, and protected lands. (the least conservative approach)

Recommended Thresholds:

While the case law does not prescribe a set percentage of land for multi-family use, when using the most conservative approach, the percentage of land designated for multi-family uses should ideally equal at least 5 percent and no less than 4 percent. In the case of the less conservative approach, it is recommended that at least 7 percent of the land be designated for multi-family uses.

Developable Land Options.

Option A - “Developable Lands” - Percentage of developable land designated or zoned for multi-family use. (Data from **Figure 16-3**)

Formula: (MF developable land ÷ All developable land) x 100 = Percentage of Developable MF Land.

(461 acres ÷ 3,537 acres of developable land) x 100 = 13% of developable land is available for multi-family development.

Option B - “Developable Residential Lands” - Percentage of developable residential land designated or zoned for multi-family use. (Data from **Figure 16-3**)

Formula: (MF developable land ÷ All developable residential land) x 100 = Percentage of Residential Land Available for Multi-Family Uses.

(461 acres ÷ 2,941 acres of developable residential land) x 100 = 16% of developable residential land is available for multi-family development.

Conclusion: Under all the options above, the Township meets the recommended 5 percent of land designated for multi-family housing. At 13 percent, the percentage of developable land for multi-family housing is above the recommended 5 percent threshold.

“Total Lands” - Percentage of all land designated or zoned for multi-family use, whether developed, constrained, or protected. (Data from **Figure 16-2**)

(Multi-family land ÷ All land) x 100 = Percentage of All Multi-Family Designated Land.

(2,661 acres ÷ 10,424 acres) x 100 = 26% of all land is available for multi-family development.

Conclusion: While the courts have not set a bright line as to how much land must be designated for multi-family uses, the Township exceeds the recommended 7 percent when total lands is calculated.

As development occurs in the Township, the “developable” acreage will go down and the percentage of land available for multi-family will decrease. If development trends continue the way they have with single-family detached being the primary type of residential housing built, this will lower the percentage of land available for multi-family uses, as well as lower the ratio of multi-family to single family housing stock. Therefore, (as these issues are pertinent to any option under B), the Township should continue to monitor it’s fair share obligations over time.

Figure 16-4: Summary of Results

Accommodation of Projected Population Growth:		
New housing units needed to accommodate projected population growth to 2020.	1,464 units	
Estimated number of new units needed to meet current fair share obligations.	220 units	
Accommodation of Multi-Family Fair Share Obligations:		
Potential additional housing units of all types under the future land use categories at build-out.	2,217 units	
Number of new units (of all types) possible future land use categories which permit multi-family housing.	Recommended 15%-20%	1,162 units (31%)
Percentage of Land Available for Multi-Family Units:	Recommended	Actual
Developable Lands	5%	13%
Developable Residential Lands	5%	16%
Total Lands	7%	26%

Source: Chester County Planning Commission, 2004.

Tier Three: Is the amount of land zoned/available for multi-family development disproportionately small, in relation to population growth pressure and present level of development?

The third tier of the fair share analysis is to determine the extent, if any, of the exclusion of multi-family housing in the Township. It is a balancing test, in essence, to determine if the amount of land designated for multi-family development is disproportionately small, in relation to population growth pressure and present level of development. To do so, it is necessary to consider the percentage of Township land available under the future land use categories for multi-family units in light of the current population growth pressure within the Township, and the total amount of undeveloped land in the community.

As explained above, New Garden is obligated to allow for all housing types, including apartments, townhouses, and twins. The Township provides for all forms of housing, and is not exclusionary of any housing type mandated by the Municipalities Planning Code. Because no housing type is totally excluded it is necessary to assess whether or not the Township has designated a reasonable percentage of land available under the future land use categories for multi-family units.

The first two tiers of the three-tier fair share test, described above, indicate that the Township is a logical area for development and population growth and that there is additional opportunity for development (it is approximately 50 percent developed). The data in the tier two analysis demonstrates that the Township, by future land use category, can provide enough housing units, both total and multi-family, to meet the projected population needs. In addition, the Township provides approximately 13 percent of all of its developable lands, as well as 26 percent of its total land, for multi-family development. The Township remains semi-rural in nature, and through planning measures the Township is taking steps to protect its remaining open lands and aesthetic qualities. In spite of this, the Township provides a reasonable amount of developable land for multi-family development.

Because New Garden is approximately 50 percent developed, the Township should continue to monitor the amount of total land available, as well as developable land available, as development continues. If the current development trends of one to two acre lots for single-family dwelling units continue, the amount of land available for multi-family development will certainly decrease, and the "developable" land percentages could drop below the recommended 5 percent. To maintain its remaining rural character, yet meet its fair share obligation, it is essential that the Township continue to provide land for multi-family units and otherwise tightly confine the Growth Areas targeted for further development.

Chapter 17

Implementation Strategies

The strategies shown in the following tables are a summary of the recommendations described in the preceding Plan chapters. The tables include information concerning how and when the recommended strategies should be implemented. The strategies are organized in the same order they are presented in each Plan chapter with the corresponding page number in the first column of the table. Each strategy has been assigned a priority for completion as well as the group or groups who will primarily be responsible for its implementation. The primary method of implementation (ordinance, special study, etc.) is indicated in the last column of the table.

Timeframe for Completion

The four timeframes for the completion assigned to the implementation strategies should be interpreted as follows:

- (I) Immediate:** Strategies that should be implemented within the next one to two years. Immediate actions primarily apply to ordinance amendments that can be accomplished relatively quickly, or the first step in a long-term program.
- (ST) Short-Term:** Strategies to be implemented within the next three to five years.
- (LT) Long-Term:** Strategies to be implemented within the next five to ten years or when funding becomes available.
- (OG) On-going:** Strategies that will require a continued effort. The initial action, if not already begun, should be undertaken in the next one to two years. These actions often involve monitoring or the continuation of existing programs.

Priorities

In addition to the timeframe for completion of the strategy, a priority of high (H), medium (M), or low (L) has also been assigned to the strategies. These priorities represent the importance to the Township for initiating and completing various Plan recommendations. In general, most high priority items should be completed in an immediate or short-term timeframe. In some cases, a strategy might be considered a high priority, but the timeframe for completion may take place over several years because of the effort involved in its implementation.

Responsibility

The Board of Supervisors maintains the authority for implementing the plan. The number and diversity of recommendations listed in this chapter may require the various agencies and commissions within the Township to assist the Board in achieving these actions. This assistance can take the form of research, working with consultants and offering recommendations to the Board for their consideration.

The groups with primary responsibility for assisting the Board with a particular strategy are listed under this heading. Generally, the groups that may have the most responsibilities assigned to them are the

Planning Commission and the Township administration. In some cases, a special task force may be formed consisting of members from one or more of the main groups. In the case of ordinances the Board of Supervisors hold the authority to adopt the proposed ordinance, but primary responsibility for drafting proposed language is assigned to the Planning Commission

Top Priority Actions

It is recognized that not all recommendations presented in this chapter may be achieved over the ten year horizon of the plan. Resources must be allocated as the Township can make them available. In order to effectively achieve the implementation of this plan, a list of top priority actions has been identified. These include all recommendations that have been ranked as having an "Immediate" timeframe and a "High" priority.

Progress Reports

In order to assess the effectiveness of the Plan, the Planning Commission should provide a progress report on the strategies implemented to further the goals of the Plan. This report should be provided a minimum of once a year at the March meeting of the Board of Supervisors. At that time, the Planning Commission will offer recommendations to the Board as to what actions should be taken to further the implementation of the Plan goals and objectives. The Comprehensive Plan should be re-evaluated annually and updated as deemed necessary by the Board to reflect the current needs and policies of the Township.

IMPLEMENTATION STRATEGIES

Historic and Cultural Resources Plan Recommendations

The actions outlined below serve to implement the Historic and Cultural Resources Plan recommendations discussed in detail in Chapter Ten of the Comprehensive Plan. These protection strategies use a variety of implementation methods including special studies, public education, and ordinance amendments. In addition, many of the actions rely on local planning and the Historical Commission for their implementation.

Page Number	Recommendations	Timeframe for Completion	Priority	Responsibility	Method of Implementation
10-2	Identification and Evaluation of Historic Resources				
10-2	Encourage the continued work of the New Garden Historical Commission.	OG	H	Historical Commission, Supervisors	Continue Township funding and approval of Historic Commission initiatives. Publicize efforts of the Historic Commission.
10-2	Complete and maintain an inventory and map of historic resources through the historic resources survey.	OG	H	Historical Commission, Township Administration	Township historic resources inventory and map.
10-3	Support the nomination of identified and significant historic sites to the National Register of Historic Places.	OG	L	Historical Commission, PHMC ¹	Complete survey and National Register nomination process as required by the PHMC.
10-3	Work to increase public awareness and participation in local history.	OG	L	Historical Commission	Web site, newsletter, displays or publications at the Township Building, public awareness outreach.
10-4	Historic Preservation Resources				
10-4	Continue to pursue funding opportunities to finance historic preservation efforts.	OG	L	Township Administration, Historical Commission	Communicate with PHMC and other agencies.
10-6	Regulatory Options for Historic Preservation				
10-6	Develop regulations in the Township's zoning and subdivision/land development ordinances for the protection of historic resources.	I	H	Planning Commission, Historical Commission, Code Enforcement Supervisors	Zoning Ordinance, Subdivision and Land Development Ordinance.

¹ Pennsylvania Historical and Museum Commission

Chapter Seventeen - Implementation Strategies

Page Number	Recommendations	Timeframe for Completion	Priority	Responsibility	Method of Implementation
10-6	Create a comprehensive Village Protection Program.	LT	M	Historical Commission	Determine key village features to be preserved and establish policies for their preservation.
10-7	Encourage the adaptive reuse of historic structures.	OG	M	Historical Commission, Township Administration, Planning Commission, Zoning Hearing Board	Inventory of older buildings with conversion potential, promotion of their reuse; review Zoning Ordinance standards for effectiveness.
10-7	Develop a local policy on the interpretation of the Unified Building Code as it applies to historic properties.	I	H	Historical Commission, Code Enforcement	Building Codes, develop policies of interpretation to be applied to historic buildings.
10-7	Develop criteria for surveying, identifying, evaluating, and recommending changes to or giving observations on historic sites.	OG	L	Historical Commission, Township Administration	Compilation of publications available through National Trust for Historic Preservation, PHMC and similar organizations.
10-7	Citizen Participation and Community Education				
10-8	Develop and maintain a database for use on the Township's website comprised of information on New Garden's historic resources and organizations in the region that work to preserve such resources.	OG	M	Historical Commission	Database of historic preservation organizations, including interests, funding, mission, and contacts; make available to Historic Commission and residents.
10-8	Encourage the owners of historic properties to retain the historic features of their resource.	OG	M	Historical Commission, Planning Commission	Contact owners of historic properties in the Historic Inventory and provide educational material and assistance of the Historic Commission.
10-8	Work to obtain public participation in historic resources protection.	OG	M	Historical Commission	Increase public awareness of historic preservation, contact owners of historic properties.
10-8	Compile resource materials to assist in decision making related to historic preservation.	LT	L	Historical Commission, Planning Commission	Create database listing of preservation publications and organizations, compile pamphlets, books, and publications for technical assistance.
10-9	Establish "New Garden tours" as a means to promote and educate people about New Garden's history and historic resources.	OG	M	Historical Commission	"Historical Tours" Program

Chapter Seventeen - Implementation Strategies

Page Number	Recommendations	Timeframe for Completion	Priority	Responsibility	Method of Implementation
10-9	Establish recognition programs for homeowners that undertake historically appropriate rehabilitation or adaptive reuse projects.	OG	H	Historical Commission	Establish awards program, including criteria for evaluation and type of award such as plaque, letter of recognition, etc.
10-9	Develop and maintain a library of historical documents, surveys.	OG	J	Historical Commission, Township Administration	Develop a historic resources library of pamphlets, books, and publications.
10-9	Participate in training sessions designed for Historical Commissions.	LT	M	Historical Commission,	Attend training sessions, conferences, meet with agencies related to preservation.
10-9	Promote local heritage by forming a display to showcase local history.	OG	H	Historical Commission, Township Administration	Create a display in the Township Building to promote interest, display local artifacts, publications, information, etc.
10-9	Use electronic forms of communication, such as the Internet, to solicit, collect, and distribute information on preservation issues.	OG	M	Historical Commission, Township Administration	Internet communication (websites, email, newsgroups)
10-10	Communicate with and use media sources to promote historic preservation.	OG	M	Historical Commission, Township Administration	Internet communication (websites, email, newsgroups), local newspapers, school district.
10-10	Continue to work with the School District to incorporate historic preservation into the local history curriculum.	LT	M	Historical Commission	School District.

Community Services and Facilities Plan Recommendations

The following strategies serve to implement the recommendations for the full range of community facilities and services outlined in Chapter Eleven of the Comprehensive Plan. These recommendations would be implemented by a wide variety of methods including revisions to the sewage facilities plan, ordinance amendments, and the creation of special programs or studies. A major goal of many of the recommendations is to provide facilities and services by the most effective and efficient means possible. Another goal, such as in the case of water and sewage service provision, is to ensure that areas appropriate for growth have the necessary infrastructure and to avoid the extension of these services into areas targeted for preservation.

Page Number	Recommendations	Timeframe for Completion	Priorities	Responsibility	Method of Implementation
11-1	Municipal Services and Facilities				
11-2	Administration				
11-2	Continue to encourage and provide for public services and facilities.	OG	H	Township Administration	Comprehensive Plan Implementation, response to public comments.
11-2	Consider developing a formal Capital Improvements Plan (CIP).	ST	M	Township Administration, Board of Supervisors	Capital Improvements Program
11-2	Encourage volunteerism to build local commitment, increase public awareness, and utilize the diverse skills, knowledge, and ideas of Township residents.	OG	H	Township Administration, Boards, and Commissions	Township newsletter and website, make potential positions available at Township building, submit to local newspaper.
11-2	Explore the continued use and expansion of cooperative agreements.	OG	M	Township Administration	Coordination with adjacent municipalities and the Kennett Region.
11-2	Continue to monitor and adjust the Township staff to ensure the effectiveness of Township operations.	OG	M	Township Administration	Periodic assessment of staffing levels and needs.
11-3	Increase effective communication between Township staff, administration, volunteers, and residents.	I	H	Township Administration, Boards, Commissions	Ensure regular minute taking at all Township meetings, publication on the website, and occasional meetings between the various entities.
11-3	Continue to participate in regional planning efforts with the Kennett Area Regional Planning Commission (KARPC).	OG	H	Township Administration, Solicitors Supervisors	Ensure at least one representative from the Township consistently attends KARPC meetings and reports regularly to the Supervisors.

Chapter Seventeen - Implementation Strategies

Page Number	Recommendations	Timeframe for Completion	Priorities	Responsibility	Method of Implementation
11-3	Conduct periodic surveys with similar Townships to establish benchmarks for municipal "information and statistics" and in terms of public services effectiveness.	ST	M	Township Administration	Creation of surveys, assessment and filing of materials, public meetings.
11-4	Use the Township newsletter and website to educate residents on services and facilities.	OG	H	Volunteers	Website and newsletter.
11-4	Communicate to businesses that the Township wants to actively promote state-of-the-art services in conjunction with the business community to encourage economic development and improve the viability for businesses.	ST	M	Township Administration Supervisors	Communication with businesses, business association through letters and meetings. Communication and coordination with service providers.
11-4	Municipal Building				
11-4	Ensure the new Township building is used for all facets of Township operations and for Township residents.	OG	H	Township Administration	Maximize use of and access to Township Building.
11-5	Police Department				
11-5	New Garden should continue to monitor the staffing levels of the police department to effectively serve Township residents and businesses.	OG	M	Township Administration, Police Department Supervisors	Communication between Township administration and police department, budget process.
11-5	Encourage a highly trained police force that is adequate to meet the needs of the Township.	OG	H	Township Administration, Police Department	Continued funding for training of Township police. Ensure police exceed the minimum requirements and receive necessary specialized training.
11-5	Encourage Police Department personnel to become more "visible" within the Township.	OG	M	Township Administration, Police Department	Police presence at community events, walking and/or bicycling in Toughkenamon, interaction with residents.
11-5	Seek the input of the Police Department on new land developments.	OG	M	Planning Commission, Township Administration, Police Department	Communication with Police Department, review of plans by Police Department.

