

CAMDEN COUNTY

OPEN SPACE and FARMLAND PRESERVATION PLAN

MAY 2004



Delaware Valley Regional Planning Commission

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The Bourse Building • 111 South Independence Mall East • Philadelphia, PA 19106-2582 • 215.592.1800 • www.dvrpc.org

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Created in 1965, the Delaware Valley Regional Planning Commission (DVRPC) is an interstate, intercounty and intercity agency that provides continuing, comprehensive and coordinated planning to shape a vision for the future growth of the Delaware Valley region. The region includes Bucks, Chester, Delaware, and Montgomery counties, as well as the City of Philadelphia, in Pennsylvania; and Burlington, Camden, Gloucester and Mercer counties in New Jersey. DVRPC provides technical assistance and services; conducts high priority studies that respond to the requests and demands of member state and local governments; fosters cooperation among various constituents to forge a consensus on diverse regional issues; determines and meets the needs of the private sector; and practices public outreach efforts to promote two-way communication and public awareness of regional issues and the Commission.



Our logo is adapted from the official DVRPC seal, and is designed as a stylized image of the Delaware Valley. The outer ring symbolizes the region as a whole, while the diagonal bar signifies the Delaware River. The two adjoining crescents represent the Commonwealth of Pennsylvania and the State of New Jersey.



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EXECUTIVE SUMMARY

Recognizing the prospect of dwindling open space, Camden County residents voted overwhelmingly in support of a referendum to create the Camden County Open Space, Recreation, Farmland and Historic Preservation Trust Fund in November, 1998. The Trust Fund raises an estimated \$2 million per year, which, to date, has been used to help protect about 860 acres of open space, to enhance 26 recreational facilities, to restore 16 historic properties, and to preserve two farms. The program has been so successful, and the development pressures in the county so intense, that the county recently issued a \$28 million bond dedicated to preserving the most important remaining open lands, before they are lost to other uses.

Where are those lands? Why were they chosen? And which are the highest priority? This plan was developed to answer those questions and to propose a strategy to achieve the following four objectives:

- ❖ To support the development of a public system of open space which forever preserves the valued environmental, cultural, historic and scenic features of the county and provides sufficient lands to accommodate a variety of active and passive recreational activities.
- ❖ To aim high by identifying all the lands that should possibly be preserved to meet the county's overall goal, even if the complete vision may not be achievable due to competing interests and funding limitations.
- ❖ To prioritize which areas of the proposed system need attention first, based on key factors in meeting the county's goals, as well as the measured threat of conversion to other uses.
- ❖ To offer a multi-pronged approach to preserving the system, since one size does not fit all, and no single entity can do it all.

To accomplish these four items, the plan lays out a comprehensive Proposed Open Space System and Action Plan for Camden County that, if implemented, will achieve the county's goals and objectives. The proposed open space system consists of 16 Greenways and 16 Focus Areas. The Action Plan presents four tiers of preservation strategies: acquisition, conservation easement, stronger land use regulations, and landowner stewardship. In addition, the plan contains a farmland preservation element to discuss the particular trends, forces and obstacles to farmland preservation in Camden County. ♦




Stafford Farm, photo by Ken Sherman, courtesy of Trust for Public Land



CHAPTER 1

INTRODUCTION

Camden County Background Camden County is one of the most diverse counties in New Jersey in terms of its landscape, which ranges from the very urban City of Camden on the Delaware River to the wilderness of Wharton State Forest, part of the Pinelands National Reserve. In between, the county consists of small towns, first generation suburbs, newer, growing suburbs and rural/agricultural areas. Spreading across the landscape are some of South Jersey's larger creeks and streams, which are often best recognized at points where lakes have been created by man-made dams and the surrounding terrain is parkland. The southeastern, rural part of the county, is dotted with small, family truck farms.



With its proximity to Philadelphia across the Delaware River, Camden County has been a major growth engine in the Delaware Valley region since the end of World War II. Over the last 50 years, the county has grown almost 70%, from 300,743 people in 1950 to 508,932 people in 2000, making it the most densely populated county, by far, in South Jersey.

This growth has provided a lifestyle for many families that includes a single family house, a private yard, a multitude of shopping opportunities, and a large nearby job market. However, the often random pattern of development has also contributed to increasing traffic congestion; loss of sense of place, community and vernacular heritage; lack of mobility for non-drivers; deterioration of urban areas; and destruction of natural resources, scenic areas and farmland. Although an open space trust fund and plan cannot resolve all the issues generated from decades of sprawl, the Camden County Open Space and Farmland Preservation Plan is guided by the Board of Freeholder's desire to preserve the significant environmental features of the county, to protect areas of agricultural, historic and scenic significance, and to expand recreational opportunities for County residents where the need exists.

Plan Background and Purpose

Recognizing the prospect of dwindling open space, Camden County residents voted overwhelmingly in support of a referendum to create the Camden County Open Space, Recreation, Farmland and Historic Preservation Trust Fund in November, 1998. Through this fund approximately two million dollars are raised annually to "purchase, preserve, and maintain environmentally sensitive lands, including open space, farmland, historic sites, and recreational areas . . .". In January 1999, the Camden County Board of Freeholders appointed the Camden County Open Space Trust Fund Advisory Committee (the committee), composed of representatives of County and local government, environmental organizations, historic preservation societies, the Camden County Agriculture Development Board, the Camden County Board of Realtors, and interested citizens. The committee was charged with assisting the Freeholders in developing

an Open Space and Recreation Plan, with establishing criteria by which candidates' sites for preservation would be evaluated, and with recommending sites for preservation using Trust Fund monies.

In December 1999 the Committee produced the Camden County Open Space and Recreation Plan for the Camden County Board of Freeholders. The plan presented the necessary foundation for open space planning in the county, including an overview of need, a detailed inventory of protected state, county and municipal protected open space, background on farmland preservation and historic preservation efforts in the county, planning goals and objectives, criteria ranking for site prioritization, and Trust Fund application procedures.

Although the 1999 plan formed the foundation for open space planning and the direction of Trust Fund expenditures, the plan did not contain all the elements required by New Jersey Green Acres to be eligible for the Planning Incentive Grant Program (PI Program). The PI Program offers typically larger grants, and a streamlined application process, to those localities with dedicated open space funding and a qualifying open space plan. In order to continue remaining eligible for this program, Camden County was required to incorporate a Needs Analysis, Resource Assessment, Action Plan and Systems Map into the county open space plan. Camden County retained the Delaware Valley Regional Planning Commission (DVRPC) to prepare these

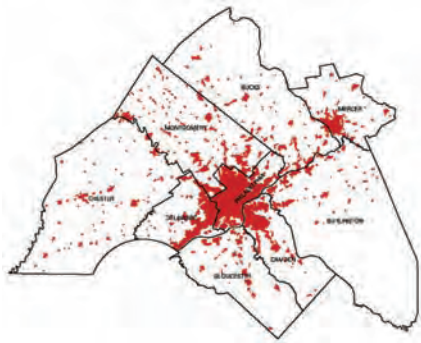
additional sections to supplement the original 1999 plan. This document, therefore, contains most of the 1999 plan, along with the additional analysis and mapping work needed to qualify for the PI Program.

Trends and Forces

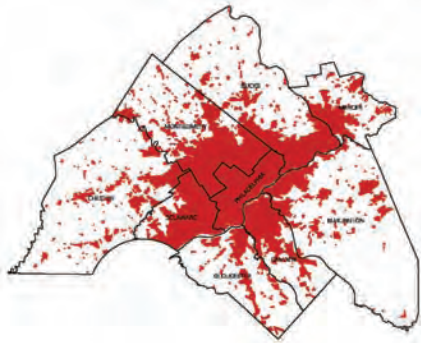
The landscape of Camden County has changed dramatically over the last 70 years, from a county of concentrated development in the western half coupled with low density and rural areas in the east, to a county with few remaining rural areas. In 1970, the county was approximately 36% developed, with 52,600 of its 145,586 acres developed. Thirty years later, in 2000, the county had developed another 21,000 acres, an increase of almost 40%. Over the same period, the population grew from 456,291 people in 1970 to 508,932 in 2000, an increase of 12%. Land,

therefore, developed at over three times the rate of population growth, an indicator of sprawling development patterns. During the same time period, the county lost more than half its agricultural lands, which were reduced from 22,112 acres in 1970 to 9,979 in 2000. This translates into the county losing over an acre a day of farmland during the 30 year period. Continuing at the same rate, the county will

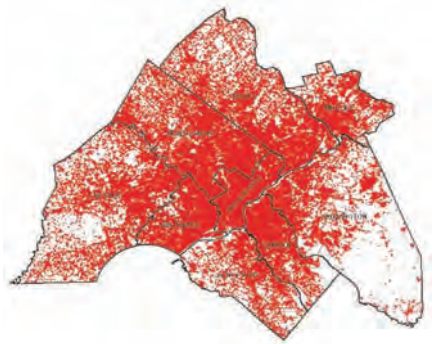
POPULATION AND EMPLOYMENT GROWTH ARE POSITIVE INDICATORS OF A STRONG ECONOMY, BUT WHAT WILL THEY MEAN FOR REMAINING OPEN SPACE IN THE COUNTY?



Development in 1930



Development in 1970



Development in 2000
Source: DVRPC 2003

lose all its farmland by 2025 unless protections are put into place.

Population forecasts to 2025 show Camden County gaining 4,598 people from year 2000, or a 1% gain over 25 years. Population growth in the county has slowed down dramatically from the county's post-World War II boom years. Instead, there is more of a population shift - the City of Camden and the county's first generation suburbs are losing population and newer, eastern suburban townships are gaining - than a net gain for the county. This has open space implications in that if first-generation suburbs and the City of Camden are made more desirable places to live and work, for example, through improved and/or additional open space, then people may be less inclined to move to newer suburbs, thereby slowing down the loss of remaining open space lands in the county.

While the population as a whole is stagnant, the elderly population is growing rapidly. By 2025, one third of the county's population will be 55 or older. The open space implications here are that open space that appeals to older generations, such as trails and scenic landscapes (which actually appeal to all age groups) must be planned for, to meet the needs of a growing elderly population.

THE RECREATIONAL RESPONSIBILITIES OF COUNTY GOVERNMENT FALL BETWEEN THE WILDERNESS-ORIENTED ACTIVITIES OFFERED BY FEDERAL AND STATE FACILITIES AND THE INTENSE ACTIVE RECREATIONAL FACILITIES PROVIDED BY MUNICIPALITIES.

Employment in the county is forecasted to grow by 14% by 2025, but, again, a shift, more than an absolute gain, is taking place. Some municipalities, such as Voorhees, Winslow, Gloucester Township and Berlin Township are expected to be the winners, whereas many other municipalities in the western half of the county will lose jobs.

Population and employment growth are positive indicators of a strong economy, but what will they mean for remaining open space in the county? That depends on the location and design of the growth. Under trend conditions (the same low-density, random pattern of development continues) about 12,500 acres are forecast to be consumed by the increases in people and jobs to year 2025 (DVRPC Land Consumption Model 2002). Under plan

scenario conditions (densities increase, accompanied by infill and redevelopment) only 6,500 acres would be consumed by increases in people and jobs. In other words, smart growth can save 6,000 acres of woodlands and farmfields from being paved over, an area almost the size of Voorhees Township. Without smart growth, the entire county outside the Pinelands Management Area could be built-out by 2025. Smart growth, coupled with smart conservation, can instead maintain cherished open spaces

and the high standard of livability in Camden County for future generations to enjoy.