Chapter Seventeen - Implementation Strategies

Page Number	Recommendations	Timeframe for Completion	Priorities	Responsibility	Method of Implementation
11-6	Public Works				
11-6	Improve upon the Road Maintenance and Improvements Plan.	OG	M	Township Administration, Roadmaster	Road Maintenance and Improvements Plan.
11-6	Submit improvements identified in the Road Maintenance and Improvements Plan to PennDOT and surrounding municipalities.	OG	M	Township Administration, Roadmaster	Communication via telephone, email, or letter.
11-6	Incorporate road maintenance equipment expenditures into the Capital Improvements Plan (CIP).	ST	M	Township Administration, Roadmaster	Capital Improvements Program, budget process
11-7	Stormwater Management				
11-7	Monitor municipal stormwater management facilities.	OG	M	Township Administration, Code Enforcement, Zoning Officer, Engineer	Land Development Process, Code Enforcement.
11-7	Enforce the use of Best Management Practices in stormwater management planning.	OG	H	Township Administration, Code Enforcement, Zoning Officer, Engineer	Land Development Process, Code Enforcement, Zoning Ordinance, Subdivision and Land Development Ordinance.
11-8	Open Space and Recreation Facilities				
11-8	Continue to develop, maintain, and improve existing parks and recreation programs.	OG	M	Parks and Recreation Commission, Township Administration	Parks and recreation planning, assessment of needs of residents.
11-8	Complete the work of the Open Space Task Force in planning a program for open space preservation.	I	H	Open Space Task Force, Planning Commission	Parks and recreation planning, needs, strategies. Implement the Open Space Plan of Comprehensive Plan.
11-8	Create a permanent Open Space Committee to implement the recommendations of the above Task Force to protect open space, implement the New Garden Township Open Space and Environmental Resources Plan, and the open space initiatives of this Comprehensive Plan.	I	H	Open Space Task Force, Planning Commission, Supervisors	Township Committee
11-8	Explore the possibility of a Township Senior Center.	LT	L	Planning Commission, Supervisors	Zoning Ordinance, Land Development Process

Chapter Seventeen - Implementation Strategies

Page Number	Recommendations	Timeframe for Completion	Priorities	Responsibility	Method of Implementation
11-9	Non-Municipal Facilities and Services				
11-9	Fire Protection				
11-9	The Township should continue to support the Avondale Fire Company and actively communicate with the Company.	OG	H	Township Administration, Supervisors	Financially support and communicate with the Fire Department.
11-9	Encourage volunteerism in the Avondale Fire Company.	OG	M	Township Administration	Website, newsletter, newspaper.
11-9	Publicize the efforts of the Avondale Fire Company.	OG	M	Township Administration	Website, newsletter, newspaper.
11-10	Ambulance Service				
11-10	Continue to contract with the Avondale Fire Company Emergency Medical Service Division (EMS) for ambulance service and maintain additional support by housing a unit from the Southern Chester County Emergency Medical Services within the Township.	OG	M	Township Administration, Supervisors	Communicate with EMS providers.
11-10	Water Supply				
11-10	Coordinate the boundaries of the public water system with the Land Use Plan.	ST	H	Planning Commission, Township Administration.	Implement Comprehensive Plan.
11-10	Work with the CWA to ensure a potable drinking water supply.	OG	M	Planning Commission, Township Administration.	Implement Comprehensive Plan.
11-10	Develop a Wellhead Protection Program.	ST	H	Planning Commission, Supervisors	Zoning Ordinance
11-11	Protect groundwater resources from large scale water extraction.	OG	H	Planning Commission, Supervisors	Zoning Ordinance
11-11	Sewage Treatment				
11-11	Coordinate the boundaries of the public sewer system with the land use plan.	ST	H	Planning Commission, Supervisors Sewer Authority	Implement Comprehensive Plan
11-11	Educate residents on the proper maintenance of on-lot septic systems.	OG	H	Township Administration Sewer Authority	Website, newsletter

Chapter Seventeen - Implementation Strategies

Page Number	Recommendations	Timeframe for Completion	Priorities	Responsibility	Method of Implementation
11-11	Adopt a standard for the use of community sewage facilities.	OG	M	Planning Commission, Supervisors Sewer Authority	Zoning Ordinance
11-12	Review and update as necessary the Township's Act 537 Plan.	I	H	Planning Commission, Supervisors Sewer Authority	Act 537 Plan, Regional Act 537 Plan.
11-12	Investigate the potential for a regional sewer organization.	LT	L	Planning Commission, Supervisors Sewer Authority	Regional Planning Commission Communication, Regional Authority
11-12	Solid Waste				
11-12	Continue to develop a recycling strategy in compliance with State requirements to serve the needs of the Township.	I	M	Township Administration	Township newsletter, brochures, website, and local newspaper.
11-12	Increase public awareness to and knowledge of the solid waste collection and recycling program.	OG	M	Township Administration	Township newsletter, brochures, website, and local newspaper.
11-13	Explore the feasibility of consolidating solid waste collection.	OG	M	Township Administration	Feasibility Study, work with local service providers.
11-13	Public Education				
11-13	Establish regular communication with the KCSD.	OG	H	Township Administration	School District

Natural Resources Protection Plan Recommendations

The strategies outlined below are intended to implement the natural resource protection measures identified in Chapter Twelve of the Comprehensive Plan. The majority of the immediate actions listed below relate to revisions or additions to the resource protection standards of the Zoning Ordinance and Subdivision and Land Development Ordinance. Also of high importance is the consistent enforcement of these resource protection standards.

Page Number	Recommendations	Timeframe for Completion	Priorities	Responsibility	Method of Implementation
12-2	Direct Growth to Appropriate Areas				
12-2	Use the Comprehensive Plan, Open Space Plan, Zoning Ordinance, Act 537 Sewage Facilities Plan, to direct growth away from sensitive natural resources.	OG	H	Planning Commission, Supervisors, Engineer	Comprehensive Plan Implementation, Zoning Ordinance, Act 537 Plan.
12-3	Natural Resource Protection Ordinance Standards				
12-3	Ensure existing natural resource protection measures are effectively and uniformly enforced.	OG	High	Township Engineer, Code Enforcement, Zoning Hearing Board	Consistent application and enforcement of Zoning and Subdivision and Land Development Ordinance provisions.
12-3	Adopt comprehensive natural resource and scenic protection standards and improve existing requirements within a Natural Resources Protection Overlay District.	I	H	Planning Commission, Supervisors	Zoning Ordinance
12-4	Consider the creation of a Scenic Preservation Overlay District and Ridgeline Protection.	ST	H	Planning Commission, Supervisors	Zoning Ordinance
12-4	Control land development activity on soils with severe limitations.	I	H	Planning Commission, Supervisors	Zoning Ordinance, Subdivision and Land Development Ordinance.
12-5	Natural Diversity				
12-5	Protect and promote natural diversity by adopting and enforcing natural resource protection standards; discouraging the use of non-native plant species; and encouraging the use of development options or other methods that preserve large tracts of open space.	ST	H	Planning Commission, Zoning Hearing Board	Zoning Ordinance, Subdivision and Land Development Ordinance

Chapter Seventeen - Implementation Strategies

Page Number	Recommendations	Timeframe for Completion	Priorities	Responsibility	Method of Implementation
12-5	Open Space Preservation				
12-6	Review and implement applicable recommendations of, " <i>Linking Landscapes: A Plan for the Protected Open Space Network in Chester County, Pennsylvania.</i> "	ST	H	Planning Commission, Supervisors	Implement Comprehensive Plan, Zoning Ordinance. See <i>Linking Landscapes for more specific strategies.</i>
12-6	Plan for and create public access to open space lands and water bodies.	ST	M	Planning Commission, Supervisors, Township Administration	Easements, Land owner agreements, etc.
12-7	Protect scenic and aesthetic qualities of the White Clay and Red Clay Creeks Watersheds.	OG	H	Planning Commission, Supervisors	Implement Comprehensive Plan, Zoning Ordinance
12-8	Update cluster development standards for the increased preservation of open space.	I	H	Planning Commission, Supervisors	Zoning Ordinance
12-7	Agricultural Preservation				
12-7	Control land development activity on Prime Agricultural Soils.	ST	H	Planning Commission, Supervisors	Zoning Ordinance
12-7	Encourage public and private agricultural preservation initiatives in the Township.	LT	H	Planning Commission, Supervisors, Open Space Task Force	Implement Comprehensive Plan, Open Space Chapter.
12-8	Consider implementing and promoting a Transfer of Development Rights (TDR) program.	LT	L	Planning Commission, Supervisors	Zoning Ordinance
12-9	Water Resources Plan				
12-9	Work to implement the applicable recommended actions of <i>Watersheds</i> .	OG	H	Township Administration, Planning Commission, Supervisors	Implement Comprehensive Plan, Zoning Ordinance. See <i>Watersheds</i> for more specific strategies.
12-11	Adopt more stringent stormwater management regulations that meet federal guidelines.	I	H	Planning Commission, Supervisors	Zoning Ordinance, Stormwater Ordinance
12-11	Proactively seek methods to improve regulation and monitoring of runoff/groundwater contamination by mushroom industry uses and coordination between the Township and agencies associated with this issue.	I	H	Planning Commission, Supervisors	Zoning Ordinance, Stormwater Ordinance

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Page Number	Recommendations	Timeframe for Completion	Priorities	Responsibility	Method of Implementation
12-11	Headwaters Protection				
12-11	Adopt water resource protection standards for headwaters.	ST	H	Planning Commission, Supervisors	Zoning Ordinance
12-12	Floodplain Protection				
12-12	Review and update the floodplain regulations.	ST	H	Planning Commission, Supervisors	Zoning Ordinance
12-12	Riparian Buffer Protection				
12-13	Adopt water resource protection standards for riparian buffers.	ST	H	Planning Commission, Supervisors	Zoning Ordinance
12-13	Wetlands Protection				
12-13	Adopt water resource protection standards for wetlands, wetland margins, and hydric soils.	ST	H	Planning Commission, Supervisors	Zoning Ordinance
12-14	Groundwater Protection				
12-14	Adopt other water resource protection standards.	ST	H	Planning Commission, Supervisors	Zoning Ordinance
12-15	Adopt groundwater protection standards for areas underlain by carbonate geology.	ST	H	Planning Commission, Supervisors	Zoning Ordinance
12-15	Regional Natural Resource Protection and Educational Efforts				
12-16	Work with the Kennett Area Regional Planning Commission municipalities on addressing regional natural resource issues.	OG	M	Planning Commission, Supervisors	Township representative, Zoning Ordinance.
12-16	Work toward enacting consistent natural resource protection measures at the regional level.	OG	M	Planning Commission, Supervisors	Township representative, Zoning Ordinance.
12-16	Work with the White Clay and Red Clay Creeks watershed communities and associations to establish a greenway and trail system within the watersheds.	OG	H	Planning Commission, Supervisors, Township Administration	Planning effort
12-16	Facilitate resident education on natural resource protection issues.	OG	H	Planning Commission, Township Administration	Website, newsletter.

Open Space and Recreation Plan Recommendations

The following strategies serve to implement the recommendations for recreation and open space outlined in Chapter Thirteen of the Comprehensive Plan. These recommendations serve to update and supplement the New Garden Parks, Recreation, and Open Space Plan.

Page Number	Recommendations	Timeframe for Completion	Priorities	Responsibility	Method of Implementation
13-3	Protected Open Space Resources				
13-3	Develop a strategic plan for evaluating and making determinations on the preservation of available open space parcels.	I	H	Open Space Task Force, Planning Commission	Planning initiative
13-4	Continue to develop and modify Zoning and Subdivision and Land Development Ordinance regulations that further protect natural resources and open space.	ST	H	Open Space Task Force, Planning Commission, Supervisors	Zoning Ordinance
13-5	Consider an open space referendum to create specific Township funding for open space.	I	H	Open Space Task Force, Supervisors	Referendum
13-5	Evaluate the cost of development as opposed to the cost of purchasing open space when considering the purchase and funding of open space.	OG	H	Open Space Task Force, Administration Supervisors	Studies. Publications.
13-5	Coordinate with land trusts in efforts to protect open space in conjunction with the priorities of the Township.	OG	H	Open Space Task Force, Supervisors	Coordination effort
13-6	Consider the development of a New Garden Township Land Trust in efforts to protect open space in conjunction with the priorities of the Township.	LT	M	Open Space Task Force, Supervisors	Special initiative
13-6	Encourage owners of agricultural properties to consider easing their land.	OG	H	Open Space Task Force, Supervisors	Communication, educational effort.
13-6	Consider utility easements and corridors for open space protection and greenway connectors.	LT	M	Open Space Task Force, Planning Commission, Supervisors	Open Space Plan Chapter implementation.
13-6	Establish a greenway network throughout the Township.	OG	H	Open Space Task Force, Planning Commission, Supervisors	Strategic effort.

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Page Number	Recommendations	Timeframe for Completion	Priorities	Responsibility	Method of Implementation
13-7	Refer to Linking Landscapes for the protection of open spaces and greenways as well as for documentation and funding sources.	OG	M	Open Space Task Force, Supervisors	Reference document, public policy.
13-7	Review and revise open space design option standards.	I	H	Open Space Task Force, Planning Commission, Supervisors	Zoning Ordinance
13-8	Ensure a regular maintenance program for parks and open spaces.	OG	M	Township Administration	Administrative Activity
13-8	Revisit the standards for the maintenance and inspection of open space within residential developments.	M	M	Open Space Task Force, Planning Commission, Supervisors	Zoning Ordinance, Development review process.
13-8	Recreation				
13-11	Conduct a Township-wide study to more specifically identify recreational needs and how they can be addressed.	ST	M	Planning Commission, Township Administration	Zoning Ordinance standards that allow and encourage infill in developed areas, Vacant Parcel/Building Inventory for Town Center.
13-11	Consider the development of parkland on Township owned parcels.	LT	H	Township Administration	Provide information on housing issues at the Township building and through Township newsletter and website, education programs and information provided by housing organizations.
13-11	Develop active recreation facilities within existing and future parks/Township properties.	LT	H	Planning Commission, Township Administration	Zoning Ordinance and possible incentives to attract this type of development, seek developers that specialize in retirement communities.
13-11	Continue to identify and prioritize parcels for their potential as future parks.	I	H	Open Space Task Force, Supervisors	Planning effort, Official Map
13-12	Pursue the acquisition of land for future parks.	LT	H	Open Space Task Force, Planning Commission, Supervisors	Official Map, Open Space Fund, Easements, Donations, other methods.
13-12	Carefully consider design aspects of parks.	OG	M	Planning Commission, Engineer	Zoning Ordinance, land development process

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Page Number	Recommendations	Timeframe for Completion	Priorities	Responsibility	Method of Implementation
13-12	Continue to support the development and management of Township Park.	OG	H	Supervisors, Recreation Board	Administrative Activity
13-12	Encourage public accessibility to quasi-public open space areas.	OG	M	Planning Commission, Supervisors	Public policy. Communicate with School District.
13-13	Support recreation programs.	OG	H	Open Space Task Force, Supervisors	Special activity
13-13	Use a variety of media to publicize recreation opportunities.	OG	M	Township Administration	Public service activity. Website. Newsletter.
13-13	Trails				
13-13	Identify potential trail corridors throughout the Township for passive recreation and connections between open spaces and parklands.	I	H	Open Space Task Force, Planning Commission	Comprehensive Plan implementation
13-14	Pursue the development of trails along the utility easements and Octorara Railroad.	LT	M	Open Space Task Force, Planning Commission, Supervisors	Communication, coordination effort with service providers.
13-14	Pursue the development of trails along stream corridors, particularly the White Clay Creek.	OG	H	Open Space Task Force, Planning Commission, Supervisors	Planning effort.
13-15	Pursue the further development of the Mason Dixon Trail.	LT	M	Open Space Task Force, Planning Commission, Supervisors	Communication, coordination effort with Trail Club, property owners.
13-15	Coordinate with other trail development efforts in the Kennett Region.	I	H	Open Space Task Force, Supervisors, KARPC representative	Communication effort, KARPC coordination
13-15	Environmental Resources				
13-16	Modify Zoning and Subdivision and Land Development Ordinance regulations that protect natural resources, water quality, native vegetation, biodiversity, and wildlife habitat.	I	H	Planning Commission, Supervisors	Zoning Ordinance

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Page Number	Recommendations	Timeframe for Completion	Priorities	Responsibility	Method of Implementation
13-16	Gather further information on and consider prioritizing the protection of biological resources within identified wildlife biodiversity corridors.	ST	M	Planning Commission, Consultant, Supervisors	Planning, Township inventory effort
13-16	General Recommendations				
13-16	Continue to maintain a Township organization for the development of open space initiatives.	OG	H	Supervisors	Open Space Committee
13-17	Review Land Developments for open space planning.	I	H	Open Space Task Force, Planning Commission, Supervisors	SLDO
13-17	Educate residents on the importance of open space preservation and methods of preservation.	OG	H	Open Space Task Force	Website, newsletter, public meetings, etc.
13-17	Support the KARPC to implement regionally consistent resource protection standards.	OG	H	Planning Commission, Supervisors	KARPC
13-17	Communicate with the KARPC efforts to implement open space protection strategies on a regional basis.	OG	H	Planning Commission, Supervisors, KARPC representative	KARPC
13-18	Communicate with the State of Delaware with open space, greenway corridor, trail network, and bike route strategies.	OG	M	Open Space Task Force, Planning Commission, Supervisors	Communication effort.
13-18	Investigate, compile, and pursue a variety of funding sources for the acquisition of open space and greenways.	ST	H	Open Space Task Force Administration	Resource material collection.
13-18	Develop a strategy that incorporates the mushroom industry with the preservation of open space within the Township.	I	H	Open Space Task Force, Planning Commission, Supervisors	Planning effort
13-19	Consult Linking Landscapes for additional recreation and open space information including potential funding sources.	OG	M	Open Space Task Force, Planning Commission	Reference:

Transportation and Circulation Plan Recommendations

The strategies outlined below are intended to implement the recommendations for transportation and circulation discussed in Chapter Fourteen of the Comprehensive Plan. The primary methods of implementation include revisions to the Subdivision and Land Development Ordinance, submission of requests for improvements to PennDOT, and special studies such as the Act 209 Traffic Impact Fee Study.

Page Number	Recommendations	Timeframe for Completion	Priorities	Responsibility	Method of Implementation
14-2	Roadway Functional Classification				
14-4	Revise the Township Functional Classification designations to reflect current conditions and future needs.	I	H	Planning Commission, Engineer Roadmaster Supervisors	Cross-reference the Subdivision and Land Development Ordinance with the Comprehensive Plan recommendations and additional information from <u>upcoming transportation studies</u> .
14-7	Access Management				
14-8	Consider an access management study of Baltimore Pike, Route 41, and Newark Road to provide data for implementation measures.	I	M	Planning Commission, Supervisors Engineer Roadmaster	Zoning Ordinance, Subdivision and Land Development Ordinance.
14-8	Encourage sharing of driveways and access points.	OG	M	Planning Commission, Supervisors, Solicitor, Engineer	Zoning Ordinance, Subdivision and Land Development Ordinance
14-8	Review and update regulations in Township ordinances regarding access management.	ST	H	Planning Commission, Engineer, Supervisors	Zoning, Subdivision and Land Development Ordinance.
14-8	Roadway Improvements				
14-9	Review and Update as necessary Sections 603-613, Section 804, and Appendix B of the Subdivision and Land Development Ordinance relating to Township roads.	ST	M	Planning Commission, Roadmaster Supervisors	Subdivision and Land Development Ordinance
14-9	Evaluate road sections where there is a high level of traffic accidents and initiate improvements that will reduce the number of accidents.	ST	H	Planning Commission, Roadmaster, Engineer	Roadway conditions inventory, road improvements, CIP.
14-9	Evaluate road segments for installation of traffic calming measures.	ST	M	Township Administration, Engineer, Roadmaster	Roadway conditions inventory, road improvements, CIP.

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Page Number	Recommendations	Timeframe for Completion	Priorities	Responsibility	Method of Implementation
14-10	Monitor the condition of bridges, culverts, and roadway sections that are flood prone.	OG	M	Township Administration, Roadmaster	Roadway conditions inventory, road improvements, CIP.
14-10	Consider the creation of a Road Maintenance Board to deal with roadway maintenance, construction, funding, and similar issues.	S	M	Supervisors	Committee or Board.
14-10	Work to preserve scenic roads.	OG	H	Township Administration, Roadmaster	Zoning Ordinance, Township policy,
14-10	Work to enhance the gateways into New Garden.	ST	M	Township Administration, Roadmaster	Identification of gateway areas and installation of appropriate gateway markers.
14-10	Roadway Intersections				
14-11	Request PennDOT conduct a study to evaluate the causes of accidents at the intersection of Newark Road and Bucktoe/New Garden Roads.	ST	H	Township Administration, Planning Commission Supervisors	Submit request to PennDOT. Continue to inventory concerns, conditions, data relating to the intersection.
14-11	Request PennDOT conduct a study to evaluate the causes of accidents at the intersection of Baltimore Pike and Bancroft Road and initiate improvements to increase safety.	ST	H	Township Administration, Planning Commission Supervisors	Submit request to PennDOT. Continue to inventory concerns, conditions, data relating to the intersection.
14-11	Initiate improvements to the intersection of Hillendale Road and Newark Road.	I	H	Township Administration, Planning Commission Roadmaster Supervisors	Submit request to PennDOT. Continue to inventory concerns, conditions, data relating to the intersection.
14-11	Initiate a study to mitigate issues at the intersection of Newark Road and Baltimore Pike.	I	H	Township Administration, Planning Commission Supervisors	Submit request to PennDOT. Continue to inventory concerns, conditions, data relating to the intersection.
14-12	Continue to monitor the intersection of Route 41 and Penn Green Road.	OG	M	Township Administration, Planning Commission Supervisors	Continue to inventory concerns, conditions, data relating to the intersection.

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Page Number	Recommendations	Timeframe for Completion	Priorities	Responsibility	Method of Implementation
14-12	Non-Vehicular Pedestrian Transit				
14-12	Continue pedestrian improvements to Baltimore Pike.	I	H	Township Administration, Planning Commission Roadmaster Supervisors	Special Study, consider recommendations of Open Space Plan and current trail building and public transit efforts. (See also following two recommendations.)
14-12	Consider roadway improvements, including both resurfacing and reconstruction, to provide adequate shoulder widths to facilitate bicycles and pedestrian mobility.	LT	M	Township Administration, Planning Commission Roadmaster Supervisors,	Special Study (could be combined with pedestrian circulation/sidewalk/trail and bikeway study), coordinate with PennDOT on improvements to State roads.
14-13	Initiate the planning of and creation of trails throughout the Township.	I	H	Township Administration, Planning Commission, Parks and Recreation Commission	Special Study (could be combined with pedestrian circulation/sidewalk/trail and bikeway study), pursue land or easement purchase to complete trail.
14-13	Public Transportation				
14-1	Support the continuation and expansion of the SCCOOT bus service.	OG	M	Township Administration, Supervisors.	Publicize SCCOOT service to residents, budget, communicate support to County, State agencies.
14-13	Identify organized park and ride locations.	ST	M	Township Administration, Planning Commission	Special Study
14-14	Coordinate with the TMACC to establish ridesharing programs.	OG	M	Planning Commission	TMACC
14-14	Encourage a private paratransit operation.	ST	M	Township Administration	Special activity
14-14	Initiate a feasibility study to determine the potential for public transportation to New Castle County.	ST	M	Township Administration, Planning Commission	Feasibility Study
14-14	Preserve and evaluate the SEPTA rail line.	OG	M	Township Administration, Supervisors	Township Policy

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Page Number	Recommendations	Timeframe for Completion	Priorities	Responsibility	Method of Implementation
14-14	Toughkenamon Village Improvements				
14-14	Consider traffic calming within Toughkenamon.	ST	M	Township Administration, Planning Commission Supervisors, Engineer Roadmaster	Traffic Study
14-14	Consider the expansion of the grid system of roads in Toughkenamon.	ST	M	Township Administration, Planning Commission, Roadmaster Supervisors	Official Map
14-15	Adopt an Official Map.	I	H	Planning Commission, Roadmaster Supervisors	Official Map
14-15	New Garden Airport / Business Park				
14-15	Evaluate the New Garden Airport and the surrounding area for economic development opportunities.	OG	M	Township Administration, Supervisors	Feasibility Study
14-15	Support future continuance and development of the Airport.	OG	M	Township Administration, Supervisors	Special Activity
14-16	Funding				
14-16	Continue to research new sources of funding for transportation improvements.	OG	H	Township Administration, Supervisors	Administrative Activity
14-20	Regional Participation				
14-20	Maintain the level of service of US Route 1, Baltimore Pike, Route 41, and Limestone Road.	OG	M	Township Administration, Supervisors	Implement Comprehensive Plan
14-20	Plan for the mitigation of traffic impacts during the reconstruction of US 1.	LT	M	Township Administration, Roadmaster, Supervisors	Special Activity, Coordination with PennDOT and KARPC

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Page Number	Recommendations	Timeframe for Completion	Priorities	Responsibility	Method of Implementation
14-20	The Township should aggressively pursue options for improvements to Route 41.	OG	H	Township Administration, Planning Commission, Supervisors	Data collection, attend appropriate meetings, communication with municipalities in the region and PennDOT.
14-21	Work with the Avon-Grove municipalities and the Kennett Area Regional Planning Commission (KARPC) to achieve a safe and adequate transportation network.	LT	H	Township Administration, Planning Commission, Supervisors	Regular communication with adjacent communities, regular attendance at KARPC.
14-21	Continue participating in regional planning efforts to supplement the transportation goals and objectives of this Comprehensive Plan.	OG	H	Planning Commission, Supervisors, KARPC representative	KARPC
14-21	Continue to participate in and monitor adjustments to the regional transportation plan.	OG	M	Planning Commission, Supervisors, KARPC representative	KARPC
14-21	Continue planning a local and regional trail network with connections to the sub-regional spur trails.	LT	M	Planning Commission, Supervisors, KARPC representative	KARPC
14-22	Support efforts to mitigate existing problem areas.	OG	M	Township Administration, Roadmaster, Supervisors	Administrative Activity
14-22	Support efforts to maintain and improve existing public transit facilities and opportunities.	OG	M	Township Administration, Roadmaster, Supervisors	Administrative Activity

Housing Plan Recommendations

The strategies shown below are intended to implement the housing recommendations of Chapter Fifteen of the Comprehensive Plan. The primary intent of these actions is to address housing issues relating to affordability, fair share obligations, and the conservation of neighborhood character. While some actions can be implemented locally through ordinance revisions, others require further study by the Township or public education efforts.

Page Number	Recommendations	Timeframe for Completion	Priorities	Responsibility	Method of Implementation
15-3	Residential Recommendations				
15-3	Continue to provide for a range of housing types.	OG	M	Planning Commission, Supervisors	Zoning Ordinance
15-3	Continue to allow for Residential Cluster Design.	I	H	Planning Commission, Supervisors	Zoning Ordinance
15-3	Continue to apply the Conditional Use or Special Exception processes to ensure that new housing development that meets the objectives of the Land Use Plan.	OG	H	Planning Commission, Supervisors	Zoning Ordinance
15-3	Review and Update the R-3 District Regulations and Standards.	I	H	Planning Commission, Board of Supervisors, Zoning Hearing Board	Zoning Ordinance, Development review process.
15-4	Housing Affordability				
15-4	Encourage in-fill development.	I	H	Planning Commission, Supervisors	Zoning Ordinance standards that allow and encourage infill in developed areas, Vacant Parcel/Building Inventory for Town Center.
15-4	Support the development of elderly housing in the Township.	ST	M	Planning Commission, Township Administration, Supervisors	Zoning Ordinance and possible incentives to attract this type of development, seek developers that specialize in retirement communities.
15-5	Housing Conservation				
15-5	Continue to enforce and regularly update Township construction and property maintenance codes and place a high priority on enforcement of these Codes.	OG	M	Township Administration, Code Enforcement	Enforcement of property maintenance codes.

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Page Number	Recommendations	Timeframe for Completion	Priorities	Responsibility	Method of Implementation
15-5	Use the Zoning Ordinance and Sewage Facilities Plan to direct medium and higher density housing to appropriate areas of the Township as defined by the Land Use Plan.	I	H	Planning Commission, Supervisors	Comprehensive Plan implementation, Act 537 Plan, development review process.
15-5	Promote housing rehabilitation in locations where home maintenance is declining.	OG	M	Code Enforcement	Zoning Ordinance, building codes.
15-6	Support preservation options in the Historic Resources Protection Plan.	I	H	Historical Commission, Supervisors	Zoning Ordinance
15-6	Review and update as necessary regulatory provisions associated with home occupations.	I	M	Planning Commission, Supervisors	Zoning Ordinance
15-6	Farm Worker Housing.				
15-7	Conduct an inventory of existing farm worker housing in the Township; and review zoning regulations for the provision of adequate regulations for farm worker housing based on the results of the inventory.	ST	M	Planning Commission, Township Administration, Consultant, Supervisors	Special study, Zoning Ordinance
15-7	Support the region's initiatives in regard to farm worker housing and the mushroom industry.	OG	H	Planning Commission, Supervisors	Communication and coordination with KARPC, Zoning Ordinance

Land Use Plan Recommendations

The actions outlined below serve to implement the Land Use Plan recommendations discussed in detail in Chapter Sixteen of the Comprehensive Plan. The Land Use Plan recommends an overall land use pattern for the Township. It defines the location of the land use categories, types of uses envisioned for those categories, and outlines the planning techniques that can be used to achieve the primary objectives of each land use category.

Page Number	Recommendations	Timeframe for Completion	Priorities	Responsibility	Method of Implementation
16-2	Land Use Categories				
16-2	Revise the Zoning Map and applicable district standards to make the Zoning Ordinance consistent with the Land Use Plan recommendations.	I	H	Planning Commission, Open Space Committee Supervisors	Zoning Ordinance
16-2	Relate sewage and water facilities planning to the Land Use Plan.	I	H	Planning Commission, Sewer Authority Supervisors, ZHB	Act 537 Plan, Zoning Ordinance, land development process
16-3	Resource Conservation Area				
16-3	Adopt comprehensive Natural Resource Protection Standards.	I	H	Planning Commission, Supervisors	Zoning Ordinance
16-3	Resource Protection Area				
16-3	Adopt a Scenic Preservation Overlay District.	ST	M	Planning Commission, Historical Commission Supervisors	Zoning Ordinance and Subdivision and Land Development Ordinance
16-3	Place significant areas of land on the Official Map.	I	H	Planning Commission, Open Space Task Force Supervisors	Official Map, Open Space Chapter implementation
16-4	Use conservation easements and land trusts to protect open lands.	OG	H	Planning Commission, Supervisors	Protection of open space, Open Space Chapter implementation
16-4	Site Sensitive Design				
16-4	Modify Cluster Development Regulations.	I	H	Planning Commission, Supervisors	Zoning Ordinance
16-4	Growth Area				
16-5	Village				

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Page Number	Recommendations	Timeframe for Completion	Priorities	Responsibility	Method of Implementation
16-5	Address potential for in-fill development and adaptive reuse.	ST	H	Planning Commission, Township Administration, Supervisors	Zoning Ordinance, Act 537 Plan
16-5	Amend the Zoning Ordinance to facilitate appropriate infill and future development.	I	H	Planning Commission, Supervisors	Zoning Ordinance, Building Codes, Vacant Parcel and Building Inventory, Design Guidelines for Infill
16-6	Inventory infill sites and potential sites for redevelopment.	S	M	Planning Commission	Site Survey
16-6	Add potential future road alignments to the Official Map.	I	H	Planning Commission, Roadmaster, Engineer, Supervisors	Official Map
16-6	Consider the addition of a Township park in the Village area.	I	H	Planning Commission, Park and Rec Board Supervisors	Planning effort, Official Map
16-6	Encourage infrastructure improvements within the Village area.	OG	H	Planning Commission, Sewer Authority Supervisors	Planning effort, CIP
16-7	Address stormwater issues within the village area to address existing issues and to require appropriate management for future development.	I	H	Planning Commission, Supervisors	Stormwater Ordinance, SLDO
16-7	<u>Rural Center.</u>				
16-7	Continue to amend the Unified Development District (UD) and other zoning regulations, and Subdivision Ordinance to implement the intentions of the Rural Center area.	OG	M	Planning Commission, Supervisors	Zoning Ordinance
16-7	<u>Economic Development.</u>				
16-8	Amend the Zoning Ordinance to reflect the area and intent of the Economic Development area.	I	H	Planning Commission, Supervisors	Zoning Ordinance
16-8	Complete an economic development study.	S	M	Planning Commission Supervisors	Special Study
16-8	<u>Business Park.</u>				

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Page Number	Recommendations	Timeframe for Completion	Priorities	Responsibility	Method of Implementation
16-8	Continue to communicate with the owners of the New Garden Airfield as to their intentions.	OG	M	Township Administration, Supervisors	Township policy, communication
16-8	Complete a Special Study of the Business Park area.	I	H	Planning Commission, Supervisors	Special Study
16-11	Relationship To <i>Landscapes</i>.				
16-11	Pursue an amendment to <i>Landscapes</i> after adoption of the Comprehensive Plan.	I	M	Administration, Supervisors	Communication with CCPC

Appendix A: Housing Assistance Resources (See Figures on the following pages)

Appendix A - Housing Assistance Resources

Figure 15-1: Summary of Housing Assistance Programs

Program	Source	Summary	Eligibility	Contact	Amount
First Time Homebuyers Program	County	Provides education in addition to direct financial assistance to low- and moderate-income homebuyers.	Low- and moderate-income homebuyers, whose income does not exceed 80% of the area median income. Financial counseling and homeownership training are prerequisites to receiving down payment and closing cost assistance.	Housing Partnership Development Corp. (610) 518-1522	Maximum loan of \$6,500 for purchase in a township. Maximum loan of \$10,000 for purchase in Coatesville or in a Borough.
Home Maintenance Program	County	Provides assistance to homeowners who are age 60 or older with moderate home repairs and modifications such as roof, minor plumbing, flooring repairs, and general repairs that may improve the physical functioning of the elderly individual(s).	The eligible applicant must be the owner of the home and the household's annual gross income must not exceed 80% of the median area income.	Housing Partnership Development Corp. (610) 518-1522	The maximum amount of funding per single family dwelling unit is \$4,500.
Home Modification Program	County	Provides assistance to individuals with permanent disabilities in making their current residence more accessible. Modifications may include, but are not limited to, ramps, lifts, door and hallway widening, kitchen and bathroom modifications, visual doorbells, audio phones and visual phone signalers.	The eligible applicant must have a verifiable permanent disability. The household's annual gross income must not exceed 80% of the median area income.	Residential Living Options (610) 518-6242	-
Housing Rehabilitation Program	County	Helps low to moderate-income homeowners correct local code violations in their homes. Violations may include, but are not limited to, structural, plumbing, heating, and electrical problems.	The eligible applicant must be the owner of the home and the household's annual gross income must not exceed 80% of the area median income.	Housing Partnership Development Corp. (610) 518-1522	The maximum amount of funding per single family dwelling is \$30,000.
Section 8 and Housing Voucher Rent Assistance	County	Administers the Section 8 rent assistance program, which is ongoing rent assistance for low-income people, and public housing, which is permanent rental housing, in Chester County.	Low-income individuals.	Housing Authority of Chester County (610) 436-9200	-
Weatherization Assistance Program	County	Provides a free high-tech computerized assessment of energy use and air leakage. Using the results of the assessment, a trained crew will visit the house to tune up the furnace, and install insulation, weather stripping, and pipe wrap as needed.	The household's annual gross income must not exceed 150% of the poverty level.	Housing Development Corp (800) 732-3554	Free to qualified households.
American Dream Downpayment Program	County/ Federal	Provides communities with grants to help homebuyers with the downpayment and closing costs.	Eligible applicants must apply through the Chester County Department of Community Development.	Chester County Department of Community Development (610) 344-6900	-