Benefits of Open Space

There are numerous environmental, scenic, recreational, economic, and even health benefits to preserving open space. Preserving wetlands and buffers along stream corridors provides natural protection from flooding, improves water quality and provides a hospitable area or corridor for wildlife nesting and migration. Open space also offers scenic relief from the built-up landscape, provides outdoor recreational areas, preserves the integrity of historic sites and nostalgic places, and enhances people's appreciation of, attachment to, and investment in their community. Preserved open space raises property values of nearby land, simply because people are willing to pay more to live closer to open space. And open space improves community health, by providing



Laurel Ravine Trail

places to exercise, an important asset in today's automobile-oriented, and increasingly overweight society.

Open Space and the Environment: As mentioned above, the preservation of open space has many benefits for the environment. Air and water pollution are minimized, critical groundwater recharge areas are protected and habitats for indigenous plant and animal species are maintained.

The New Jersey Department of Environmental Protection's Office of Natural Lands Management (ONLM) lists no less than 115 rare and endangered plant and animal species which have been known to exist in Camden County. Many of these species have already been lost to development or other man-made alterations of the County's natural landscape. In compiling this list of rare species (see Appendix D - Inventory of Camden County Rare Species and Ecosystems), the ONLM has identified 15 sites within Camden County as Natural Heritage Priority Sites. These sites are designated because they represent "some of the best remaining habitats for rare species and exemplary natural communities in the State."

The criteria developed by the Committee and contained in Appendix A – Criteria Ranking for Site Prioritization, reflects the emphasis placed on open space preservation as a means of environmental protection. The protection of riparian

corridors, wetlands buffer areas, rare and endangered species habitats, and mature woodlands is of primary concern. All contribute significantly to the maintenance of biodiversity. It is this sustained biodiversity which is a determining factor in the State's establishment of the aforementioned Natural Heritage Priority Sites.

Camden County should ensure the continued survival of these environmentally sensitive areas as a means of maintaining biodiversity and providing succeeding generations of Camden County residents the opportunity to enjoy the natural beauty inherent in such areas.

Open Space and Recreation: *Recreation can be divided into two categories: active recreation and passive recreation.*

Active recreation includes activities like field and court sports (i.e., baseball, basketball, football, soccer), swimming in pools, and other physical activities which require the construction of dedicated facilities and a significant change to the landscape.

Passive recreation includes activities like walking, jogging, biking, camping, birdwatching, environmental education, fishing, historic displays, picnicking, and other activities or pursuits which may involve strenuous physical exercise but do not require a significant change to the landscape or extensive development of dedicated facilities or programs to be enjoyed.

Providing recreational opportunities for Camden County's residents is a responsibility shared by all levels of government. Generally speaking, federal and state responsibilities with respect to recreation focus on wilderness activities such as boating, camping, fishing, and hiking. Municipal responsibilities focus on providing facilities for more intense active recreational pursuits such as baseball, basketball, football, soccer, softball, and swimming, in addition to playgrounds. Such facilities are normally made available to residents within a municipal park system or in cooperation with the local school district.

The recreational responsibilities of county government fall between the wilderness-oriented activities offered by federal and state facilities and the intense active recreational facilities provided by municipalities. As such, county parks offer a wide array of both active and passive activities while providing for the protection of regional environmental resources.

A 1987 study conducted by the Regional Plan Association, the results of which were published in the 1994 New Jersey Statewide Comprehensive Outdoor Recreation Plan (SCORP), identified swimming, walking, tennis, baseball/softball, and bicycling as the most popular outdoor recreation activities among New Jersey residents. The top 24 activities are listed in Table 1. Facilities associated with most of these activities presently exist within the Wharton State

Table 1: Favorite Outdoor Activities In New Jersey

Swimming
Walking
Tennis
Baseball/Softball
Bicycling
Golf
Fishing
Hiking
Camping
Picnicking
Running/Jogging
Snow Skiing
Motor boating
Basketball
Volleyball
Visiting a Park
Horseback Riding
Football
Soccer
Sailing
Hunting
Ice Skating
Canoeing
Off Road Vehicles

Source: 1999 Camden County Open Space and Recreation Plan, from the 1994 NJ SCORP

Forest, the Winslow Wildlife Management Area, the Camden County Park System, and the various municipal park systems. These facilities are supplemented by those controlled by local school districts and private recreational concerns.

The Economics of Open Space: While commonly viewed as an environmental or recreational issue, the preservation of open space must also be viewed as an issue of economics.

The popular belief that increased residential development translates into stabilized or lower municipal taxes by virtue of increased tax revenues has been challenged in recent years by a number of studies, including those conducted by the American Farmland Trust, the American Planning Association, and within the Delaware Valley by the Heritage Conservancy in Bucks County. The studies concluded that single-family detached homes have a negative financial impact on municipal budgets, as such development represents the greatest burden on municipal services (police, fire, schools) and infrastructure (roads, sewer, water).

The effect of open space on property values has also been the subject of various studies. Many have shown a direct correlation between a property's proximity to open space and increased property values. Knowing that adjacent or nearby property is dedicated open space and is protected from future development makes the area a more desirable place to live. The

exception to this finding is high-use recreation areas where noise and light intrusion are problematic. This negative effect is avoided by the proper design and placement of active recreation areas.

The strength of the state's economy is also tied to open space. Many New Jersey industries rely on open space for their continued survival. Chief among these industries are Tourism (\$18 billion/year), Commercial and Recreational Use of Fish and Wildlife Resources (\$5.2 billion/year), and Agriculture (\$4.0 billion/year). (1999 Camden County Open Space and Recreation Plan)

Open Space and Farmland: Probably no industry in Camden County has suffered more losses to development than agriculture. Since 1970, half the county's farmland has been lost to development. Moreover, the farmland which remains, with few exceptions, is limited to just four municipalities; Berlin Borough, Berlin Township, Waterford Township, and Winslow Township.

Chapter 5 contains the Farmland Preservation Element of the plan. Farmland preservation efforts in Camden County are guided by the Camden County Agricultural Development Board (CCADB), using the criteria and procedures set forth by the State Agriculture Development Committee and the CCADB.



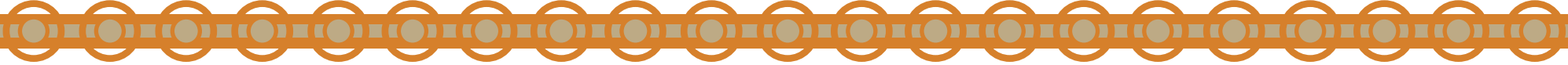
Horse grazing at Auwarter Farm

Historic Preservation: There are numerous instances where properties of local historic significance have fallen prey to development. It is mostly in the last 20 to 30 years that concerted efforts have been made to preserve such properties. These historic preservation efforts have largely been a function of municipal governments, historic commissions, committees and societies, and local citizen groups.

These organizations have used a variety of methods to fund their preservation efforts.

These methods include fundraising, solicitation of donations, and various state and federal historic preservation grants. Camden County is now making Trust Fund monies available to historic preservation groups for "bricks and mortar" restoration work to historic properties.

Recognizing the inequities in evaluating applications for historic preservation within the context of the open space criteria, it was determined that a separate and distinct application form be used. Using the



application developed by the New Jersey Historic Trust, the Committee developed an application form tailored to the County's needs. It was felt that using this existing New Jersey application as a model would best serve the interests of groups seeking funding by allowing them to simultaneously apply for State and County funding.

Goals and Objectives

The 1999 Plan contained the following goals and objectives, which still hold true:

Goal Statement:

To support the development of a public system of open spaces which forever preserves the valued environmental, cultural, historic, and scenic features of Camden County and provides sufficient lands to accommodate a variety of active and passive recreational activities.

Camden County should proceed in a thoughtful and deliberate manner to expand the public holdings of open space. In doing so, the County should work with municipal officials to develop options which strike a balance between future land development and the need to preserve additional open space and the significant environmental, cultural, historic, and scenic features of the County which represent its past, present, and future.

Objectives:

1. *Acquire by the year 2010 not less than 2000 additional acres of developable land for both the preservation of areas of environmental, cultural, historic, or scenic value and to meet regional recreational needs.*

A major public effort should be made to conserve not less than 2,000 additional acres of land to protect the natural resources of Camden County including surface waters, groundwater recharge areas, endangered and threatened plant and animal species, and scenic views. In addition, areas of cultural and historic significance must be preserved for the enjoyment and education of future generations of Camden County residents.

Where necessary, additional acreage should be acquired and dedicated to recreational use so as to afford all Camden County residents convenient access to common recreational amenities not otherwise provided by local governments.

2. *Acquire additional lands through easement acquisition or other measures that effectively conserve prime farm areas.*

Areas of prime farmland should be protected to insure both the continued economic viability of the agricultural industry in Camden County and to preserve the valued rural and scenic features which these areas possess.

Such lands may be protected by easement purchase as authorized by the New Jersey Agricultural Retention and Development Act. As easement acquisitions are less costly than the outright purchase of full title to the farm property, the realized savings can be put toward the purchase of additional land or other easements.

3. *Establish a network of Greenways that interconnects public open space and contributes to the conservation and public enjoyment of the County's environment.*

Greenways are elongated, and in most instances continuous corridors of land under some type of formalized protection. They can follow a natural corridor such as a river or stream, or follow a man-made corridor such as a road or an abandoned railroad bed. Greenways provide recreational opportunities for pedestrians and bicyclists while exposing them to significant features of the County including areas of scenic beauty, natural habitats, and historic or cultural sites. They help to maintain wildlife populations by extending their available habitats. Greenways can be established in rural, suburban, and urban areas.

Relationship to State, Regional, County and Local Plans

The Camden County Open Space Plan is consistent with state, regional, county, and local open space plans. Such consistency is important to evaluate and document so that different levels of government, as well as

other county departments, work towards the same ends rather than work at odds with one another. Indeed, many plans' goals include intergovernmental cooperation and coordination, in recognition of the need for partnerships in the complex world of land development and open space preservation.

State Level Consistency: At the state level, New Jersey is one of the few states in the country blessed with a statewide plan outlining how New Jersey should develop, redevelop, and protect its environment over the next two decades. The March 2001, New Jersey State Development and Redevelopment Plan (SDRP), contains eight major goals and strategies, which are further expounded upon as statewide policies. Although all the goals and strategies are interrelated in that together they provide for a comprehensive plan for New Jersey's future, two of the eight goals, in particular, are consistent and implemented by the Camden County Open Space Plan. They are Goal #2 - Conserve the State's Natural Resources and Systems, and Goal #7 - Preserve and Enhance Areas with Historic, Cultural, Scenic, Open Space, and Recreation Value. The Camden County Open Space Plan serves to implement these goals by identifying such resources within the county and developing the strategies to protect them.