Appendix A - Housing Assistance Resources

Program	Source	Summary	Eligibility	Contact	Amount
Community Development Block Grant Program (CDBG)	County/ Federal	Provides grant assistance and technical assistance to aid communities in their community and economic development efforts. Uses: <ul style="list-style-type: none"> • Housing rehabilitation • Public services • Community facilities • Infrastructure improvement • Development and planning 	Eligible applicants must apply through the Chester County Department of Community Development.	Chester County Department of Community Development (610) 344-6900	-
Emergency Shelter Grant Program	County/ Federal	Provides grants to local governments and non-profit organizations to assist in creating or rehabilitating shelter space for the homeless.	Eligible applicants must apply through the Chester County Department of Community Development.	Chester County Department of Community Development (610) 344-6900	\$50,000 minimum and no maximum amount.
HOME Investment Partnerships Program	County/ Federal	Provides local governments with loan assistance and technical assistance to expand the supply of decent and affordable housing for low- and very low-income Pennsylvanians.	Eligible applicants must apply through the Chester County Department of Community Development.	Chester County Department of Community Development (610) 344-6900	-
Rent Assistance	County/ Federal/ State	Provides a one-time emergency rent assistance program to help low-income families and individuals pay back rent to avoid eviction or pay a security deposit to obtain an apartment.	Low-income families and individuals.	Chester County Cares (610) 436-4040	-
Mortgage Insurance for Housing in Older, Declining Areas	Federal	Assists in the purchase or rehabilitation of housing in older, declining urban areas.	For single family purposes, an individual or family is eligible to apply through HUD approved mortgagees. Multifamily sponsorship is determined by applicable program requirements.	HUD Regional Office (215) 656-0500	-
Self-Help Homeownership Opportunity Program	Federal	To facilitate and encourage innovative homeownership opportunities through the provision of self-help housing where the homebuyer contributes a significant amount of sweat equity toward the construction of the dwellings.	Funds are awarded competitively to national or regional nonprofit organizations or consortia that have experience in providing self-help housing homeownership opportunities.	HUD Regional Office (215) 656-0500	Eligible expenses are land acquisition and infrastructure improvements, which taken together may not exceed an average of \$10,000 in assistance per dwelling.

Appendix A - Housing Assistance Resources

Program	Source	Summary	Eligibility	Contact	Amount
Closing Cost Assistance Program	Pennsylvania Housing Finance Agency (PHFA)	Helps borrowers qualifying in the Agency's Lower Income Homeownership Program meet the financial requirements of a real estate settlement. This assistance is a no-interest second mortgage that does not require repayment until the first mortgage is paid in full or the home is sold, refinanced or transferred (except transfers by inheritance or between spouses).	<ol style="list-style-type: none"> 1. Must be a first-time homebuyer. 2. Meet all the requirements, including income and purchase price limits, of the Lower Income Homeownership Program. 3. May not have liquid assets that exceed \$1,200 after closing. 4. May not have an interest in any other real estate or business, except for a business which is the borrower's primary source of income. 	PHFA's toll-free hotline: 1-800-822-1174. http://www.phfa.org/programs	Eligible borrowers may receive as much as \$2,000.
Access Downpayment and Closing Cost Assistance Program	Pennsylvania Housing Finance Agency (PHFA)	Provides mortgage loans to assist persons with disabilities or who have a family member(s) living in the household with disabilities who are purchasing homes and need downpayment and closing cost assistance. This program provides a deferred payment loan, with no interest. The loan becomes due and payable upon sale, transfer, refinance, payoff of the first mortgage or non-owner occupancy of the property.	Persons with disabilities or who have a family member(s) living in the household with disabilities.	PHFA's toll-free hotline: 1-800-822-1174. http://www.phfa.org/programs	Not less than \$1,000 and no more than \$15,000.
FHA 203(k) Program	Pennsylvania Housing Finance Agency (PHFA)	Assists homeowners to purchase houses in need of repair, modernization or modifications needed to enhance accessibility. Loan proceeds can be used to acquire property and to finance improvements, with the mortgage amount calculated on the projected value of the property with the work completed.	-	PHFA's toll-free hotline: 1-800-822-1174. http://www.phfa.org/programs	-
Homeowner's Emergency Mortgage Assistance Program	Pennsylvania Housing Finance Agency (PHFA)	Provides short-term, temporary funding to cure loan delinquencies, by providing mortgage payments to lenders on behalf of qualifying homeowners for up to 24 months.	Recipients must meet eligibility guidelines defined in state law (35 P.S. Section 1680.401 et seq, as amended). Repayment of assistance is required.	PHFA's toll-free hotline: 1-800-822-1174. http://www.phfa.org/programs	May not exceed \$60,000.00, nor may it exceed 24 months of assistance.
Homeownership Choice	Pennsylvania Housing Finance Agency (PHFA)	Aids in the construction of new single-family homes in urban areas by helping turn neglected neighborhoods into attractive places to live.	Requires a sponsoring partnership of a municipal entity, a for-profit builder / developer and a non-profit builder developer.	PHFA's toll-free hotline: 1-800-822-1174. http://www.phfa.org/programs	Support must be matched on a 1:1 basis by local applicants. Of this amount, a minimum of fifty percent should be contributed by local government.

Appendix A - Housing Assistance Resources

Program	Source	Summary	Eligibility	Contact	Amount
Homestead Second Mortgage Program	Pennsylvania Housing Finance Agency (PHFA)	Provides no-interest second mortgage loans that require no regular monthly payment. Repayment of this loan is required upon full repayment of the first mortgage, sale, transfer, refinancing, or non-owner occupancy. (Can not be used within Chester County)	Applicants must meet certain income limits and home purchase price limits and the house they purchase must meet other property guidelines specified by federal rules.	PHFA's toll-free hotline: 1-800-822-1174. http://www.phfa.org/pr ograms	Qualifying homebuyers can borrow between \$1,000 and \$15,000 to help with down payment and closing costs.
Lower Income Homeownership Program	Pennsylvania Housing Finance Agency (PHFA)	Provides year round availability for below-market rate financing, below-market origination fees and closing cost assistance.	First-time homebuyer (have not owned a home in the previous three years).	PHFA's toll-free hotline: 1-800-822-1174. http://www.phfa.org/pr ograms	Maximum purchase price: New-\$150,000 Existing-\$125,000 (Chester County)
Multi-Family Rental Housing Program	Pennsylvania Housing Finance Agency (PHFA)	Provides construction and permanent loan financing for rental housing developments.	<u>Construction Loan Program</u> : Makes below market-rate construction loans available to sponsors of rental housing projects who have permanent take-out financing from other lenders. <u>Low Income Housing Tax Credits</u> : Provides owners of and investors in affordable rental housing developments with tax credits that offer a dollar-for-dollar reduction in their tax liability. The credit may be taken for up to ten years. Tax credits are usually sold to investors with the proceeds used to cover project costs.	PHFA's toll-free hotline: 1-800-822-1174. http://www.phfa.org/pr ograms	Construction Loan Program: At least 20 percent of the residents must have incomes that do not exceed 80 percent of the area's median income.
PennHOMES	Pennsylvania Housing Finance Agency (PHFA)	Offers interest-free, deferred payment loans to support the development of affordable rental housing for lower-income residents.	Eligible sponsors include individuals, joint ventures, partnerships, limited partnerships, trusts and corporations, and may be for-profit or nonprofit entities.	PHFA's toll-free hotline: 1-800-822-1174. http://www.phfa.org/pr ograms	Funding is limited, and applicants are encouraged to make maximum use of other public and private financial resources.
Statewide Homeownership Program	Pennsylvania Housing Finance Agency (PHFA)	Provides PHFA-financed, 30-year, fixed rate home mortgage loan for first-time homebuyers.	First-time homebuyer (have not owned a home in the previous three years) OR now own or previously owned a home, but plan to buy a house in one of the 39 Target County Areas. (Chester County is not a Target County.)	PHFA's toll-free hotline: 1-800-822-1174. http://www.phfa.org/pr ograms	Maximum purchase price: New-\$210,000 Existing-\$175,000 (Chester County)

Appendix A - Housing Assistance Resources

Program	Source	Summary	Eligibility	Contact	Amount
Disability Access Modification Loan Program	Pennsylvania Housing Finance Agency (PHFA) and Fannie Mae	Offers assistance to persons with disabilities, or who have (a) family member(s) with disabilities living with them, who want to be homeowners. It provides fully amortizing, 30-year, fixed rate conventional first mortgages for the purchase of homes, along with second mortgage loans for financing accessibility modifications.	Persons with disabilities or who have a family member(s) living in the household with disabilities.	PHFA's toll-free hotline: 1-800-822-1174, http://www.phfa.org/programs	Not less than \$1,000 and no more than \$10,000.
Brownfields for Housing	State	Provides state-funded grants for affordable housing activities in previously developed areas to those counties that administer Act 137 Affordable Housing Trust Funds. The initiative funds housing activities eligible under the Communities of Opportunity Program for new or rehabilitated housing developments, but only on previously developed sites in core communities.	Counties with local Act 137 Affordable Housing Trust Funds.	Brenda Bubb at 717-720-7468 or bbubb@state.pa.us	Annual allocations determined by formula.
Communities of Opportunity Program	State	Provides state-funded grants for community revitalization and economic development activities that occur on a local level. It also funds projects that assist with community revitalization for housing and low-income housing.	Local governments, redevelopment authorities, housing authorities, and non-profits on a case by case basis.	Aldona Kartorie at 717-720-7409 or akartorie@state.pa.us	There is no minimum or maximum amount and grants average between \$150,000 to \$200,000.
Pennsylvania Access Grant Program	State	Provides low- and moderate-income persons with permanent disabilities increased accessibility in their current home by undertaking modifications to the home.	Redevelopment authorities and units of local government.	Aldonia Kartorie at 717-720-7409 or akartorie@state.pa.us	There are no minimum or maximum grant amounts. Grants average \$150,000.
Habitat for Humanity of Chester County	Private	Provides basic, well-built, affordable, owner-occupied housing with God's people in need in a way that builds hope, dignity, and independence, develops partnerships, encourages community, involves Christians and others of goodwill and cooperates with other organizations so that God's love is shared and celebrated.	Habitat homeowners qualify based on a set of equal opportunity criteria, which include: <ul style="list-style-type: none"> • A compelling need for better housing conditions; • A steady income and ability to pay a monthly mortgage; and • A willingness to invest their time (sweat equity) in the building of their own homes, as well as other Habitat houses. • Habitat homeowners are carefully selected through an extensive screening process. • Habitat homes are purchased by low-income families using an HfHCC no-interest mortgage of 20 years for the full purchase price of the home. 	Habitat for Humanity of Chester County, Inc. (610) 384-7993	The cost of a Habitat house is approximately \$68,000. The price of the home is determined by the costs expended directly for materials and non-contributed labor plus apportioned administrative costs.

Appendix A - Housing Assistance Resources

Program	Source	Summary	Eligibility	Contact	Amount
Home Repair Program	Private/County	Provides assistance to homeowners for home repairs.	The eligible applicant must be the owner of the home and the household's annual gross income must not exceed 150% of the poverty level.	Good Works, Inc. (610) 383-6311	The estimated cost of repairs is generally under \$5,000 per household served.
Homeshare - YWCA	Private/County	Operates a homeshare program which matches homeless and low-income homeseekers throughout Chester County with homeowners who have extra living space in their homes.	Homeless and low-income homeseekers throughout Chester County.	YWCA of Greater Chester County (610) 692-3737	-
Federal Home Loan Bank of Pittsburgh	Private/Public	Enables member financial institutions to assure the flow of credit and other services for housing, community development and other general community banking needs. Programs include: <ul style="list-style-type: none"> Affordable Housing Program Community Lending Program Home Buyer Equity Fund 	<p><u>Affordable Housing Program</u>: Supports projects that provide affordable housing to individuals and families whose incomes are defined as low (51 to 80 percent of area median) or very low (50 percent and below of area median).</p> <p><u>Community Lending Program</u>: Offers loans to member financial institutions for community and economic development projects that create housing, improve business districts, and strengthen neighborhoods.</p> <p><u>Home Buyer Equity Fund</u>: Addresses the funding needs of low-income homebuyers. Specifically designed for first-time buyers, provides grant assistance — provided through member financial institutions — to be used for down payment and closing costs to families at or below 80 percent of the area median income.</p>	Federal Home Loan Bank of Pittsburgh (412) 288-3400	-

Source: Chester County Planning Commission, 2004

Resources.

Federal

US Department of Housing and Urban Development <http://www.hud.gov>

State

PA Department of Community and Economic Development <http://www.inventpa.com/>
Pennsylvania Housing Finance Agency <http://www.phfa.org/programs>

County

Chester County Department of Community Development <http://www.chesco.org/ccded/housing.html>

Other

Habitat for Humanity of Chester County <http://www.habitatchestercountypa.org/>
Good Works, Inc. <http://www.goodworksinc.org/>
YWCA-Homeshare <http://home.ceil.org/~bettyl/homeshar.html>
Chester County Cares <http://www.esccares.org/English/ProgramsandServices.html>
Federal Home Loan Bank of Pittsburgh <http://www.flb-pgh.com/>
Coatesville Area Hope VI Revitalization Program <http://www.cnu.org/pdf/Scanga.pdf>

Map 1-1 Regional Setting



New Garden Township in Southeastern Pennsylvania Region

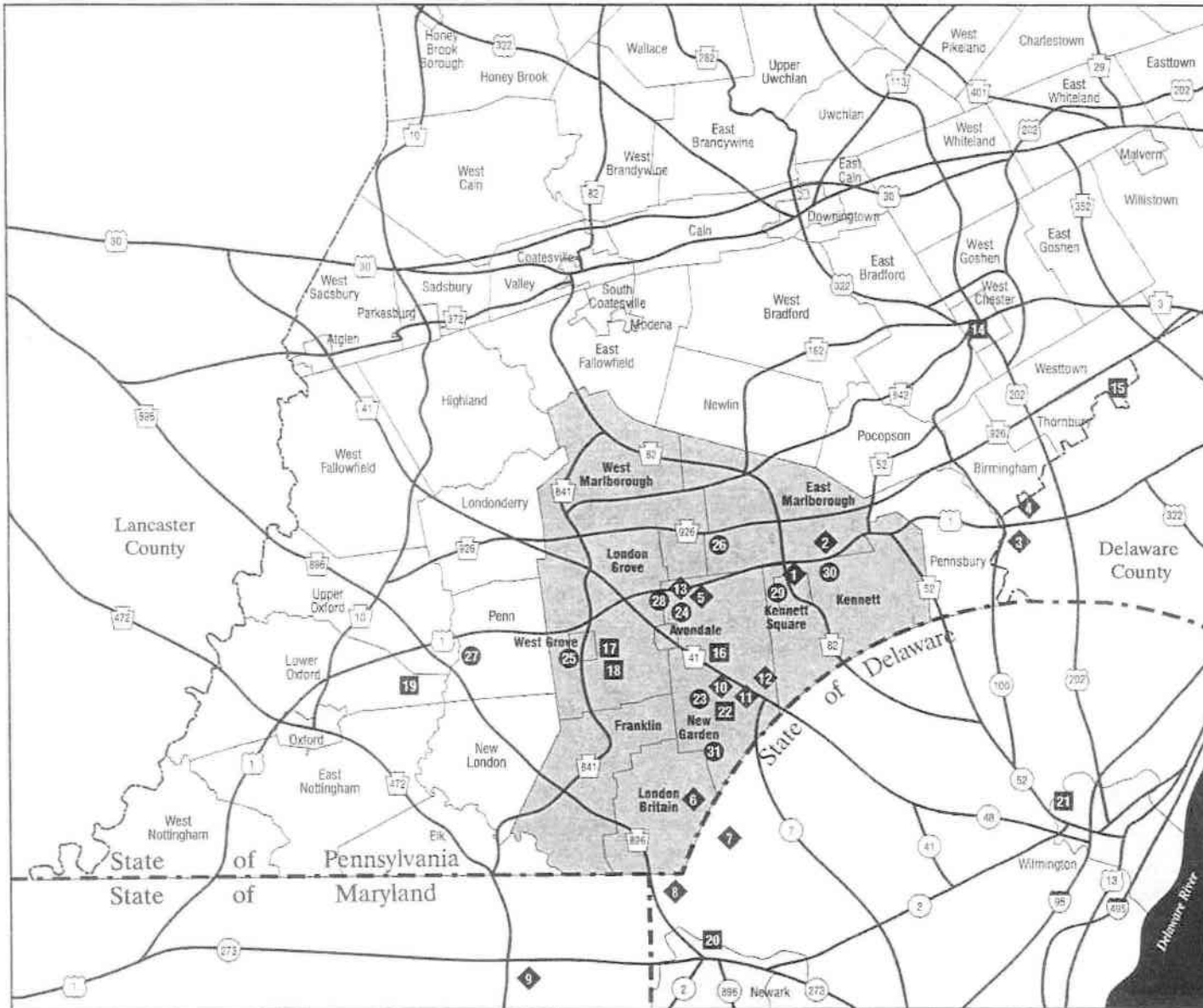


New Garden Township in Chester County



New Garden Area Region

New Garden Township



Map 1-2 Regional Influences

Recreational Attractions

- | | |
|-----------------------------------------------------------|----------------------------------|
| 1 Anson B. Nixon Park | 8 Carpenter Recreation Area |
| 2 Longwood Gardens | 9 Fairhill Natural Resource Area |
| 3 Brandywine River Museum | 10 New Garden Township Park |
| 4 Brandywine Battlefield State Park | 11 St. Anthony's in the Woods |
| 5 Brandywine Polo Club | 12 Hartslog National Golf Course |
| 6 White Clay Creek State Preserve | 13 Loch Nona Golf Links |
| 7 White Clay Creek State Park/
Middle Run Natural Area | |