Related to the SDRP is the NJDEP's Blueprint for Intelligent Growth, or BIG Map. The BIG Map concept is a work in progress, emanating from NJDEP, that is intended to



clearly and accurately identify New Jersey's critical natural resource areas that must be preserved and protected, and to also depict smart-growth areas for New Jersey, where the state wants to encourage development, and will streamline and expedite regulatory permitting, and also dedicate funding for infrastructure and parks. In the fall of 2003, NJDEP announced that the BIG Map would not function on its own, but that instead NJDEP would work with the New Jersey Office of Smart Growth (OSG) to incorporate the concepts behind the BIG Map into the SDRP and the Plan Endorsement Process. Upon adoption, the Camden County Open Space and Farmland Preservation Plan should be submitted to NJDEP and OSG for their consideration.

Also at the state level, the New Jersey Department of Environmental Protection's Green Acres Program prepares the New Jersey Statewide Comprehensive Outdoor Recreation Plan (SCORP) to specifically guide the expenditure of state and federal funds for open space and recreation projects. The most recent SCORP was adopted in March of 2003, and contains the following seven issues and policy statements that are necessary to address, in order to meet the current and projected future public open space and recreation needs in New Jersey:

1. Land Preservation Policy: Continue to preserve land to protect water resources, biodiversity, provide statewide public recreation opportunities, and for the

retention of agriculture in New Jersey.

2. Recreation Policy: Continue the funding of recreation facilities on state open space and recreation areas and provide funding to local government and conservation organizations for park and recreation projects.

3. Urban Open Space and Recreation: Provide funding for urban public open space, parks, and recreation areas.

4. State Resource Areas: Continue the protection of State Resource Areas (Pinelands, Historic Resources, and Water Resource Lands in Camden County) through land acquisition and preservation, land use planning, participation in regional projects, promotion of smart growth policies, and continued funding to local governments and conservation groups.

5. Greenways: Promote greenway planning and development statewide.

6. Partnerships: Continue to partner in cooperative projects with local governments and the private sector.

7. Stewardship: Provide funding for the operation and maintenance of state public open space and recreation areas and to provide funding to local governments and conservation organizations for the development and rehabilitation of park and recreation areas.

The Camden County Open Space and Farmland Preservation Plan serves to implement all seven statewide policies, at

the county level, by identifying natural resource areas for protection; proposing an interconnected system of greenways and recreational trails that incorporates the Camden waterfront and other urban areas; promoting the use of partnerships between all levels of government, land conservancies, and the private sector to acquire and maintain open space; and supporting funding to promote good stewardship by land owners and local governments to better care for the county's parks and recreation areas.

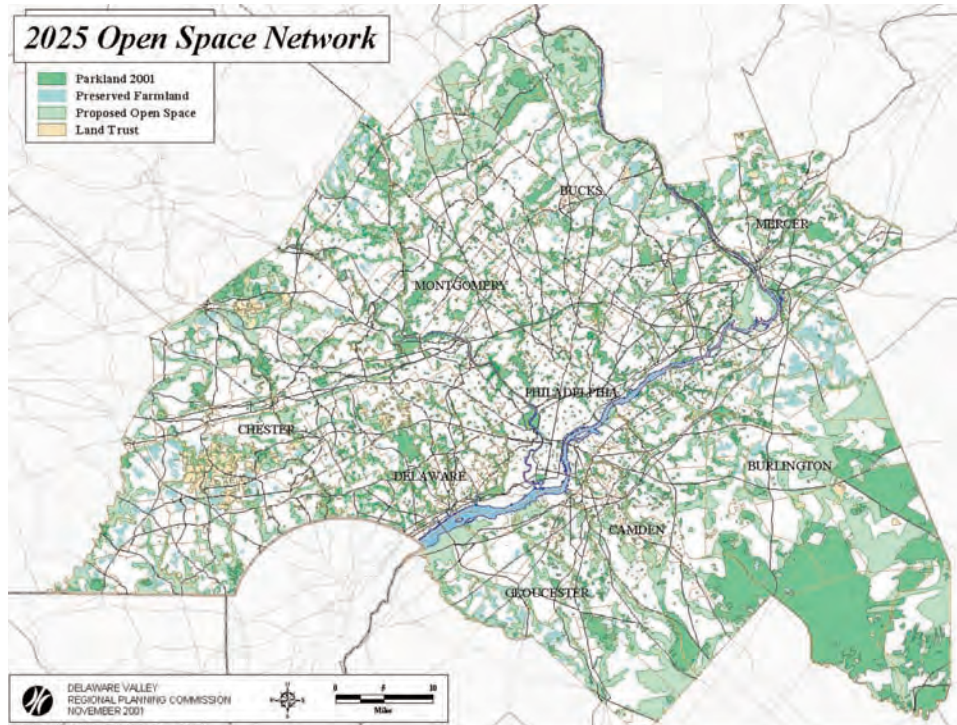
Another statewide open space initiative is the "Garden State Greenways" project, a joint project between the New Jersey Green Acres Department and New Jersey Conservation Foundation (NJCF). The objective of the initiative is to create a statewide vision for open space in New Jersey, to provide a planning tool for identifying open space priorities and connections, and to facilitate conservation efforts among different conservation entities. The project uses GIS data to synthesize environmentally significant open space hubs and greenway connections. NJCF shared its data for Camden County with DVRPC, which used the GIS layers to help identify the two major types of proposed open space in the plan: Proposed Focus Areas and Proposed Greenways. Since this initiative was a direct data input to the plan, it is described in more detail in Chapter Four - Proposed Open Space System.

Regional Consistency: In addition to the state plans, the Camden County Open

Space and Farmland Preservation Plan is also consistent with three regional plans: the Delaware Valley Regional Planning Commission's (DVRPC) *Horizons: The Year 2025 Land Use and Transportation Plan* for the Delaware Valley, the Trust for Public Lands (TPL) *River to Bay Greenway*, and the National Park Service's Comprehensive Management Plan for the Great Egg Harbor National Scenic and Recreational River.

DVRPC's long-range plan includes an open space element outlining a vision to preserve the farmland, natural features, and open space identified on the land use plan map. The map identifies an interconnected open space network across the region, as well as places to remain rural and agricultural in character. The open space network includes environmentally sensitive stream corridors, as well as wetlands, woodlands, and upland habitat areas that provide an environment for plants and animals. The network proposes open space that can be used for both natural resource protection and to meet the recreational needs of the growing population. As a county, rather than regional plan, the Camden County Open Space and Farmland Preservation Plan is more detailed, but a visual comparison of the two plan maps shows a high degree of consistency. The regional plan is especially useful to show where connections beyond the county border should be made.

The Trust for Public Land, a private nonprofit land conservation organization working



nationwide since 1972 to conserve land for public use, initiated the Delaware River to Barnegat Bay (River to Bay) Greenway project in early 2001. The vision of the River to Bay Greenway is of a multi-use recreational route that will span 70 miles of southern New Jersey to link the Delaware River to the Barnegat Bay, providing linkages between existing and proposed open space sites to form a green infrastructure for urban and suburban residents in Camden, Burlington, and Ocean counties. The greenway's two major proposed routes, Spine A and Spine B,

traverse the length of Camden County largely along the county's North and South Branches of the Cooper River. The Camden County Open Space Plan builds on the work of the River to Bay Framework and Concept Plan to help implement this regional vision.

Another conservation related effort in Camden County is the Comprehensive Management Plan for the Great Egg Harbor National Scenic and Recreational River. In October, 1992, approximately 129 miles of the Great Egg Harbor and its

tributaries became part of the National Wild and Scenic Rivers system. The Wild and Scenic Rivers Act was established to protect selected rivers in free-flowing condition and to recognize their importance to our cultural and natural heritage. To qualify for this protection, the Wild and Scenic Rivers Act requires that rivers must not only be free flowing, but also relatively undeveloped and must possess one or more "outstandingly remarkable" scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values. (Comprehensive Management Plan for the Great Egg Harbor National Scenic and Recreational River, National Park Service, 2000).

During the wild and scenic study and planning process, the study partners (12 municipalities and four counties - Winslow Township is the only community in Camden County) reached consensus on five goals as the framework for both the Local River Management Plans and the Comprehensive Management Plan. **The five major goals are:**

- 1. Public Awareness:** Work toward public education and awareness of the valuable natural, cultural, scenic, and recreational resources of the Great Egg Harbor River corridor and watershed.
- 2. River Management:** Streamline existing regulations and coordinate their enforcement to balance the protection of the river and the rights of property owners.

3. Land Use: Maintain existing land uses and develop future land uses that are compatible with protection and enhancement of the river.

4. Recreation: Enhance the free-flowing character and conditions for appropriate recreational uses of the river.

5. Resources Protection: Enhance the natural, cultural and scenic resources of the river corridor, and recognize their relationship to a large ecosystem for today's and future generations.

A great deal of attention in terms of inventorying existing conditions, soliciting public input, and proposing management strategies has been put into the Great Egg Harbor study. The Camden County Open Space Plan will utilize the information on the Winslow Township portion of the study where applicable, and strive to reinforce the wild and scenic study goals through open space preservation recommendations.

County Level Consistency: Camden County's Master Plan dates back to a 1972 document titled "Land Use Plan - Comprehensive Planning Program, Camden County, New Jersey." The Plan states 19 "Goals and Planning Values," six of which relate to open space and environmental protection. **Those six goals are:**

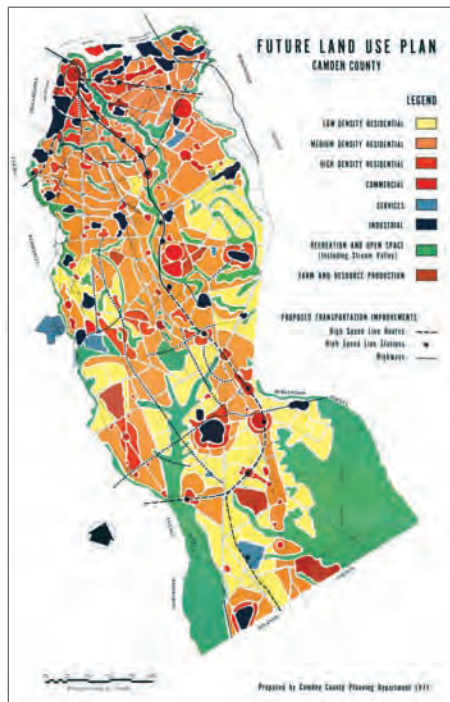
- 1.** Encourage innovative zoning concepts which are based upon performance standards.

2. Maintain and improve the County's ecological condition.

3. Set aside areas which would provide natural breaks in our urban pattern and needed air sheds through the use of open space planning and preservation of our natural resources.

4. Conserve and protect prime agricultural lands and lands in agricultural use.

5. Protect lands at the headwaters of county streams to sustain stream flow.



Camden County Master Plan 1972
Image courtesy of Camden County Improvement Authority

6. Minimize ground cover on aquifer recharge areas.

These six goals and planning values from 1972 continue today, and are reflected in the current document's goals and recommendations: to conserve stream corridors and other environmentally sensitive lands, to provide open space for scenic relief and recreational purposes in the built-up sections of the county, and to conserve prime farmland and the farming industry in the county. The 1972 Land Use Plan map is shown here.

More up-to-date than the Master Plan is the Camden County Cross-Acceptance II Report of 1999. This report was required to respond to the New Jersey State Development and Redevelopment Plan Cross-Acceptance II process. Cross-Acceptance is the method by which the State Planning Commission and the Office of State Planning obtained information about the level of consistency attained between the NJSDRP and the plans of local, county, and regional entities. The report is a comprehensive examination of the degree to which municipal and county plans and projects have incorporated the various provisions of the State Plan, and a detailed list of issues and recommendations regarding those findings. With respect to open space planning and protection, the 1999 plan states that Camden County planning and activities are consistent with the goals, objectives, and concepts of the NJSDRP, but could be improved by placing increased emphasis on the development of greenway

systems and inter-municipal connected open space. The current county open space and farmland preservation plan fulfills this recommendation by proposing inter-municipal greenways and focus areas.

The Camden Hub Plan is a study of the City of Camden and 13 surrounding municipalities that are working with the Walter Rand Institute to develop a common development plan intended to win recognition as a "metropolitan complex" under the New Jersey State Plan. As of the summer of 2003, the Hub Plan consisted of a series of maps indicating land use recommendations, but a draft narrative was not yet available. However, according to discussions with staff at the Camden County Improvement Authority, who are overseeing development of the plan, the plan will recommend improvement of existing open spaces, maximizing new open space opportunities, better storm water management, and brownfield remediation and redevelopment along the Delaware River, North and South Branches of the Cooper River, and North and South Branches of Newton Creek. These policies are all consistent with this Open Space Plan, which makes many of the same recommendations.

Another, more recent TPL effort in Camden County is the Camden Greenprinting Project.

This project is evaluating the needs and opportunities for new park creation in the City of Camden. The effort involves a "park gap analysis" for park and open spaces in Camden that illustrates how people are distributed across the city relative to the distribution of parks and open space resources; a "needs analysis" that combines demographic and spatial analysis of open spaces to highlight neighborhoods underserved by parks; and an "opportunities analysis" that combines land use and community development information to demonstrate potential economic and social leverage that could be gained from integrating new parks into other community revitalization efforts. This project complements the Camden County Open

WITHIN CAMDEN COUNTY, FOUR MUNICIPALITIES - CITY OF CAMDEN, CHERRY HILL TOWNSHIP, VOORHEES TOWNSHIP, AND GIBBSBORO BOROUGH - HAVE ADOPTED THEIR OWN OPEN SPACE AND GREENWAY PLAN

Space Plan well by identifying the needs and opportunities for parks and other open space amenities at a much smaller scale. Providing more open space amenities in urban areas, and therefore making them more livable communities, is reasoned

to slow down the tide of suburban sprawl experienced in the other half of the county.

The DVRPC is also conducting the "Central Camden County Bicycling Master Plan" for six municipalities in Camden County: Berlin, Cherry Hill and Voorhees Townships, and Berlin, Gibbsboro, and Lindenwold Boroughs. The bicycle plan will address the

needs of all classes of users, and will include a capital improvements program and design standards for on-road facilities and proposed trails. Bicycle parking and safety education needs will also be covered. The bike plan will follow the open space plan, and will reference the open space plan's trail recommendations, accordingly.

Local Consistency: Within Camden County, four municipalities - City of Camden, Cherry Hill Township, Voorhees Township, and Gibbsboro Borough - have adopted their own open space and greenway plans. Each of these plans has been reviewed and the recommendations incorporated into the county plan. For example, the City of Camden has proposed Camden Greenways, a network of open space connecting the Cooper River with the Delaware River. These greenways are an important part of the county-proposed greenway network in that they provide vital linkages between two major waterways, they provide much needed green space in the county's most urban city, and they provide waterfront access along the Delaware River. The Camden Greenways are therefore also shown on the county-proposed greenways map. The other three municipal plans recommendations are also shown on the County and Municipal Proposed Open Space Map. Some of the local recommendations fall within county proposed Greenways and Focus Areas, and are therefore also county priorities.

Planning Process and Partners

The Camden County Open Space and Farmland Preservation Plan involved extensive mapping, data collection and analysis, interagency coordination, and five public presentations.

Mapping: A Natural and Cultural Resource Inventory (NRI) of the county, containing 10 maps, was created based on data from New Jersey Department of Environmental Protection, DVRPC, New Jersey Conservation Foundation (NJCF), and several other sources. The DVRPC Year 2000 ortho-digital aerial photography and the NRI were used to create the Proposed Greenways, and the Proposed Focus Areas were based entirely on the NJCF Garden State Greenways data files.

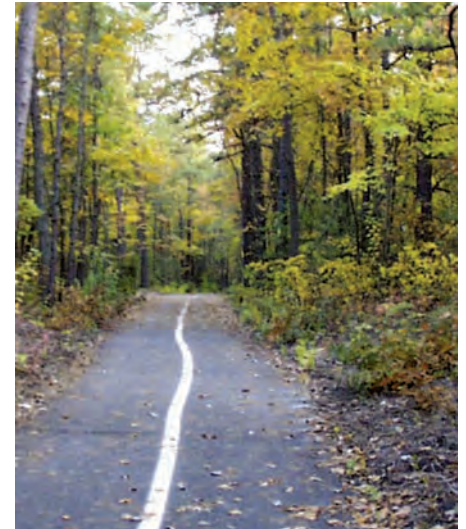
Data Collection and Analysis: Land use, environmental features, historic resources, other open space plans and efforts, and municipal open space protection ordinances were researched as they related to open space protection in the county. This information, along with other concerns and issues posed at meetings, was processed and interpreted in order to propose the most appropriate system of open space that would meet the needs of current and future county residents.

Interagency Coordination and Public Outreach: Throughout the planning process, meetings and discussions between DVRPC, the Camden County Division of

Open Space and Farmland Preservation, the Camden County Division of Planning, and the Camden County Improvement Authority took place to keep abreast of current county open space priorities, issues and related efforts. The Camden County Agriculture Development Board (CCADB), the New Jersey Department of Agriculture, and Rutgers Cooperative Extension Service were consulted to compile the Farmland Preservation Chapter.

For the current plan, six public meetings were held: September 26, 2002, to present development trends and the Natural Resource Inventory; May 1, 2003, to present the preliminary proposed focus areas and greenways; May 8, 2003, to present the proposed focus areas and greenways and ways municipalities can enhance their local open space planning; September 30, 2003, to present the draft plan and receive feedback; March 25, 2004, to present changes made to the plan; and a final public hearing is being planned for summer 2004 to adopt the final plan. All except the May 8th meeting were public meetings of the Camden County Open Space Trust Fund Advisory Committee, which were advertised as such in newspapers and at the county building. The May 8th meeting was a special congregation of mayors and other municipal officials sponsored by the Environmental Commission of Camden County to engage more municipalities in local and county open space planning and preservation.

Public meetings also took place to inform and shape the 1999 plan. On April 12, 1999 a public hearing co-sponsored by the Camden County Open Space Trust Fund Advisory Committee and the Environmental Commission of Camden County was held to receive comments from the public. Later that year, on December 2, 1999, a second public hearing on the Plan was held. On December 16, 1999, the Camden County Freeholders formally adopted the Camden County Open Space and Recreation Plan. For the past four years, the Committee has held monthly meetings which are advertised and open to the public. Finally, program updates are provided in the *Camden County Pride* newsletter distributed countywide four times per year and a more localized newsletter distributed monthly to residents of municipalities in proximity to the site of that month's Freeholder meeting. ♦



Bike path in Gibbsboro

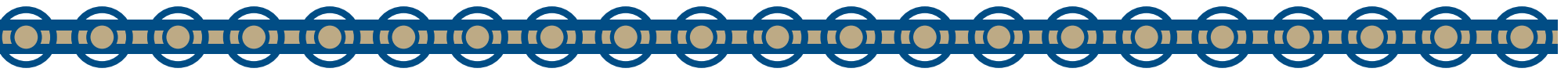


CHAPTER 2

PAST, PRESENT, AND FUTURE OPEN SPACE NEEDS IN THE COUNTY

Open Space Planning History Protecting open space for parks, recreation, and environmental preservation has a long history in Camden County. The Camden County Parks System can be traced back to 1927 when the newly formed Camden County Park Commission committed itself to the establishment of three parks:

- ❖ The Cooper River Valley parks and boulevards from Camden to Haddonfield and beyond
- ❖ A riverfront park in the vicinity of Gloucester City, and,
- ❖ A park in the lower part of Camden County.



Then, as now, there was a recognition by government leaders that parks and natural areas contribute to both the physical and emotional well-being of County residents. This excerpt taken from the preface of a 1937 publication entitled: "Camden County Park System as constructed by Camden County Park Commission" confirms this fact:

"..... Out of doors, in the wide open spaces, amidst the purity and beauty of nature, is the environment where is found the fresh and invigorating air needed to

make the human body and mind fit to perform the serious duties of life.

To a dweller of a congested city, deprived of contact with nature, a park satisfies his yearning for pure air and sunshine. Accordingly, many municipalities have provided space in the form of circles, squares, and triangles, rich in shrubbery and flora, for the enjoyment of the citizens. While some of these spaces are decorative, others are recreational. A popular conception of the utility of such spaces is to develop the beautiful and the practical.

A park successfully developed to the intent of its purpose is a joy and a pride of the citizens; it establishes improvement, the spirit of which spreads through the adjacent area and enhances the attractiveness and value of the neighboring properties"

To illustrate where these parks would be located, and to plan for future parks in the county, the Camden County Parks Commission prepared a plan showing the existing and proposed park system in 1936. The 1936 plan shows the aforementioned parks, and plans for more parks along the major streams of the county. The 1936 county-proposed linear-oriented park system was ahead of its time in many ways, by recognizing the environmental, scenic, recreational, and economic benefits of creating greenways. Unfortunately, though, while the county had the vision in 1936, the vision was not carried out, and many greenway opportunities have been lost or compromised.



Camden County Parks Commission 1936 Plan



Proposed in the 1936 Plan: Cooper River in Collingswood... before and after





Proposed in the 1936 Plan: Cooper River in Haddonfield... before and after



It is also interesting to note the massive development plans for parks along the Cooper River from the pre-World War II period in the pictures on this and the previous page. Parks, as highly manicured social gathering places, were clearly valued over protection of natural resources, but the ecological functions of streams and floodplains were not yet well understood.

Current Status of Open Space: The following table shows the most up-to-date inventory of protected lands, by type of ownership, in the county:

Protected Lands, March 2004

State: 18,845 acres

County: 2,640 acres

Municipal: 4,491 acres

Permanently Preserved Farms: 118 acres

Homeowner Association Lands:

231 acres (HOA land coverage available for Voorhees Township only)

Total Protected: 26,325 acres

As of the winter of 2004, 18% of the county was protected as state, county, or municipal parkland, permanently preserved farmland, or homeowners association lands (HOA). The HOA lands were only available for Voorhees Township, as documented in their open

AS OF THE WINTER OF 2003, 18% OF THE COUNTY WAS PROTECTED AS STATE, COUNTY, OR MUNICIPAL PARKLAND, A PERMANENTLY PRESERVED FARM, OR HOMEOWNERS ASSOCIATION LANDS

space plan. Other municipalities surely have additional lands that are deemed restricted as homeowner association governed lands, but the data on such sites was not available. The county does not have any federally protected open space lands. Nine other farms in the county are under the eight year protection program, but they were not counted here because they are not permanently protected.