Educational Facilities

- | | |
|---------------------------------|---------------------------------|
| 14 West Chester University | 19 Lincoln University |
| 15 Cheyney University | 20 University of Delaware |
| 16 New Garden Elementary School | 21 Wilmington Campus, U of Del. |
| 17 Avon-Grove High School | 22 K-CAD Middle School |
| 18 Fred S. Engle Middle School | |

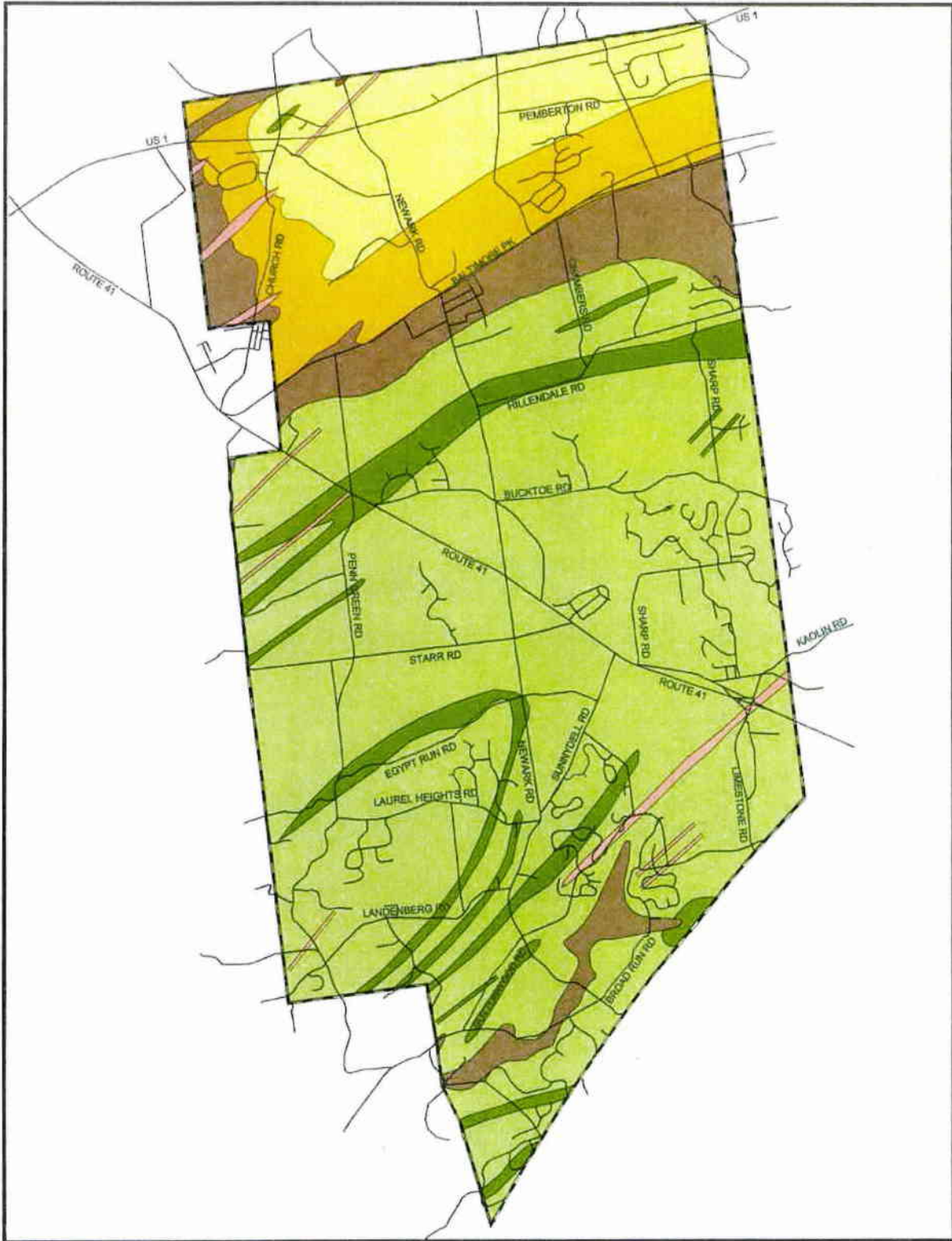
Community Facilities

- | | |
|------------------------------------|-----------------------------------|
| 23 New Garden Township Building | 28 Avondale State Police Barracks |
| 24 New Garden Airfield | 29 Friends Building |
| 25 West Grove Fire Co. | 30 Gayard Taylor Memorial Library |
| 26 New Bolton Center Vet. Hospital | 31 Historic Landenberg |
| 27 Jenkensville Medical Center | |



Base map prepared by: Chester County Planning Commission, 2004
Source: Chester County Planning Commission, 2004

New Garden Township Comprehensive Plan












MAP 4-1 New Garden Township Comprehensive Plan Update

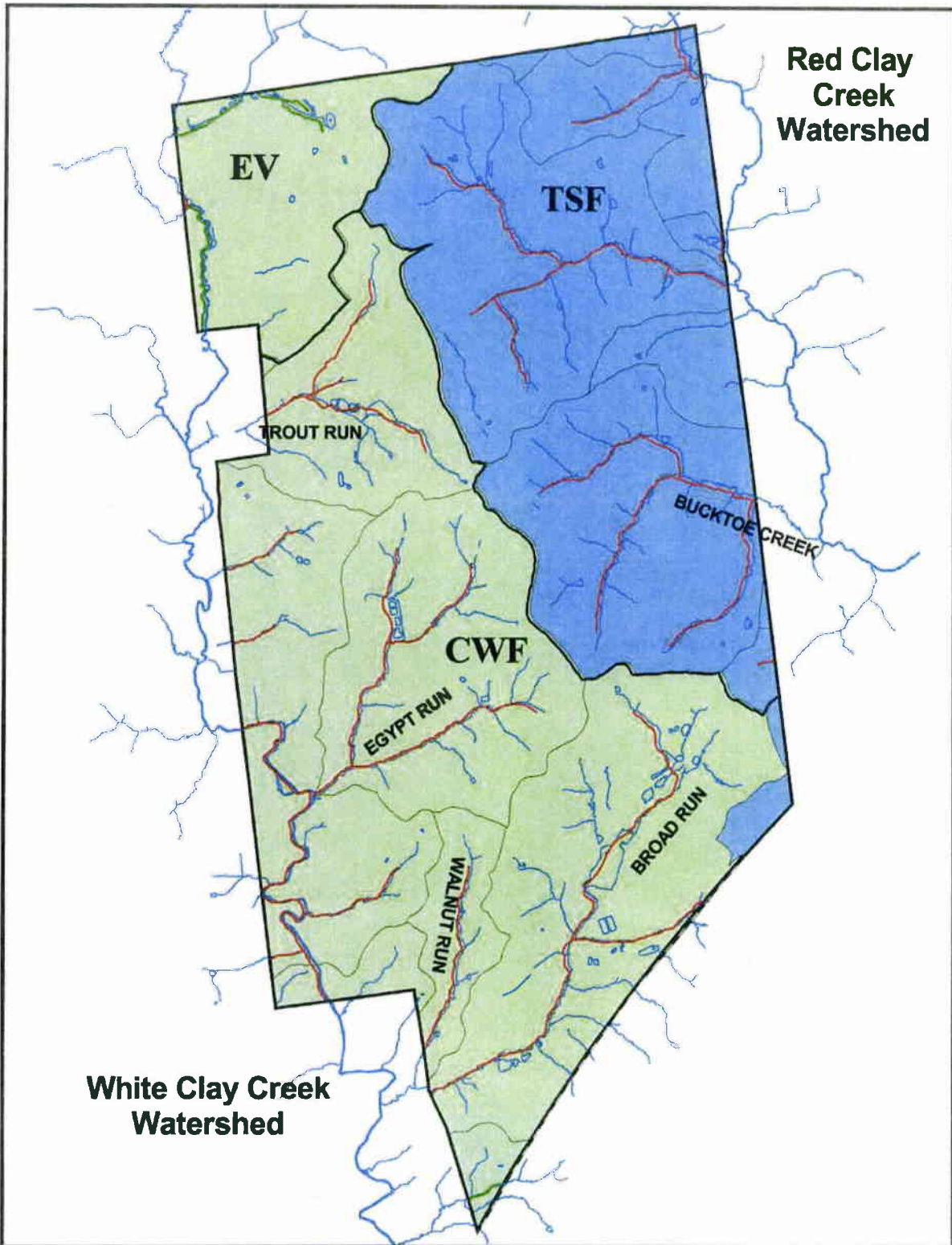


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Map Source: Municipal Border - Chester County Bureau of Land Records, 2002; Roads - Chester County Bureau of Land Records, 2002; Geology - Digital Geologic Map of Chester County, Pennsylvania - United States Geological Survey, 1980; Chester County Planning Commission, 2004.

Geologic Formations

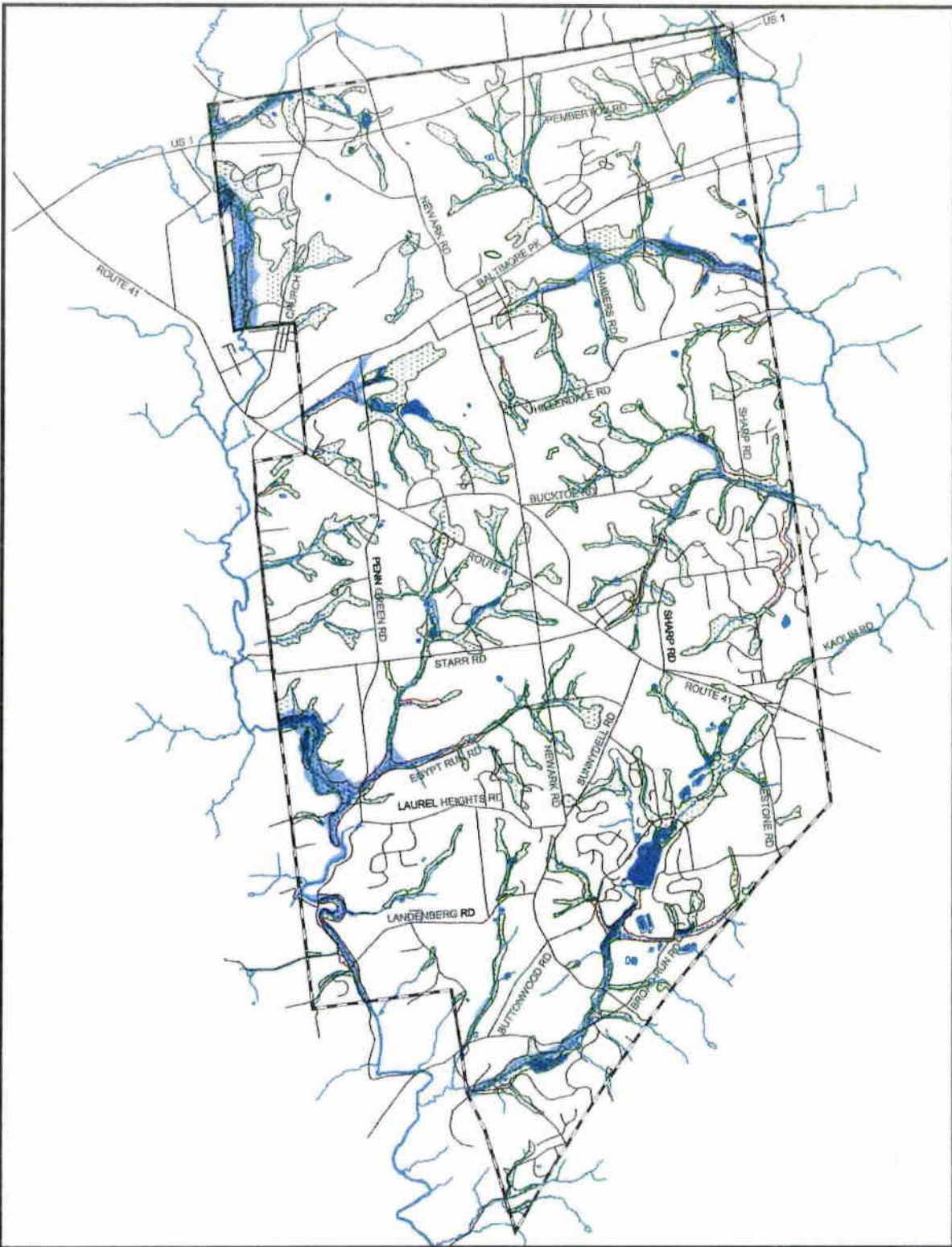
-  Municipal Border
-  Road Network
-  Cocksவில் Marble
-  Setters Quartzite
-  Wissahickon Schist
-  Pegmatite
-  Serpentine
-  Felsic Gneiss
-  Mafic Gneiss



**Red Clay
Creek
Watershed**

**White Clay Creek
Watershed**

<p>MAP 4-4 New Garden Township Comprehensive Plan Update</p>	<p>GIS Geographic Information Systems</p> <p><small>This map was digitally scanned for internal reproduction and distribution use by the County of Chester. It is not intended for sale or other commercial purposes. Please note that this map is not a representation of any land, including but not limited to the ownership of land, or other rights in or interest in the land, and any such interest to be verified or verified, only through the information of the landowner.</small></p> <p><small>No part of the information on this map should be used in a manner that is not intended in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, except as approved in writing by the County of Chester.</small></p> <p><small>Data Source: Municipal Boundaries - Chester County Bureau of Land Records, 2002; Streams, Watersheds - Aerial Data Reduction Association Inc. provided through contract agreement to the County of Chester, 1994; Assessed Streams - Watersheds, 2003; Stream Resources - Digital Data for most watersheds shown are from DEP Southeast Regional Office (August 1999). For complete stream information, check "Stream Web Page" Watersheds - Digital Database both boundaries of assessed streams, PA Department of Environmental Protection, 1997; Chester County Planning Commission, 2004.</small></p>	<p>Watersheds</p> <ul style="list-style-type: none"> Municipal Border Streams Assessed Streams Yes No Stream Resources EV Exceptional Value Watershed CWF Cold Water Fishes TSF Trout Stream Fishes Watersheds White Clay Creek Red Clay Creek
-----------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------



MAP 4-5
New Garden
Township
Comprehensive Plan
Update



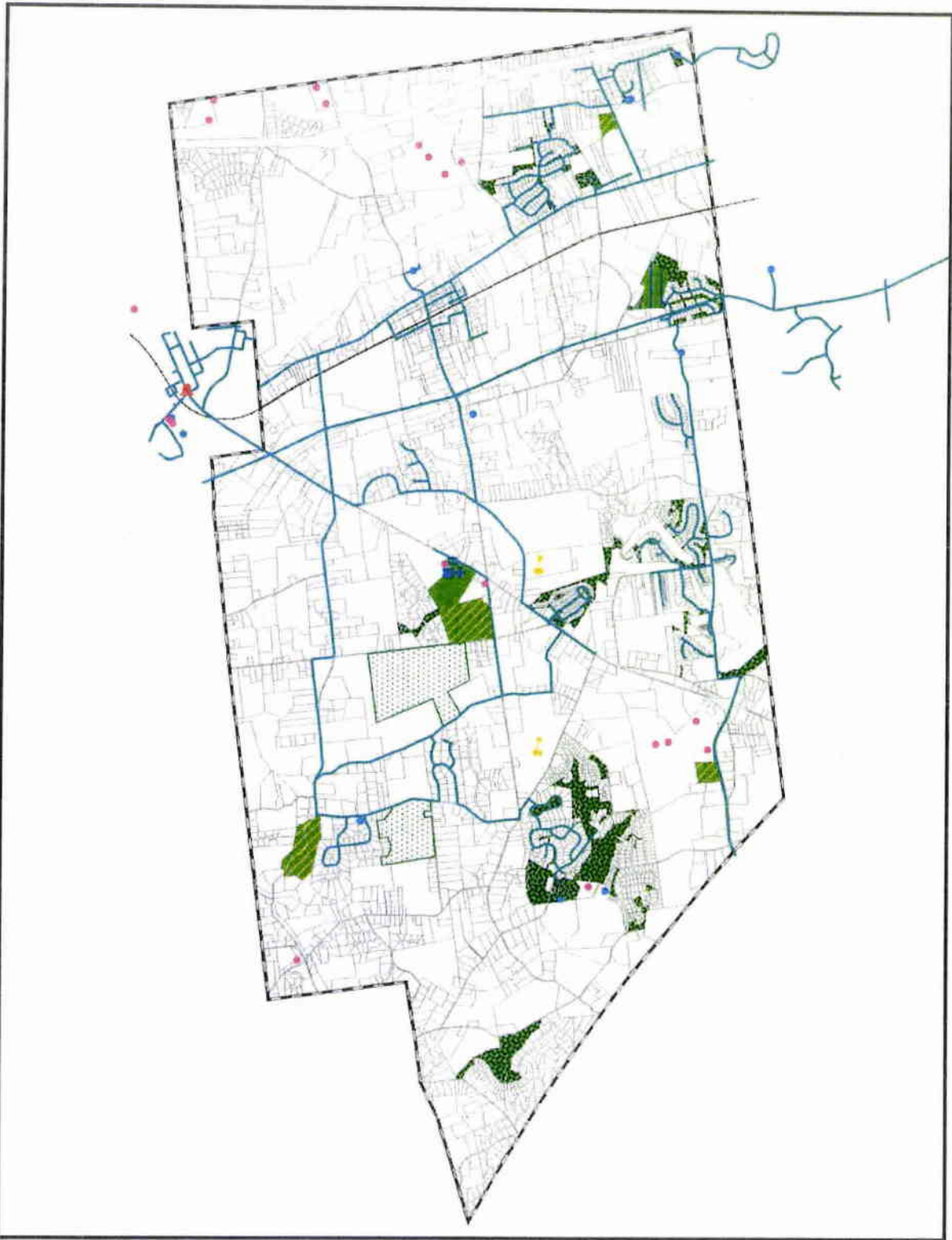
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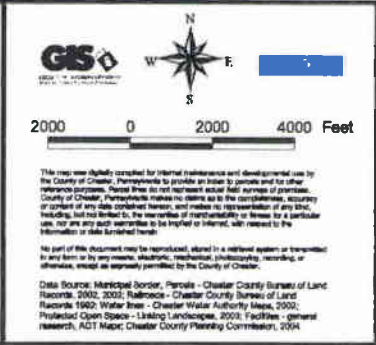
Data Sources: Municipal Border - Chester County Bureau of Land Records, 2002; Roads - Chester County Bureau of Land Records, 2002; Floodplain - G3 Flood Data, Chester County, Pa; Federal Emergency Management Agency, 1995; ChesCD LRS, Walters - National Wetlands Inventory (NWI) digital file, US Fish and Wildlife Service, 1996; Hydric, Alluvial Soils - Soil Survey Geographic Database for Chester County, Pa, U.S. Department of Agriculture, National Resources Conservation Service, 1997; Chester County Planning Commission, 2004.