Camden County compares well to the eight other counties in the DVRPC region with respect to parks as a percent of total land, and as park acreage per 1,000 population. See Map 1 and Table 2. Comparing the total number of acres in parks is not illustrative, since counties vary greatly in total size. Instead, comparing parks as a percent of total land area, or park acreage per 1,000 population, is more telling. When looking at parks as a percent of total area, Camden County is second only to Burlington County, due to the large state holdings in the Pinelands. Looking at parks per 1,000 population, Camden County also falls at the high end, with 51 acres per 1,000 people. Burlington County is again the highest, due to the large state holdings in the Pinelands, which are not readily accessible to the majority of the population. However, Camden County also falls into this category, since

75% of its parkland is the Wharton State Forest and Winslow Wildlife Management Area, which are also not very accessible to the majority of the county's population.

Map 2: Protected Lands 2004, shows the distribution of the parks and other protected lands in Camden County. It also shows golf courses and other privately-owned recreational facilities

such as the Pine Hill Boy Scout Camp and the Pine Valley Gun Club, labeled as private recreational lands. These private open spaces serve important scenic and recreational functions, but they usually do not have conservation easements, and could be converted to other uses, based on their zoning. These lands are shown on the map because they can provide important links or serve as anchors in greenways. There are 1,574 acres of golf courses in the county, including the world-class Pine Valley, and 304 acres of other privately owned recreational lands.

As evidenced in the park descriptions that follow, a variety of facilities providing opportunities for both active and passive recreation can be found in all types of parks throughout the County.

Park Profiles

State Open Space: The State of New

Jersey owns approximately 18,600 acres of unimproved land in Camden County. Of this total, 18,286 acres are concentrated in Waterford and Winslow Townships. Much of this acreage is dedicated open space within the Wharton State Forest and the Winslow Wildlife Management Area. These areas are discussed in greater detail below.

A VARIETY OF FACILITIES PROVIDING OPPORTUNITIES FOR BOTH ACTIVE AND PASSIVE RECREATION CAN BE FOUND IN ALL TYPES OF PARKS THROUGHOUT THE COUNTY.

Not included in the above totals, are an additional 520 acres, all in Winslow Township, which are preserved as open space through the New Jersey Natural Lands Trust.

1. WHARTON STATE FOREST:

The Wharton State Forest is the largest single tract of land within the New Jersey State Park system containing 110,000 acres in Atlantic, Burlington, and Camden Counties. A total of 14,310 acres of the park lie within Camden County with 13,771 acres in Waterford and 539 acres in Winslow Township.

Purchased from the estate of Joseph Wharton, a Philadelphia industrialist and financier in 1954 and 1955, the majority of the area has remained undeveloped to preserve the forest's natural habitat. Recreational opportunities are limited to hiking and horseback riding within the Camden County portion of the Forest, although facilities for camping, swimming,

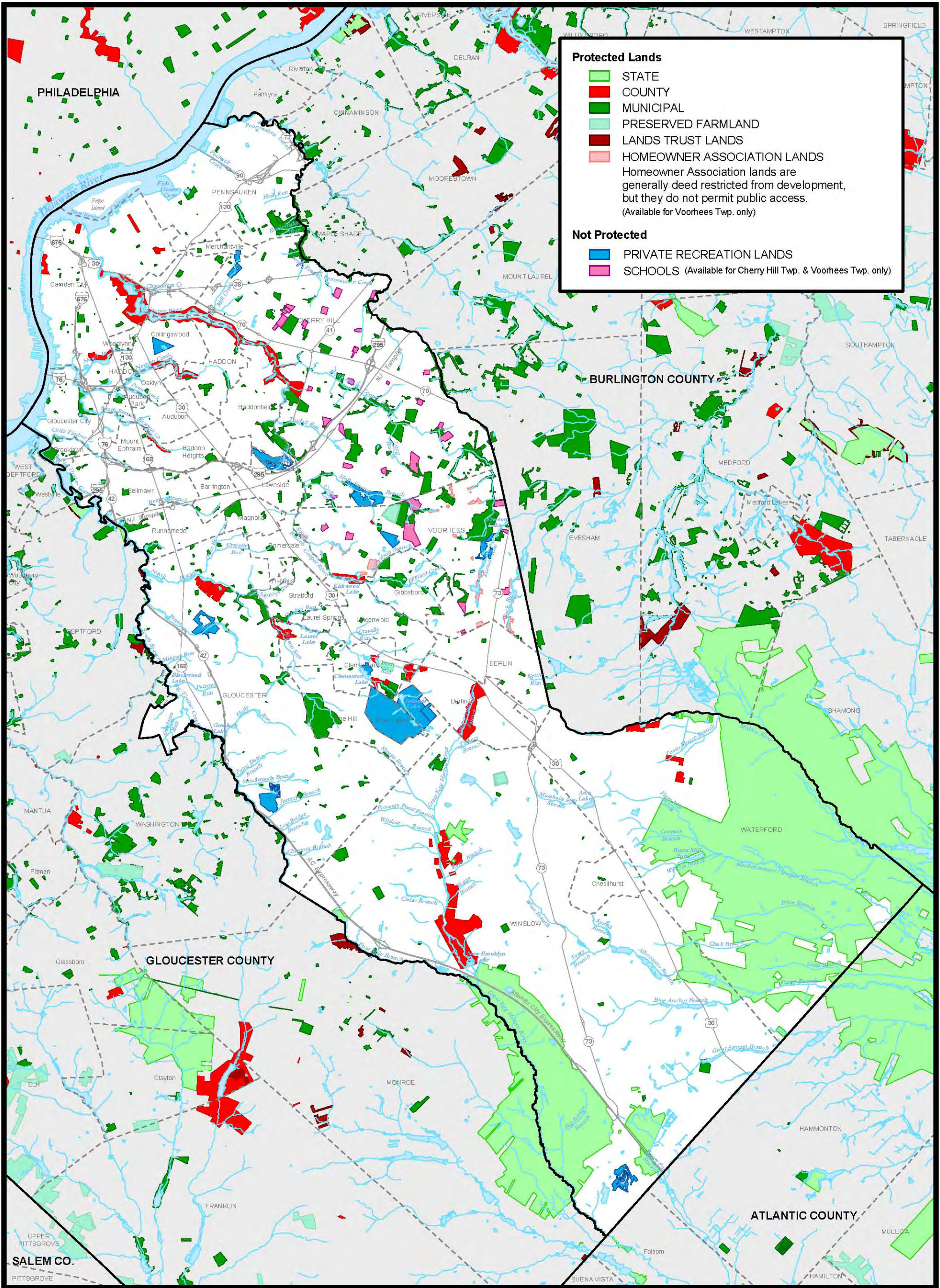
Table 2 - Year 2003 Public Protected Open Space by Ownership (acres)

COUNTY	FEDERAL	STATE	COUNTY	MUNICIPAL	PUBLIC PROTECTED OPEN SPACE	PERCENT OF TOTAL AREA ¹	PUBLIC PROTECTED ACREAGE PER 1,000 POPULATION ²
BUCKS	0	12880	8322	10363	31565	8.12%	52.8
CHESTER	1290	7102	5407	6951	20750	4.29%	47.9
DELAWARE	726	2683	844	5197	9450	8.02%	17.2
MONTGOMERY	2166	4349	5920	10981	23416	7.57%	31.2
PHILADELPHIA	365	282	8126	1360	10133	11.72%	6.7
PA TOTAL	4547	27296	28619	34852	95314	6.88%	24.8
BURLINGTON	4001	129570	2029	10731	146331	28.42%	345.6
CAMDEN	0	18845	2640	4491	25976	17.84%	51.0
GLOUCESTER	0	5245	1699	4037	10981	5.28%	43.1
MERCER	0	3642	7982	7567	19191	13.28%	54.7
NJ TOTAL	4001	157302	14350	26826	202479	20.2%	131.4
REGION TOTAL	8548	185098	42969	61678	297793	12.51%	55.2

Source: DVRPC 2003. All data was acquired from the respective county planning commissions with the exception of the following: Bucks County county parkland data was obtained from the Bucks County Dept. of Parks and Recreation; the Fairmount Parks Commission provided county parkland data for Philadelphia; and partial state lands data for Burlington County was furnished by NJ DEP. Population and county acreage was obtained from the U.S. Census Bureau.

NOTES:

1 This calculation is based on county land area only (water area is not included). Source: U.S. Census Bureau
2 This calculation uses actual population figures from the 2000 U.S. Census. Source: U.S. Census Bureau