Floodplain, Wetlands, Hydric and Alluvial Soils

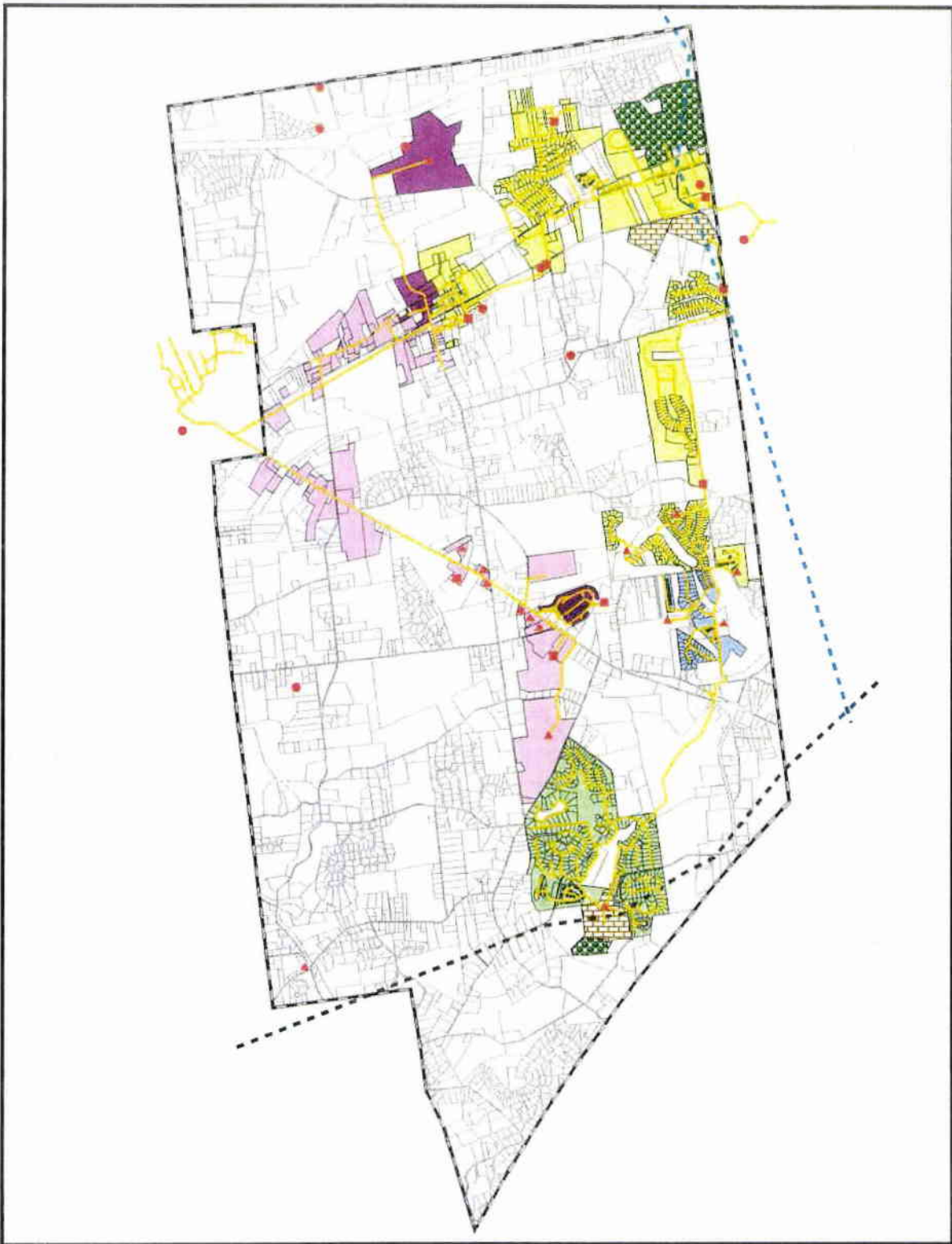
-  Municipal Border
-  Road Network
-  Streams
-  Floodplain
-  Wetlands
-  Hydric Soils
-  Alluvial Soils



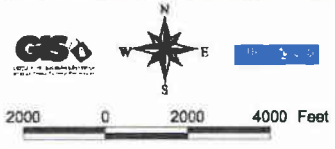
MAP 6-1 New Garden Township Comprehensive Plan Update



- ### Community Facilities
- Municipal Border
 - Water Lines
 - Railroad
 - EMS
 - Fire Station
 - Police
 - School
 - Township Building
 - Wells
 - Water Facility
 - Parcels
 - Protected Open Space
 - HOA Easement
 - Township Owned
 - Township Park
 - Agricultural Easement



MAP 6-2 New Garden Township Comprehensive Plan Update



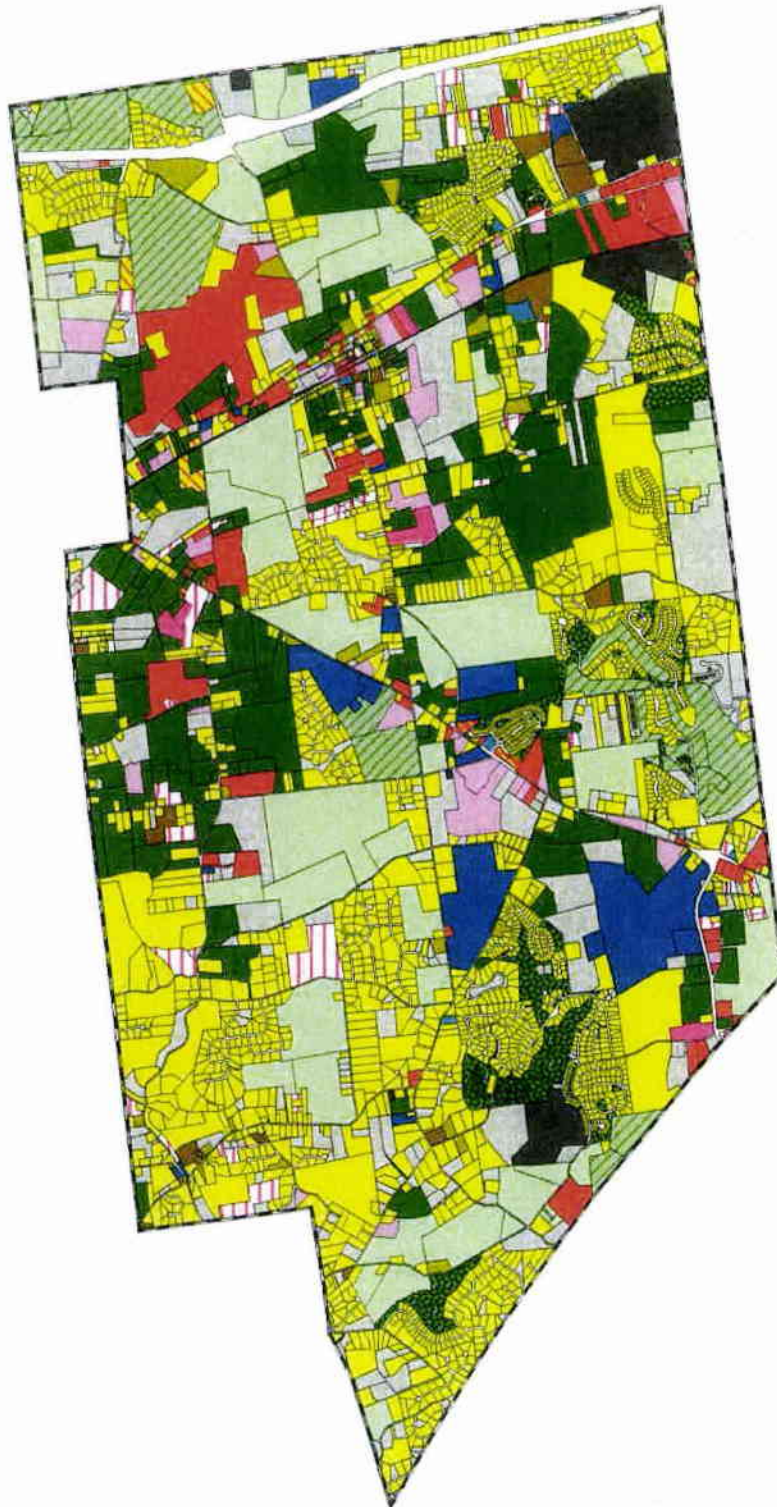
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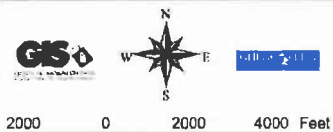
Utility Lines: Municipal Border, Parcels - Chester County Bureau of Land Records, 2002, 2003; Roadways, Highways - Chester County Bureau of Land Records, 2002, 1992; Sewer Lines - West Chester Sewer Authority, 2002; Utility Lines - Digitized by the West Chester University Center for GIS and Spatial Analysis for the Chester County Planning Commission, 1998; Chester County Planning Commission, 2004.

Community Facilities

Municipal Border	Parcels
Sewage Service Areas	Utility Lines
Avondale	Gas
Avondale or East End	Oil
East End	Sewage Facilities
Shangrila	Sewer Lines
Shangrila and East End	Spray Field
	Sewer Facility
	Private Facility
	Public Facility



MAP 7-1 New Garden Township Comprehensive Plan Update



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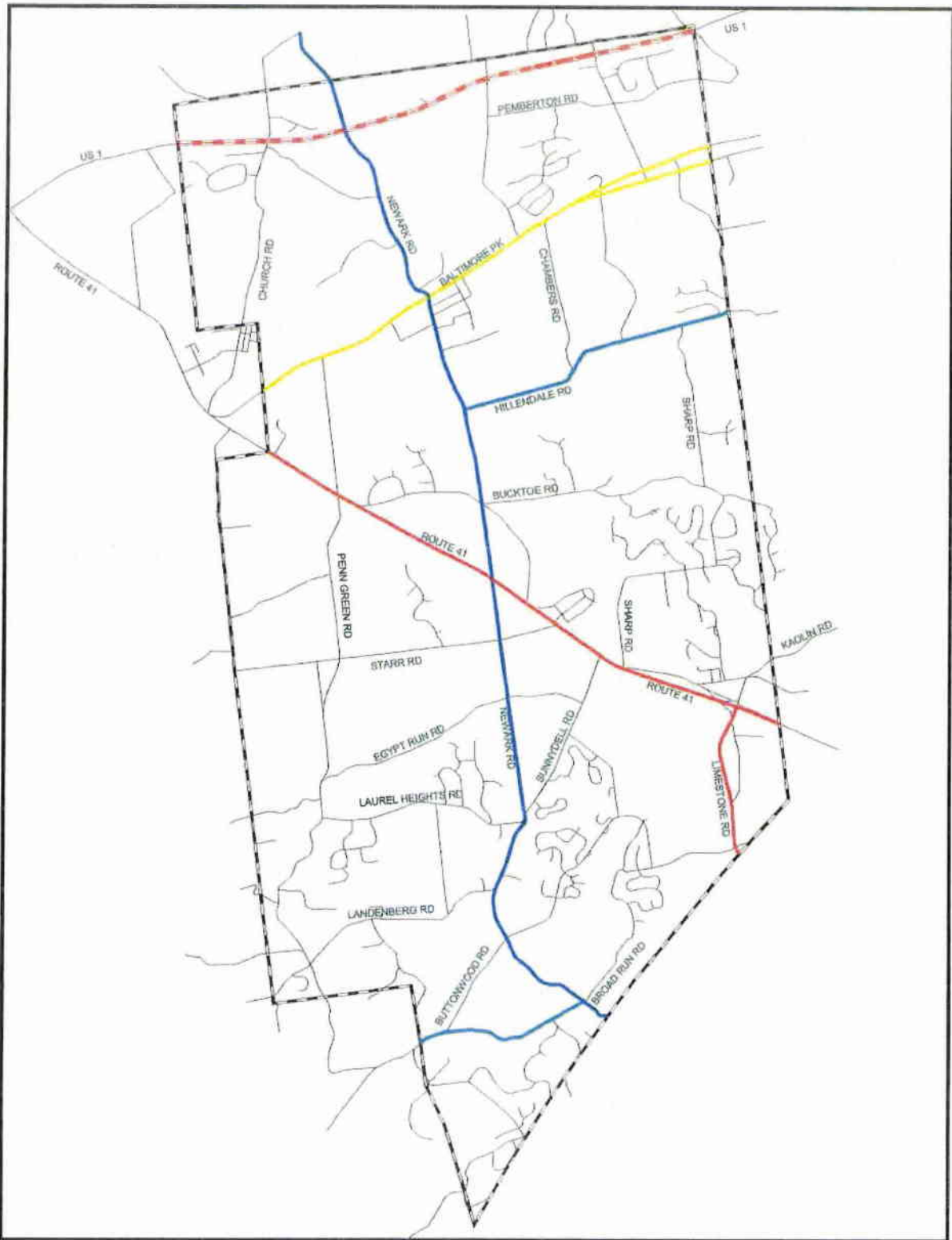
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Date Source: Municipal Border, Parcels - Chester County Bureau of Land Records, 2002, 2003; Land Use - Site Survey, 2002-2003, Input from New Garden Task Force, 2002; Chester County Planning Commission, 2004

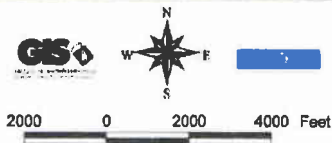
Existing Land Use

-  Municipal Border
-  Parcels

- | | |
|-------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
|  Single Family |  Office |
|  Two Family |  Private School |
|  Multi Family |  Institutional |
|  Mobile Home |  Agriculture |
|  Residential-Commercial |  Mushroom |
|  Commercial-Residential |  Recreation |
|  Commercial |  Open Space (hoa) |
|  Light Industrial |  Utility |
|  Heavy Industrial |  Vacant |



MAP 8-1 New Garden Township Comprehensive Plan Update

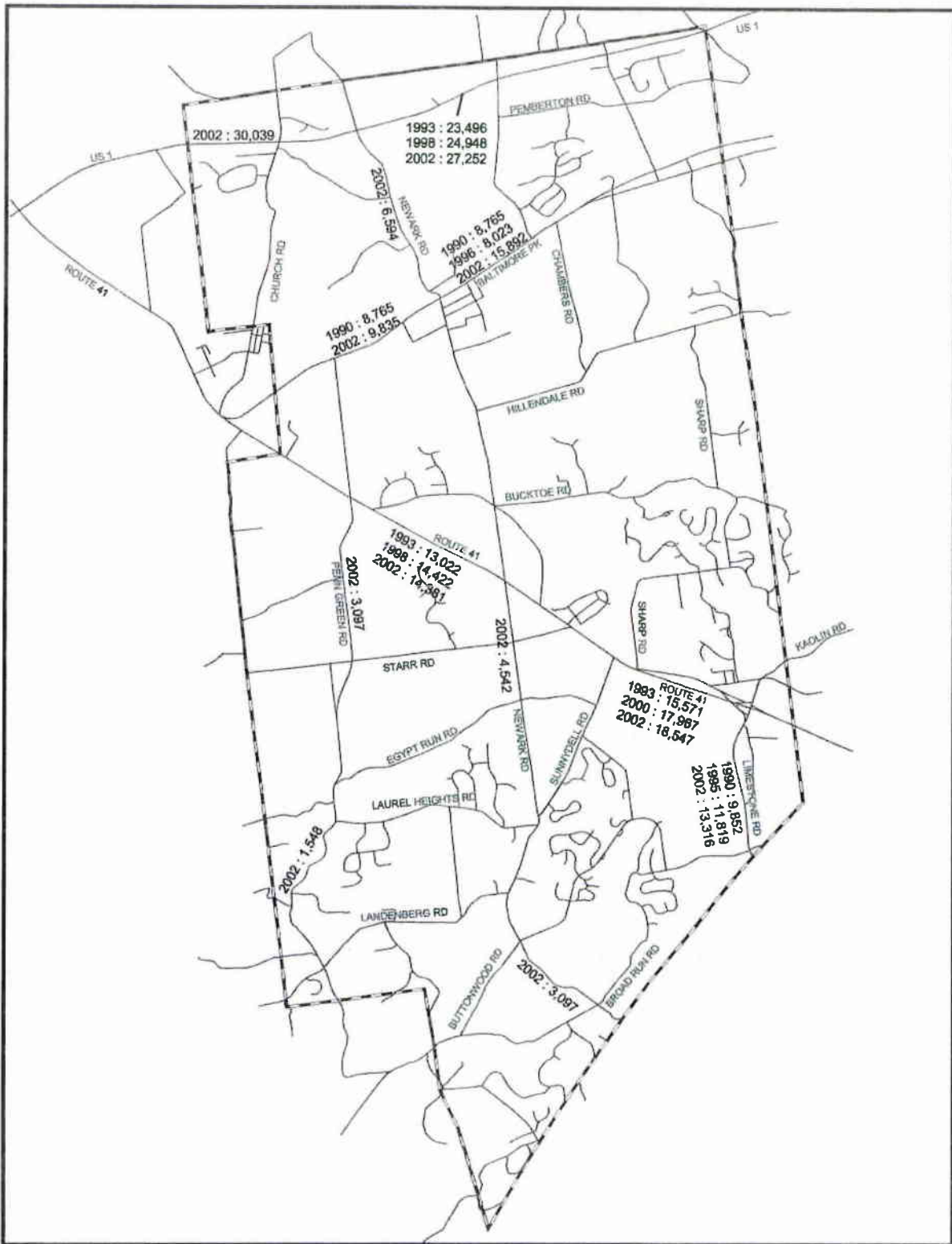


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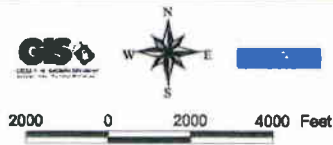
Data Source: Municipal Border - Chester County Bureau of Land Records, 2002; Roads - Chester County Bureau of Land Records, 2003; Fundational Classification - 1983 New Garden Comprehensive Plan, Chester County Planning Commission, 2004.

Existing Roadway Functional Classification

-  Municipal Border
-  Expressway
-  Major Arterial
-  Minor Arterial
-  Major Collector
-  Minor Collector
-  Local Road



MAP 8-2
New Garden
Township
Comprehensive Plan
Update



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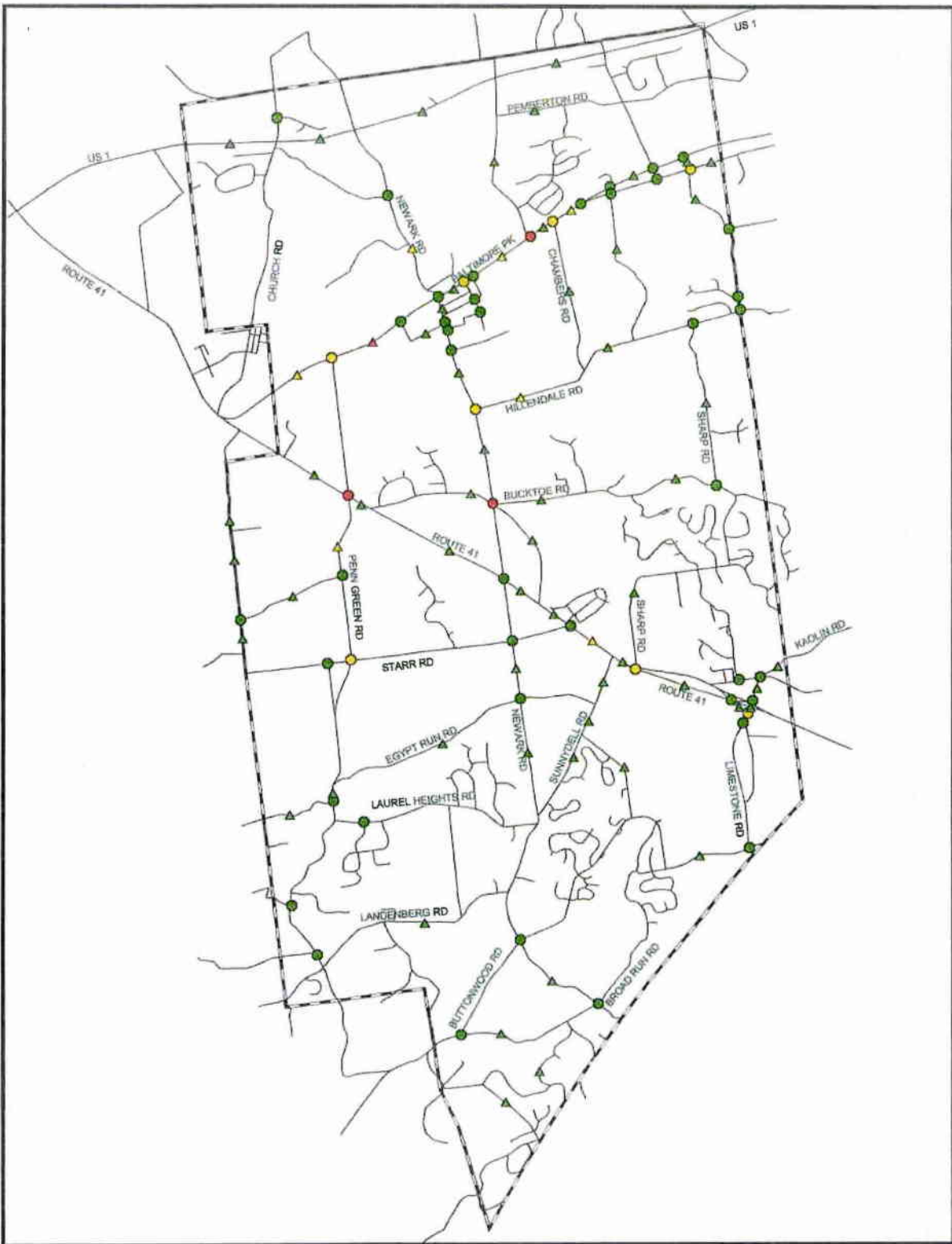
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Other Sources: Municipal Border - Chester County Bureau of Land Records, 2002; Roads - Chester County Bureau of Land Records, 2002; ADT Data - Chester County Planning Commission Files, Chester County Planning Commission, 2004.

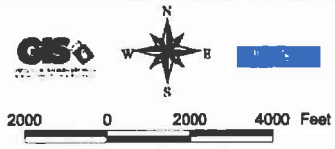
Historic Traffic Count
Data

- Municipal Border
- Road Network

Traffic Count Data:
Year : Average Daily Traffic
(Example = 2002 : 3,097)



MAP 8-3
New Garden
Township
Comprehensive Plan
Update



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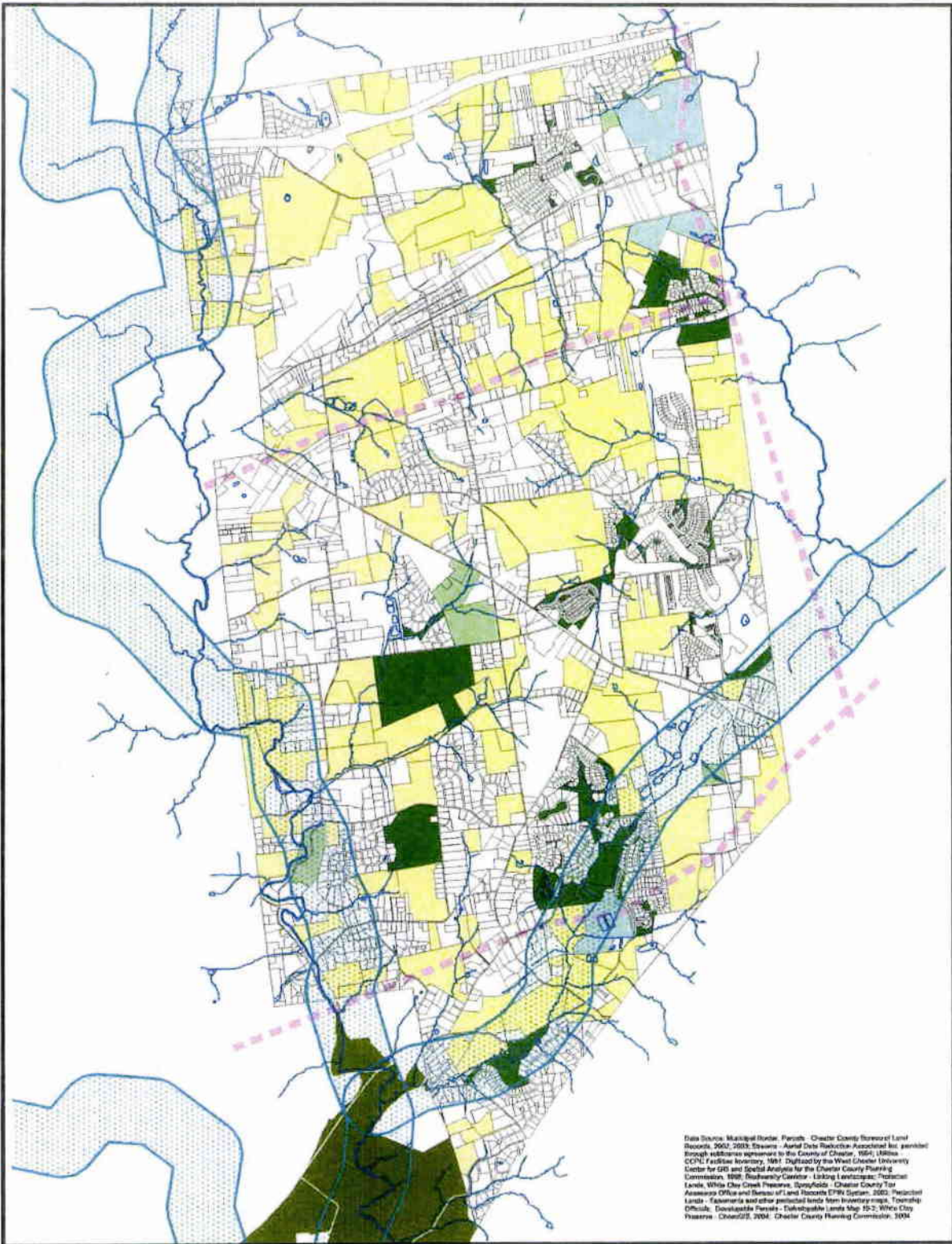
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Date Source: Municipal Border, Persele - Chester County Bureau of Land Records, 2002, 2003; Roads - Chester County Bureau of Land Records, 2003; Accident Data - Subcompilation of PennDOT data 1996-2000; Chester County Planning Commission, 2004

Accident Data

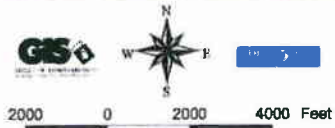
Municipal Border
 Road Network

- Mid-Block Accidents: 1996-2000**
- 1-3 Accidents
 - 4-6 Accidents
 - 7-9 Accidents
- Intersection Accidents: 1996-2000**
- 1-6 Accidents
 - 7-12 Accidents
 - 13-18 Accidents



Data Source: Municipal Raster; Parcels - Chester County Bureau of Land Records, 2002, 2003; Streams - Aerial Data Reductions Associated Inc. provided through a license agreement to the County of Chester, 1994; Wetlands - CCNY; Facilities Inventory, 1991; Digitized by the West Chester University Center for GIS and Spatial Analysis for the Chester County Planning Commission, 1998; Roadway Corridor - Linking Landscapes; Technical Levels; White Clay Creek Preserve, Springfield - Chester County Tax Assessor's Office and Bureau of Land Records (TRM System); 2005; Protected Lands - Faberman and other protected lands from inventory maps; Township Office; Developable Parcels - Developable Lands Map 5C2; White Clay Preserve - Chester County Planning Commission, 2004










MAP 13-1 New Garden Township Comprehensive Plan Update

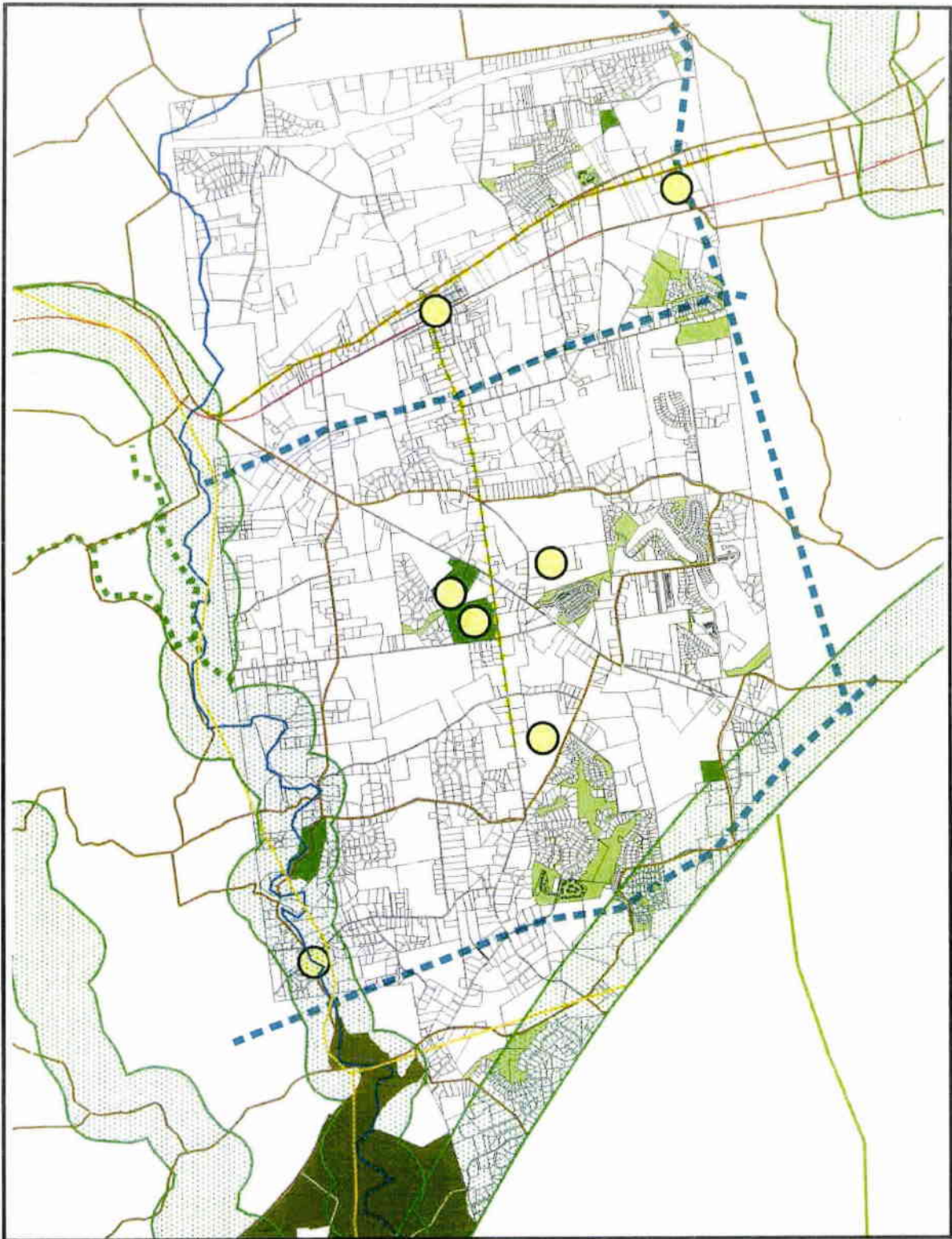


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Open Space

-  Parcels
-  Streams
-  Utility Corridor
-  Biodiversity Corridor
-  Sprayfields
-  Township Owned
-  Protected Lands
-  Developable Parcels > 5 Ac
-  White Clay Preserve