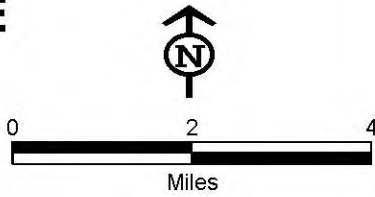


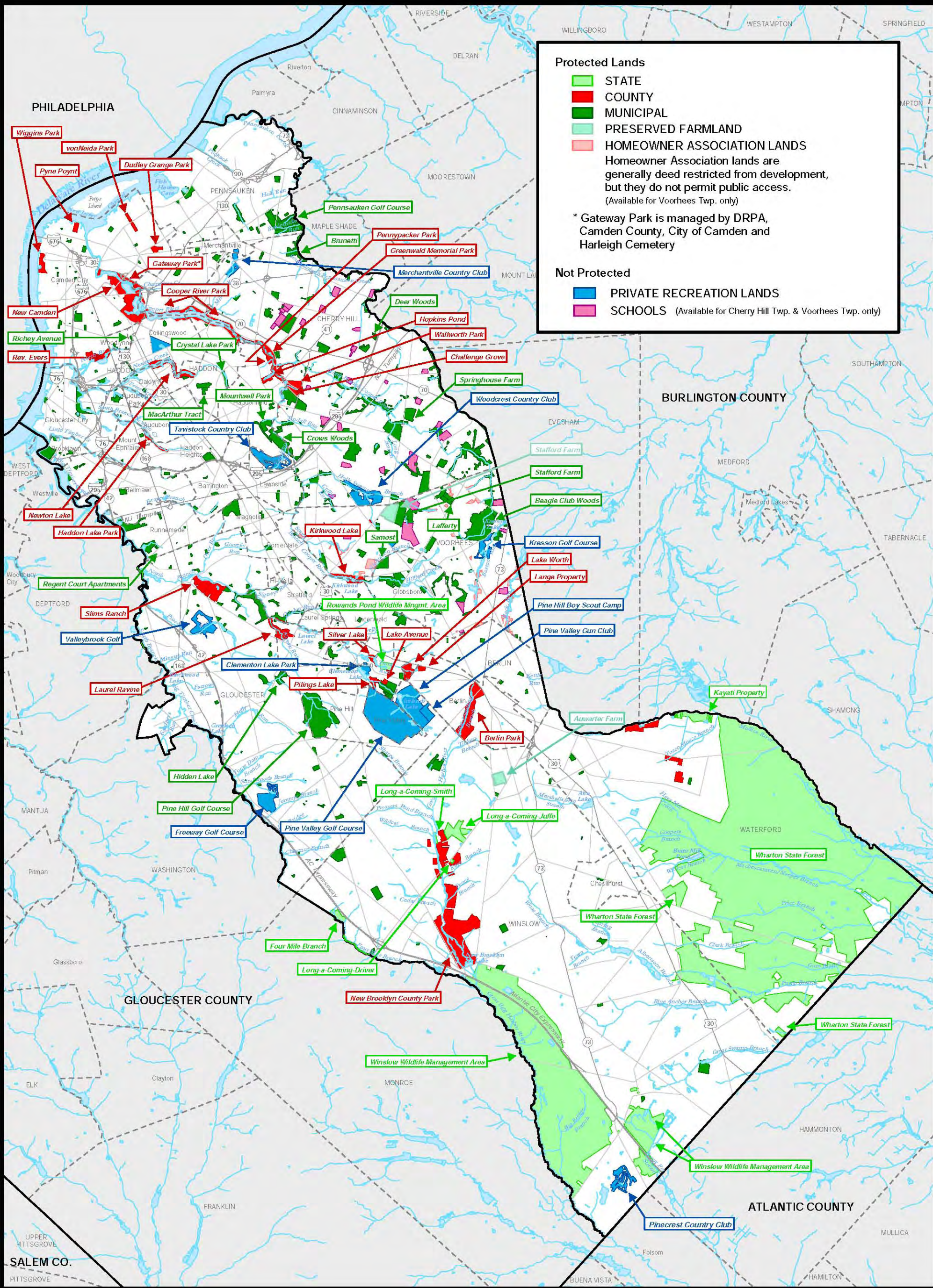
**CAMDEN COUNTY : PROTECTED OPEN SPACE
IN CAMDEN AND ADJACENT COUNTIES**

MAP 1

Source : DVRPC, NJDEP
This map was developed using New Jersey
Department of Environmental Protection
Geographic Information System digital data,
but this secondary product has not been
verified by NJDEP and is not state-authorized.

DELAWARE VALLEY
REGIONAL PLANNING COMMISSION
MAY 2004



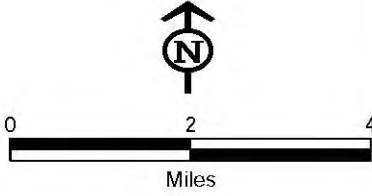


CAMDEN COUNTY :
PROTECTED LANDS 2004

MAP 2

Source : DVRPC, NJDEP
This map was developed using New Jersey
Department of Environmental Protection
Geographic Information System digital data,
but this secondary product has not been
verified by NJDEP and is not state-authorized.

DELAWARE VALLEY
REGIONAL PLANNING COMMISSION
MAY 2004



and picnicking are located nearby at Atsion Lake in Burlington County.

2. WILDLIFE MANAGEMENT AREAS:

a.) Pennsauken Access Area: A 0.68 acre site along the Delaware River, this area provides facilities for fishing and boating.

b.) Rowands Pond: A 19.3 acre site in Clementon, this wildlife management area provides facilities for canoeing and fishing on site.

c.) Winslow Wildlife Management Area: One of 107 state-owned wildlife management areas around the State, the Winslow Wildlife Management area encompasses 3,967 acres in Winslow Township (additional acreage is in Monroe Township, Gloucester County). On-site activities include biking, birdwatching, canoeing, cross-country skiing, fishing, hiking, horseback riding, hunting, and target shooting (archery, rifle, and shotgun). Additional property acquisition is being investigated which would increase the total acreage of this area to more than 4,000 acres.

3. THE PINELANDS: The Pinelands National Reserve ("The Pinelands"), consisting of some 1.1 million acres in seven counties, is the largest "open space" along the Mid-Atlantic Seaboard between Boston and Washington DC. Approximately one third of this acreage is publicly owned with the remaining two thirds being privately held. A total of 54,340 acres of the Pinelands lie within Camden County

in five municipalities: Berlin Borough, Berlin Township, Chesilhurst, Waterford, and Winslow.

While development is not prohibited within the Pinelands, it is managed by the Pinelands Comprehensive Management Plan (CMP). The CMP divides the Pinelands into nine Management Areas: Agricultural Protection Areas, Special Agricultural Production Areas, Preservation Areas, Forest Areas, Military and Federal Installation Areas, Rural Development Areas, Regional Growth Areas, Pinelands Towns and Pinelands Villages. All but Military and Federal Installation Areas and Pinelands Towns are represented within Camden County. Both the Wharton State Forest and the Winslow Wildlife Management Area are located within the Pinelands. See Map 3 for the Pinelands Management Areas.

The Pinelands is home to more than 1,200 plant and animal species of which almost 600 are threatened or endangered. It is also underlain by a 17-trillion gallon aquifer, making it the protector of one of the largest freshwater aquifers in North America.

County Open Space: As of the winter of 2004, the Camden County Park System consists of 19 parks and eight new properties that are to become county parks encompassing approximately 2,640 acres. The County Open Space Trust Fund Advisory Committee and the Camden County Board of Freeholders have been

actively applying the Open Space Trust Fund to preserve new properties, so this county parkland number is constantly growing. The eight properties that have been preserved with the Trust Fund but have not yet been improved with park facilities are described at the end of the inventory.

As evidenced in the park descriptions that follow, a variety of facilities providing opportunities for both active and passive recreation can be found in parks throughout the County.

1. BERLIN PARK (152 acres on Great Egg Harbor River): Berlin Park is located in Berlin Borough and is bounded by the

White Horse Pike, New Freedom Road, and Park Drive.

FACILITIES / ACTIVITIES

Environmental Studies Center
2 Softball Fields
2 Lighted Tennis Courts
2 Playgrounds
1 Sand Volleyball Court
1 Bike/Jogging Path - 0.78 miles
1 Basketball Court
1 Nature Trail
1 In-Line Hockey Court
Hiking - ~ 0.5 miles of trails
Fishing
Parking
3 Picnic Groves



A day out at Challenge Grove Park, photo courtesy of Camden County Parks Department

Environmental Studies Center: The Environmental Studies Center (ESC) offers a variety of educational programs and informational services to county residents. The ESC houses a reference library and teacher resource collection on natural history and environmental issues to help teachers integrate environmental lessons into the curriculum, develop school-site environmental study areas, and conduct on-site nature programs.

2. CHALLENGE GROVE (17 acres along Cooper River): Challenge Grove is located in Cherry Hill and is bounded by the Cooper River and Caldwell and Borton Mill Roads.

FACILITIES / ACTIVITIES

1 Pavilion
1 Softball Field
1 Bike/Jogging Path
1 Track 1/4 mile
1 Long Jump
2 Playgrounds
1 Open Pavilion with indoor restrooms
3 Picnic Areas
Fitness Quad
1 Basketball Court
Bus Parking Lot
1 Landscaped Garden
Bocci Courts
Pathways connecting all facilities

3. COOPER RIVER PARK (347 acres along Cooper River): Cooper River Park runs through Pennsauken, Cherry Hill, Collingswood, and Haddon Township and

is bounded by North and South Park Drives, Route 130, and Grove Street.

FACILITIES / ACTIVITIES

2 Softball Fields
1 Playground - William G. Rohrer Children's Playground
1 Cross-Country Course
4 Volleyball Courts
1 Restaurant
1 Miniature Golf Course
1 Driving Range
1 1/4 mile Cinder Track
1 Yacht Club
1 Stadium - Jack Curtis Stadium
1 Dog Run
1 Multi-Purpose Field
Fishing
1 Bike/Jogging Path - 5.15 miles
4 Picnic areas
1 Boat Launch Area - suitable for trailer and car-top boats. No gas motors.
Bio-filter Wetland
Indoor Restrooms
Sculpture Garden
Memorial Grove

Cooper River hosts many prestigious rowing events. The river provides ideal rowing conditions including a world-class Olympic-distance 2000 meter narrow and sheltered straightaway. A new boathouse is being constructed on North Park Drive.

4. DUDLEY GRANGE PARK (21 acres): Dudley Grange is located in Camden City and is bounded by Westfield Avenue, and Federal, 32nd, and Dudley Streets.

FACILITIES / ACTIVITIES

2 Softball Fields
2 Basketball Courts
1 Baseball Field
8 Tennis Courts
1 Open Play Field
2 Playgrounds
1 Spray Pool
1 Pavilion
1 Bike/Jogging Path - 1.5 miles

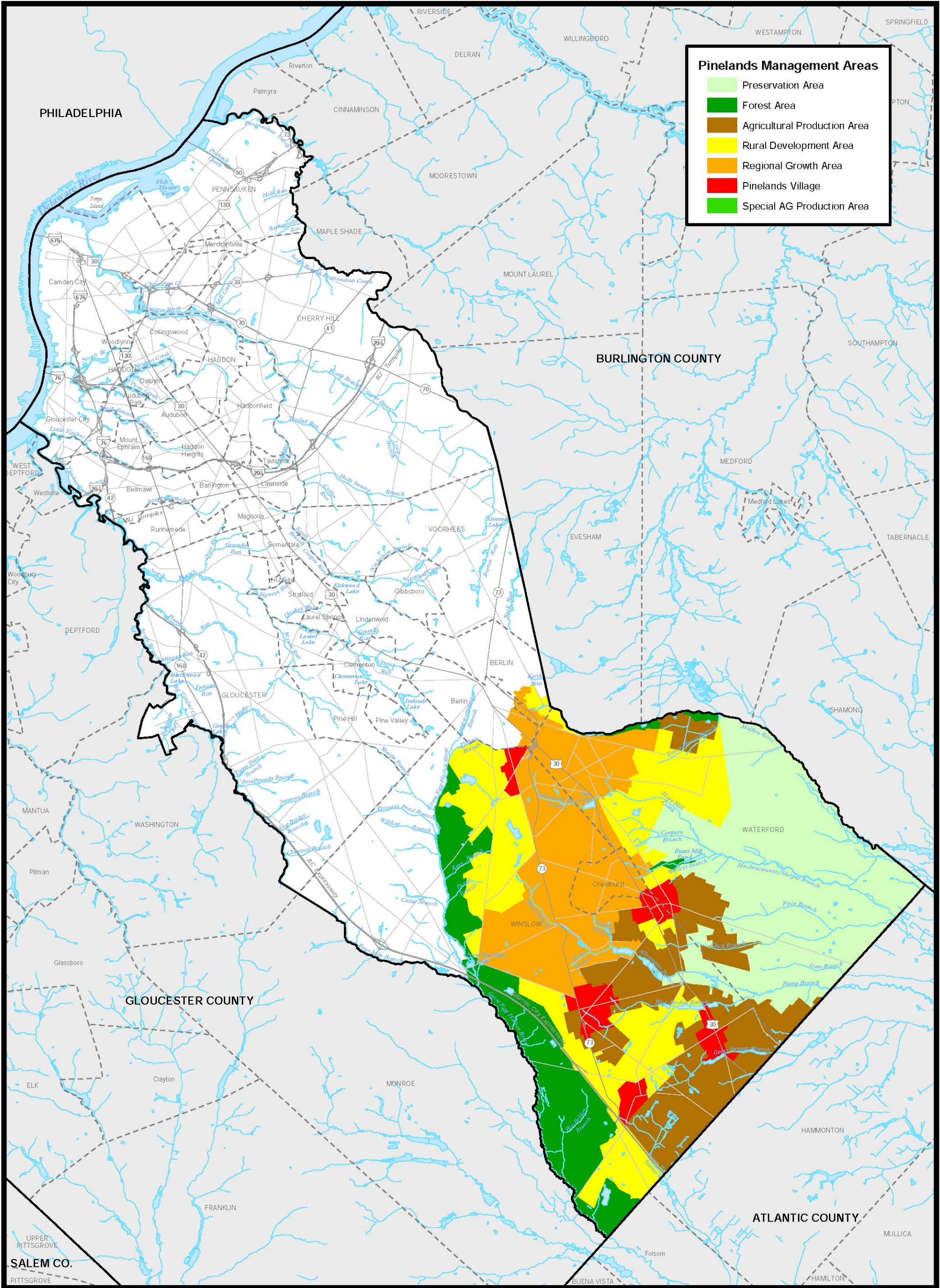
5. MARIA BARNABY GREENWALD MEMORIAL PARK (47 acres along Cooper River): Greenwald Park is located in Cherry Hill and is bounded by Park Boulevard, Grove Street and Kings Highway.