MAP 13-2 New Garden Township Comprehensive Plan Update



2000 0 2000 4000 Feet

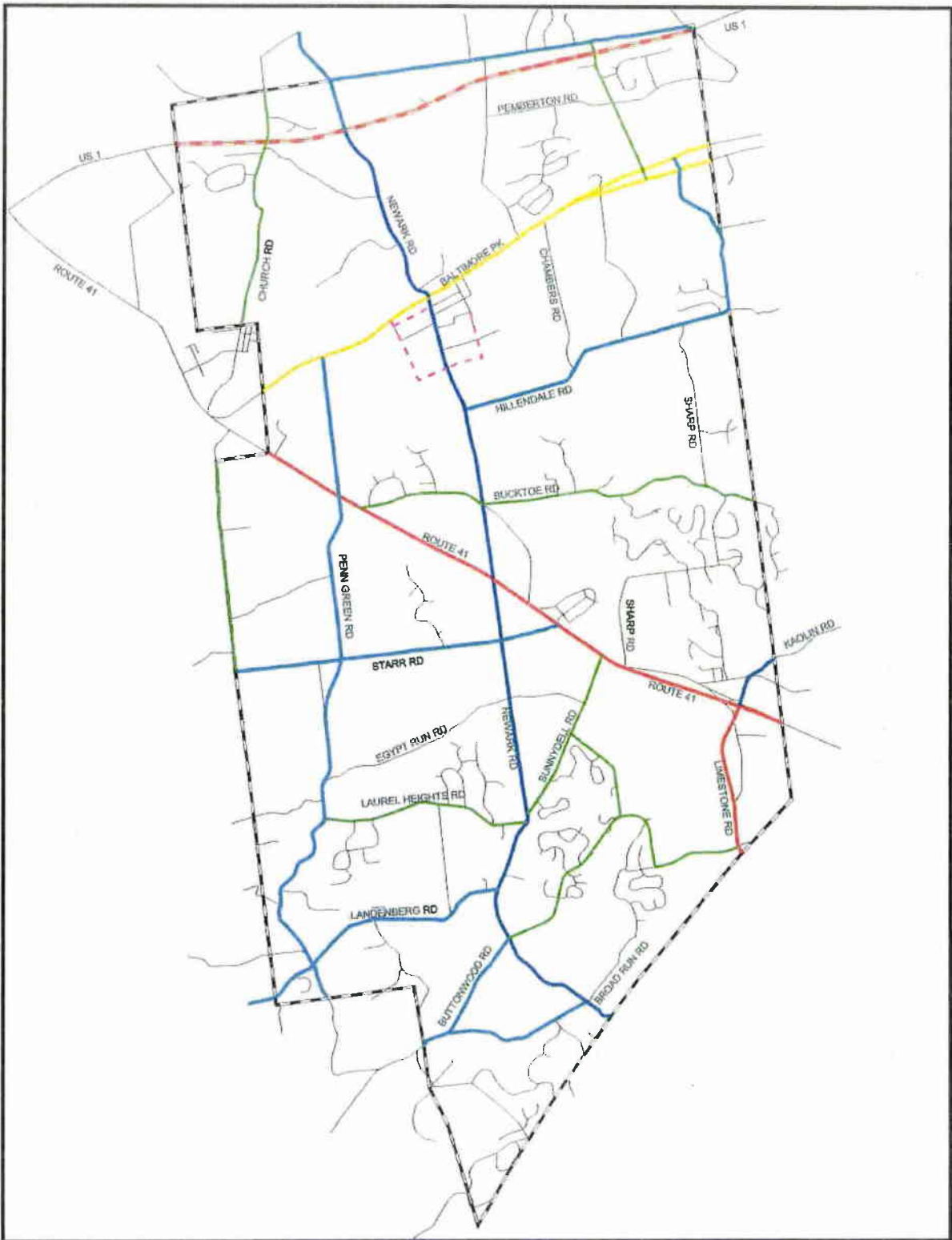
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Data Sources: Municipal Records; Planning, Recreation - Chester County Bureau of Land Records; 2000, 2002, 1980; Protected Land, Township Land, White Clay Creek Preserve - Map 13-1, 8/2000 - Aerial Data Reductions Associated Inc. (unpublished); Borough boundaries information for the County of Chester, 1980, 1985; GIS/CDM, Fairfax Inventory, 1987. Digitized by the West Chester University Center for GIS and Spatial Analysis for the Chester County Planning Commission, 1998; Regional Recreation Corridor, Delaware Department of Transportation, 1998; Living Landscapes, London British Trails, London British Cycling, Cheshire County Blue Routes - Recommended Bicycle Network for Chester County, CDM 2000; Chester County Planning Commission, 2004

Recreation

- Regional Recreation Corridor
- Protected Land
- White Clay Creek Preserve
- White Clay Creek Railroad
- Abandoned Railroads
- Utility Corridors
- London Britain Trails
- County Bike Routes
- Delaware Greenways
- Pedestrian Priority
- Parcels
- Township Land
- Pedestrian Centers



MAP 14-1
New Garden
Township
Comprehensive Plan
Update

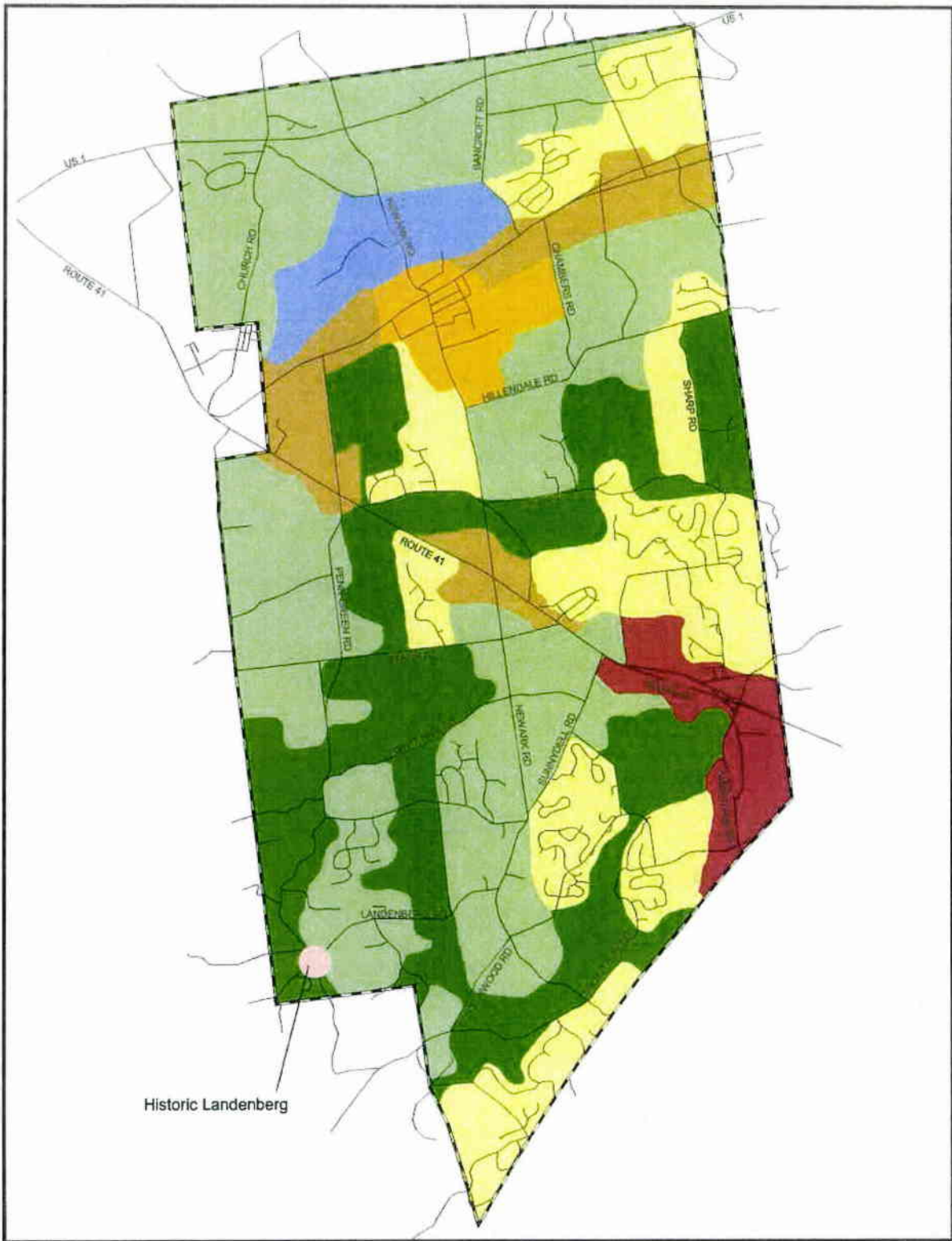


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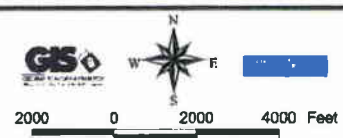
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 Data Source: Municipal Border, Parish, Acres - Chester County Bureau of Land Records, 2002, 2003, 2006; Functional Classification - New Garden Comprehensive Plan Task Force, 2007; Chester County Planning Commission, 2004

Roadway
Functional Classification

- Municipal Border
- Potential Road/Alignment
- Expressway
- Major Arterial
- Minor Arterial
- Major Collector
- Minor Collector
- Local Distributor
- Local Road



MAP 16-1 New Garden Township Comprehensive Plan Update



This map was digitally corrected for internal representation and developmental uses by the County of Chester. The mapmaker is not responsible for any errors or omissions. The County of Chester, Pennsylvania, makes no warranty as to the completeness, accuracy or content of any data contained herein, and makes no representation of any kind, including, but not limited to, the accuracy of representation or data for a particular use, nor are any such representations to be applied or inferred, with respect to the information or data contained herein.

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Data Source: Municipal Border: Rasmie - Chester County Bureau of Land Records, 2003; Future Land Use - New Garden Comprehensive Plan Year Form, 2004; Chester County Planning Commission, 2004

Land Use Plan

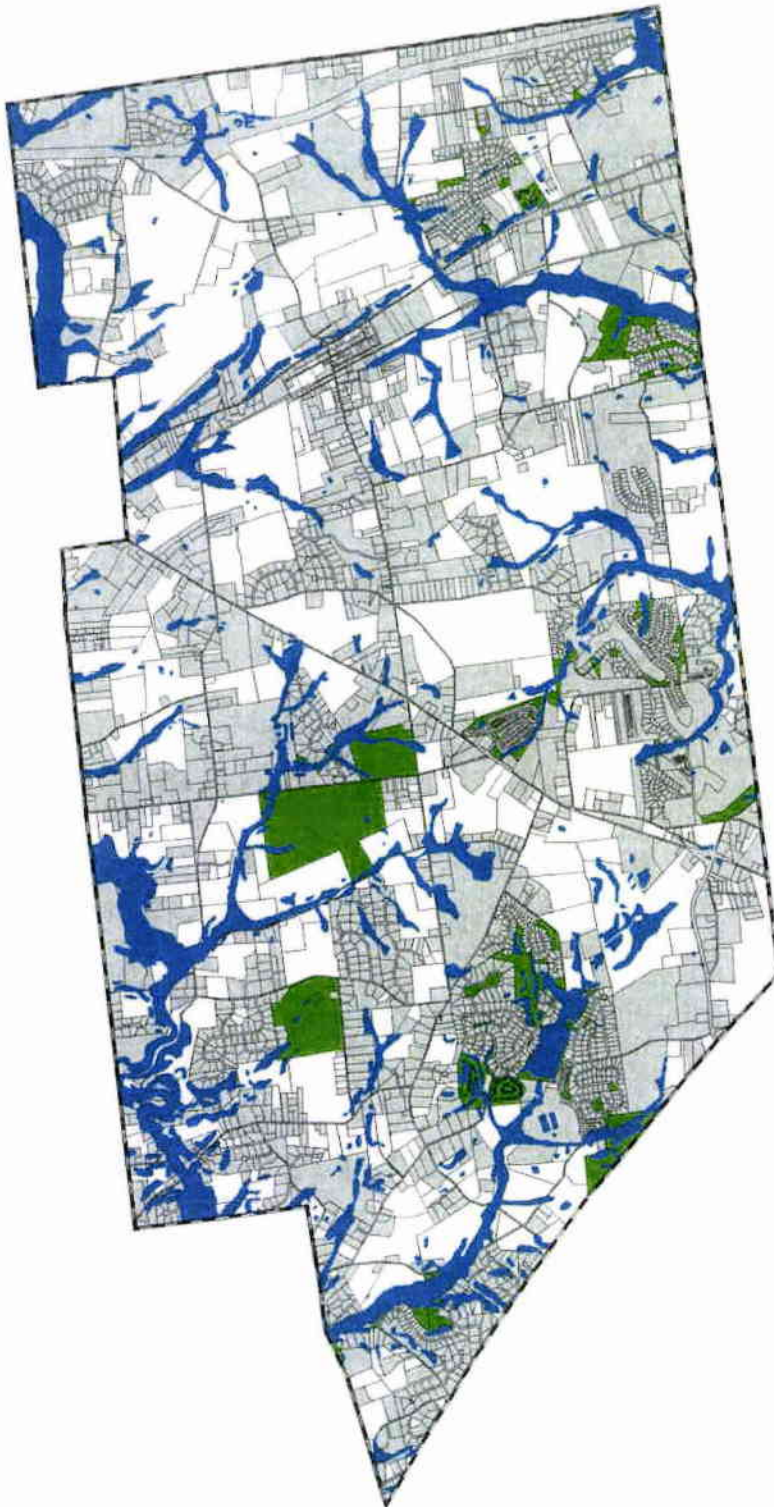
- Municipal Border
- Road Network

Resource Conservation Area:

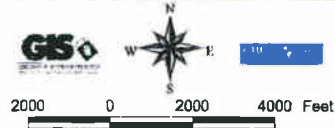
- Resource Protection
- Site Sensitive Residential

Growth Area:

- Business Park
- Economic Development
- Suburban Residential
- Village
- Rural Center



MAP 16-2 New Garden Township Comprehensive Plan Update









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Data Source: Municipal Boundaries - Chester County Bureau of Land Records, 2002, 2003; Developed Lands - Derived from Existing Land Use Map, 2004; Protected Lands - Esplanade, MCA Lands, AG Esplanade - See Map 13-1; Natural Constraints - From Natural Resources Inventory Maps, Chester County Planning Commission, 2004

Developable Lands

-  Municipal Border
-  Parcels
-  Natural Constraints
-  Protected Lands
-  Developed Lands
-  Developable Lands

**RESOLUTION NO. 560
NEW GARDEN TOWNSHIP
CHESTER COUNTY, PENNSYLVANIA**

RESOLUTION OF THE BOARD OF SUPERVISORS OF NEW GARDEN TOWNSHIP ADOPTING THE COMPREHENSIVE PLAN

WHEREAS, New Garden Township has heretofore adopted a Comprehensive Plan on April 22, 1993; and

WHEREAS, in accordance with Article III of the Pennsylvania Municipalities Planning Code, the Comprehensive Plan is required to be reviewed at least every ten (10) years; and

WHEREAS, New Garden Township has, with the extensive and considerable assistance of its Planning Commission, as well as the Chester County Planning Commission, prepared a new Comprehensive Plan for consideration, taking into account all of the current state of development within the Township, and taking into account the related basic elements set forth in Section 301 of the Pennsylvania Municipalities Planning Code; and

WHEREAS, the new Comprehensive Plan was prepared and considered by the various agencies, with a review draft dated September 2004; and

WHEREAS, public hearings have been held on consideration and adoption of the Comprehensive Plan and, in further thereof, certain modifications and amendments were made to the Comprehensive Plan.

73-GLNGT6/24/05

NOW, THEREFORE, **BE IT RESOLVED** by the New Garden Township Board of Supervisors at its regular monthly meeting on April 11, 2005, that the Comprehensive Plan be adopted subject only to the changes in the December 29, 2004 Errata Sheet, with the exception of 7.2, which is to be deleted; a true and correct copy of the Errata Sheet - 12-29-2004 is appended hereto.

ADOPTED THIS 11TH day of April, 2005.

**NEW GARDEN TOWNSHIP
BOARD OF SUPERVISORS**

BY: James M. Neal
James M. Neal, Chairman

Robert N. Taylor

Robert Perrotti

Robert Perrotti

Stephen E. Allaband

Stephen E. Allaband

Gerald Davis

Gerald Davis

Attest:

Jean F. Kelleher
Jean F. Kelleher, Secretary

**NEW GARDEN TOWNSHIP
Comprehensive Plan**

Board of Supervisors

James Neal, Chairman
Stephen Allaband, Vice Chairman
Robert Taylor
Gerald Davis
Robert Perrotti

Comprehensive Plan Task Force

Bernie McKay, Chairman
James Neal, Vice Chairman
Stephen Allaband
Peg Jones
Pownall Jones
Joe Zunino
Warren Reynolds

Additional Assistance and Input Provided by

New Garden Township Historical Commission
New Garden Township Open Space Task Force
Spencer Andress, Township Planning Consultant
David Hawk, Township Consultant for Historic Resources
Carmen Raddi, New Garden Township Manager

**Adopted
April 11, 2005**

PREPARATION AND FUNDING

This Comprehensive Plan was prepared by New Garden Township with technical assistance provided by the Chester County Planning Commission. Funding was provided, in part, through a grant from the Vision Partnership Program sponsored by the Chester County Board of Commissioners. The Plan has been prepared in conjunction with the principles of the County's policy plan, *Landscapes*, as a means of achieving greater consistency between local and county planning programs.

Cover Photographs: Comprehensive Plan Task Force, CCPC Staff