Roller hockey at Haddon Lake Park, photo courtesy of Camden County Parks Department




Challenge Grove Park, photo courtesy of Camden County Parks Department

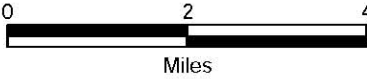


CAMDEN COUNTY :
PINELANDS MANAGEMENT AREAS

MAP 3

Source : DVRPC, NJDEP
This map was developed using New Jersey
Department of Environmental Protection
Geographic Information System digital data,
but this secondary product has not been
verified by NJDEP and is not state-authorized.

 DELAWARE VALLEY
REGIONAL PLANNING COMMISSION
MAY 2004



FACILITIES / ACTIVITIES

- 1 Softball Field
- 1 Parks Administration Building
- 4 Volleyball Courts
- 2 Picnic Areas
- 1 Playground
- 1 Bike/Jogging Path - 1.2 miles
- 1 Cross Country Course
- 1 Watchable Wildlife Nature Trail

6. HADDON LAKE PARK (79 acres along South Branch of the Newton Creek and encompassing Haddon Lake): Haddon Lake Park is located in Haddon Heights, Audubon, and Mt. Ephraim and runs from Station and 10th Avenues to Valley Road on

either side of the South Branch of the Newton Creek.

FACILITIES / ACTIVITIES

- 1 Softball Field
- 1 Basketball Court
- 2 Sand Volleyball Courts
- 1 In-Line Hockey Court
- 3 Playground Areas
- Picnic Areas at all playgrounds
- 1 Cross-Country Trail
- 3 Pavilions
- 1 Outdoor Amphitheater
- 1 Bike/Jogging Path - 3.39 miles
- Fishing
- Public Boat Launch (small craft only)



Fishing at Hopkins Pond, photo courtesy of Camden County Parks Department

7. HOPKINS POND (33 acres): Hopkins Pond is located in Haddonfield on both sides of Hopkins Lane.

FACILITIES / ACTIVITIES

- Fishing
- Bird Sanctuary
- Natural History Tree Trail

8. KIRKWOOD LAKE (35 acres): Kirkwood Lake is located in Lindenwold and is bounded by Glendale Road, Washington Avenue, and Lakeview Avenue.

FACILITIES / ACTIVITIES

- Walking Trail
- Fishing

9. NEW BROOKLYN PARK (758 acres along Great Egg Harbor and New Brooklyn Lake): New Brooklyn Park is located in Winslow Township between New Freedom and New Brooklyn Roads, north of the Atlantic City Expressway, east of Route 536.

FACILITIES / ACTIVITIES

- 1 Softball Field
- 1 Pavilion
- 2 Playgrounds
- 1 Sand Volleyball Court
- Outdoor Amphitheater
- 1 In-Line Hockey Court
- Canoe Launch
- 2 Picnic Areas
- Bike Path - 1.22 miles
- Parking
- Fishing
- Boating

Hiking

STAR Building (Safe Teen and Adolescent Recreation Program)

10. NEW CAMDEN PARK (24 acres on the Cooper River): New Camden Park is located in Camden and is bounded by Wildwood Avenue, Park Boulevard, Baird Boulevard and Line Street, and the Cooper River.

FACILITIES / ACTIVITIES


- 1 Softball Field
- 1 Shuffleboard Court
- 1 Handball Wall
- 1 Open Play Field
- 2 Tennis Courts
- 1 Playground
- Bike Path - .5 miles

11. NEWTON LAKE PARK (103 acres on Newton Lake and Newton Creek): Newton Lake Park is located in Collingswood, Oaklyn, and Haddon Township and runs from Cuthbert Boulevard to the White Horse Pike on either side of Newton Lake.

FACILITIES / ACTIVITIES

- 1 Matrimony Garden
- 2 Playground Areas
- 3 Picnic Areas
- 1 Boat Ramp - small car top only
- 3 Fishing Piers
- 1 Bike/Jogging Path - 3.25 miles

12. PENNYPACKER PARK (32 acres on Cooper River, Hopkins Pond and Driscoll Pond): Pennypacker Park is located in



Haddonfield and is bounded by Kings Highway, Park Boulevard, and Grove Street.

FACILITIES / ACTIVITIES

Pennypacker Park contains the site of Hadrosaurus Foulkii Leidy, which is listed on the National Register of Historic Places as a National Historic landmark.

13. PILLINGS LAKE (18 acres on North Branch of the Big Timber Creek): Pillings Lake is located in Clementon Borough just north of Atlantic Avenue. There are no facilities or activities.

14. PYNE POYNT PARK (15 acres on the Delaware River): Pyne Point Park is located in Camden and is bounded by the Delaware River, 6th, 7th, and Erie Streets.

FACILITIES / ACTIVITIES

- 2 Softball Fields
- 2 Basketball Courts
- 1 Baseball Field
- 1 Spray Pool
- 1 Handball Wall

15. REVEREND EVERS PARK (45 acres on the North Branch of Newton Creek): Reverend Evers Park is located in Camden City and is bounded by Lake Shore Drive, Morgan Street, Route 676, Tuckahoe Road, and Mt. Ephraim Avenue.

FACILITIES / ACTIVITIES

- 8 Basketball Courts
- 1 Playground
- 2 Softball Fields
- 1 Multi-Purpose Field

16. SILVER LAKE PARK (16 acres on Silver Lake): Silver Lake Park is located in Clementon and is bounded by Trout Run, Silver Lake, Ohio, and Higgins Avenues.

17. VON NIEDA PARK (19 acres): Von Neida Park is located in Camden City and is bounded by 29th Street, Lois Avenue, Harrison Street, and Arthur and Reeves Avenues.

FACILITIES / ACTIVITIES

- 2 Softball Fields
- 4 Basketball Courts
- 1 Baseball Field
- 2 Playgrounds
- 1 Soccer Field
- 2 T-Ball Fields
- 1 Hard Court Surface Play Area
- 1 Bike Path - .33 miles
- 1 Lighted Tennis Court

18. WALLWORTH PARK (13 acres on Evans Pond): Wallworth Park is located in Cherry Hill and Haddonfield and is bounded by Kings Highway, Park Boulevard, Caldwell Road, and Borton Mill Road.

FACILITIES / ACTIVITIES

- 1 Bike/Jogging Path - .3 miles

19. DR. ULYSSES S. WIGGINS WATERFRONT PARK

(51 acres on Delaware River): Wiggins Park is located in Camden City and is bounded by the Delaware River, Front Street, Delaware Avenue, and Mickle Boulevard.

FACILITIES / ACTIVITIES

- 1 Riverstage
- 1 Promenade

1 Marina with 50 slips
Fishing

New County Acquisitions: Since the passage of the 1998 Open Space Trust Fund, the county has used the funds to preserve eight county properties (plus nine municipal parks and two farms), as shown on MAP 4 - Lands Protected with County Open Space Trust Funds. The eight county properties are:

Kelly, Lange, and Hannigan Properties (1.1, 4.0, and 2.3 acres respectively on Trout Run, tributary of North Branch of Big Timber Creek): These small parcels are located in Berlin Borough at the headwaters of Trout Run. The properties are adjacent to Lake Worth, and are wooded with a trail accessible from the adjacent street.

Lake Worth (43 acres on Trout Run): Lake Worth was previously a private swimming and picnicking facility located at the southern edge of Lindenwold Borough. The only facilities that remain are a large pavilion and the parking area. Vegetation has grown into the lake. Lake Worth could be improved to offer canoeing and kayaking on the lake and a trail system for hiking and biking. The report's cover rendering shows what Lake Worth could look like with park improvements.


Lake Avenue (9 acres on tributary to North Branch of Big Timber): The Lake Avenue Property is adjacent to Pillings Lake Park, a municipal park in Clementon Borough. The property is heavily wooded with a trail system woven throughout it.

Laurel Ravine (63 Acres on Mason Run tributary of the North Branch of the Big Timber): Laurel Ravine is a beautiful, heavily wooded parcel that connects with municipal parkland on the North Branch of the Big Timber Creek where it forms the boundary between Lindenwold and Gloucester Townships. The property contains a trail system woven throughout it.

Slims Ranch and Hill Property (120+ acres on the North Branch of the Big Timber Creek): Slims Ranch was a former horseback riding facility and is located in Gloucester Township. It provides beautiful views on a cliff overlooking the North Branch of the Big Timber, and also provides an opportunity to construct a natural amphitheater, based on the natural contours found on the site. The wooded portion of the property (most of Hill Property) contains dirt roadways that lead down to the creek.

Municipal Open Space: Municipal parks typically provide active recreational facilities, such as ballfields, tennis courts, and playgrounds, well-distributed throughout a municipality's residential neighborhoods. In this way, residents can have easy access to a wide array of outdoor recreation pursuits, close to home. An inventory of municipal parks and facilities is in the 1999 Camden County Open Space and Recreation Plan.

Private recreational facilities and those found on school property were not included in the inventory as they do not meet the definition of dedicated open space.



However, it is acknowledged that such facilities are valuable assets in meeting local and regional needs.

Municipal Greenways: Greenways provide opportunities for both recreation and the management of environmentally sensitive lands. The development of greenways, along stream corridors in particular, can aid in stream bank stabilization, sediment control, nutrient removal, water temperature control, and the preservation of wildlife habitats.

The following examples are used to illustrate the concept of greenways development at the municipal level:

Camden Greenways Project:

The Camden Greenways Project encompasses the Cooper River, Newton Creek, and North Shore Delaware River waterfronts and involves four distinct City neighborhoods; Parkside, North Camden, East Camden, and Cramer Hill.

The city is being assisted in its efforts by Camden Greenways Inc., a nonprofit organization with representatives from several city departments, the Camden County Division of Open Space and Farmland Preservation, neighborhood associations, the New Jersey Conservation Foundation, the Trust for Public Land, the Delaware Riverkeeper Network, and various other groups.

In concept, the proposed greenway system will provide a continuous recreation and open space system along the aforementioned Cooper and Delaware River waterfronts, utilizing eight existing city and county parks (Cooper River, Farnham, Camden, Cornelius Martin, Pyne Poynt, 22nd and Harrison, von Nieda, and Wiggins) and other potential shoreline open space.

Proposed improvements include the development of passive waterfront recreation adjacent to the city's proposed business park in North Camden and a 9.5-mile linear waterfront bikeway/walkway connecting various park facilities and also serving to increase

security, maintenance and community access to these parks.

Gibbsboro Greenways Network: The Borough of Gibbsboro, an acknowledged leader in open space preservation, has proposed the establishment of a greenway network within the municipality as part of its Master Plan. The Borough has received a \$1,000,000 grant and loan from the New Jersey Green Acres Program to establish this network. When completed, this network will add 218 acres* to the Borough's open space inventory and will provide a greenbelt of land which will make a complete circuit

* based on the Recreation Element of the Gibbsboro Master Plan dated November 14, 1995

around the municipality and permanently demarcate it from surrounding municipalities. The acquisition of these lands and public easements, involving 22 separate tracts, will quadruple the Borough's existing open space and will serve to link its parks, natural reserves, cultural features, and historic sites, including the historic Old Egg Harbor stagecoach road.

Lands Protected with County Open Space Trust Funds:

Map 4 shows the 18 properties, to date, protected through the Camden County Open Space Trust Fund. Eight of the properties are maintained by the county, nine are designated as municipal parks, and two are farms. (One property, the Stafford Farm, was preserved as both a municipal park and a preserved farm) Together, these lands, along with two state acquisitions that the county facilitated, total approximately 860 acres.

Current Proposed Acquisitions through the Camden County Open Space Trust Fund Program:

Map 5 shows six properties proposed for acquisition or development rights through the Trust Fund, totaling another 350 acres (approximately).

Future Open Space Needs: Based on trends and forces, how much open space is needed? Unfortunately, there is no simple or single way to make such a determination. Ultimately, communities such as Camden County must

reach a consensus as to how much parkland is optimal for their needs based on an evaluation of their recreational needs, resources, and land use patterns. No single standard can categorically determine the best quantitative goal for Camden County, rather, all of the above factors must be taken into account.

Nevertheless, DVRPC did conduct a recreational open space needs analysis for the county using three different methods: a population-based method based on National Park and Recreation

Association work, a land-use method from the NJ SCORP, and an adjusted land-use method based on developed land constraints. All three yield very different results. The primary

difference between the approaches is that the population-based method sets a goal for a finite period of time, based on current or forecasted population, while the land-use standards set their goals in perpetuity, recognizing that land is finite and any preservation efforts now will benefit all generations to follow. None of the following methods, however, relate goals to the natural resources of the county, nor do they establish standards for specific recreation facilities such as swimming pools or tennis courts. These assessments are for acres of recreational open space only, with actual uses determined later. In addition, the results below are for county parkland only. There are different requirements, and results, for federal, state, and municipal parklands, but, as this is a county open

THE COUNTY PREVIOUSLY SET A GOAL, IN 1999, OF PRESERVING NOT LESS THAN 2,000 ACRES BY 2010.

Table 3 : Balanced Land Use Guidelines

Municipal Level
3% of developed and developable area of the municipality*
County Level
7% of developed and developable area of the county*
State Level
10% of the area of the state
Federal Level
4% of the area of the state
<small>* developable areas exclude slopes over 12%, wetlands, low density areas of the Pinelands, and Federal and State owned open space</small>

space plan, only the county results are detailed here. See Appendix B for complete tables of methods' results, including the federal and state deficits.

Year 2004 Protected Open Space in Camden County

Total Park Area: 25,976 acres
County Parklands: 2,640 acres
% of Total Area: 17.84%

Park Requirements to 2025 (Population-Based Method)

DVRPC population density-based method

built on work of the National Recreation and Park Association.

County Park Requirements: 3,927 acres
County Deficit: -1,327 acres

New Jersey Balanced Land Use Guidelines Method*

7% County Goal: 7,618 acres
County Deficit: -5,307 acres

New Jersey Balanced Land Use Guidelines, Adjusted Method*

County Goal of 7% Remaining Developable: 3,556 acres

* The New Jersey Balanced Land Use Guidelines and Adjusted Guidelines Methods are based on Land Use and park data from 2002. The methods do not incorporate the County's most recent acquisitions, but this does not significantly affect the results

The county previously set a goal, in 1999, of preserving not less than 2,000 acres by 2010. This 2,000-acre goal coincided well with the population-based analysis conducted at that time, which was also about 2,000 acres. Since then, the Trust Fund and other sources have been used to create or expand county parkland by almost 700 acres, thereby bringing the population-based deficit of county parkland down to the current measured deficit of 1,327 acres. The county trust fund program was also used to protect about 330 acres of land that became new or expanded municipal and state parklands, plus two farms. A total of about 860 acres have been protected, over a four-year period, using the county trust fund program. Maintaining the rate of about 215 acres per year, the county will be able to achieve its goal of 2,000 acres by 2010.

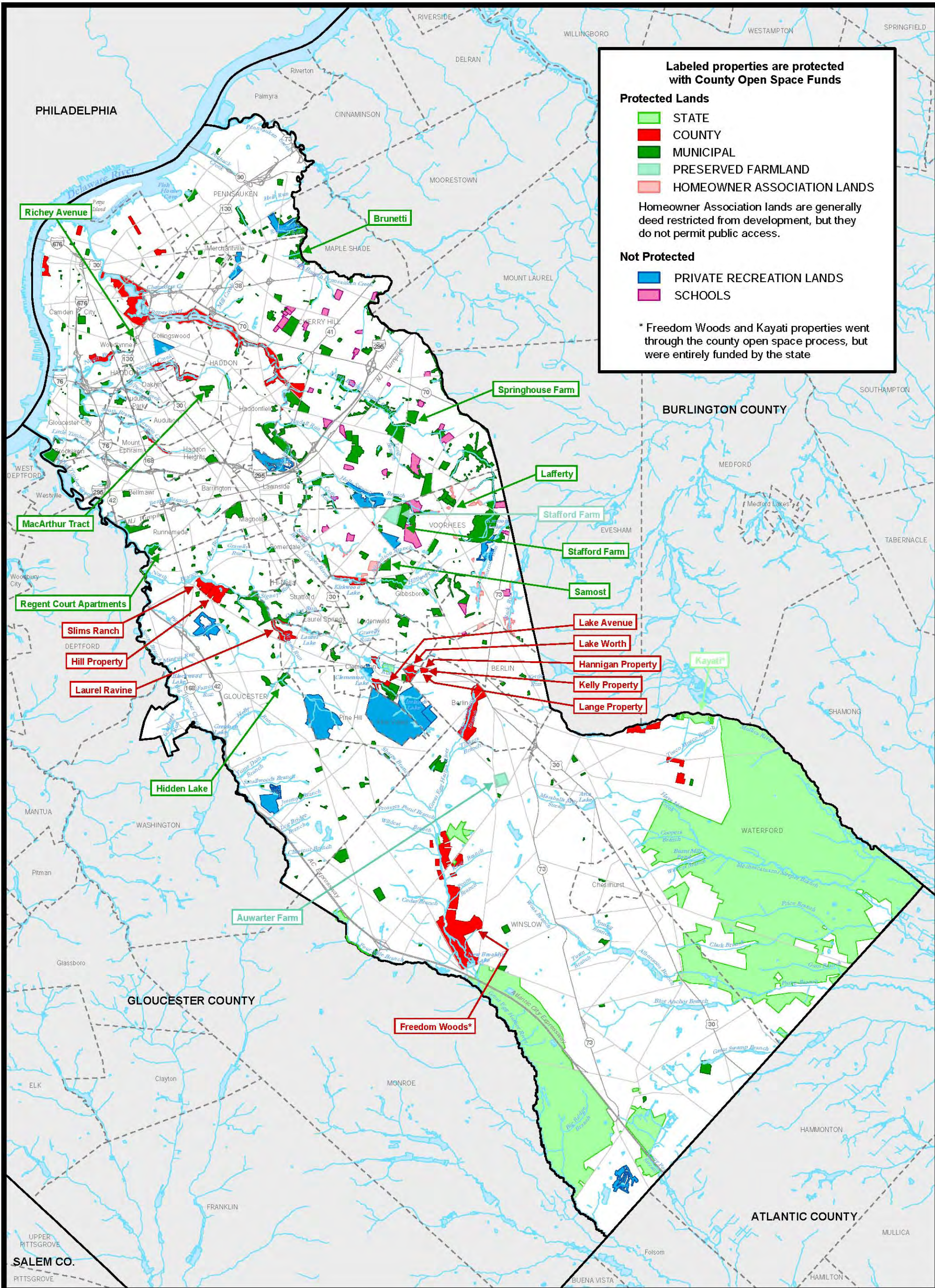
However, the acquisition of farmland and open space for conservation purposes will not reduce the "recreational deficit" indicated from the population needs analysis, and the county cannot totally erase this deficit through the acquisition of additional land alone. Rather, Camden County should seek to address recreational needs in those areas of the county where a critical shortfall exists, and should strive to develop passive recreational opportunities on lands acquired with Trust Fund monies, where appropriate. Improved inter-municipal and inter-agency cooperation can also help relieve recreational deficits

The provision of local recreational facilities improves the quality of life in communities, and is an especially important feature in densely developed areas where private open space is more limited. Neighborhood parks with playgrounds, ball fields and courts, gazebos and picnic areas, and trails provide grounds for children and neighbors to have impromptu meetings or organized sports and events; both necessary features for people to make connections and feel part of a community. Local parks also provide a mechanism for healthy outdoor exercise, an increasingly important need with today's high rates of obesity, even among school-age children. However, to attract people and fulfill their purpose, local parks must be considered safe, well-maintained, scenic, and otherwise appealing.

Recognizing the importance of recreational facilities in local parks, Camden County makes a minimum of 5% of Trust Fund monies available for enhancements to existing recreational facilities. As of the fall of 2003, 30 of the county's 37 municipalities

have been awarded funding for recreational needs. Trust fund monies have been allocated for development of or enhancements to municipal recreational centers, purchases of playground equipment, improvements to courts and fields, installations of gazebos and fences, plantings of trees, construction of trails and promenades, and accessibility improvements for the disabled. These recreational facility enhancements will expand and enhance the utilization of these facilities, significantly improving the quality of life in Camden County communities. The county should continue to work with municipalities which benefit from these new or expanded facilities with regard to their administration and maintenance.

The county's 1999 goal of preserving not less than 2,000 acres by 2010 is consistent with the population-based open space recreational needs method above. To meet population needs, this goal makes sense in that the county's population is leveling off at a 1% growth rate over 25 years. The land-use based methods demand higher goals, with the first land use guideline method providing the most challenging goal of over 5,300 acres, and the second, adjusted method, providing a more achievable goal of 3,550 acres. In any case, these quantitative assessments are meant to be guidelines only. They do not incorporate data on critical natural resources, waterfront access, greenway opportunities, and distribution of open space. To ensure that open space goals are connected to these other important considerations, the Natural and Cultural Resource Inventory in Chapter Three and the greenway and focus area analysis of Chapter Four were conducted. ♦



Labeled properties are protected with County Open Space Funds

Protected Lands

- STATE
- COUNTY
- MUNICIPAL
- PRESERVED FARMLAND
- HOMEOWNER ASSOCIATION LANDS

Homeowner Association lands are generally deed restricted from development, but they do not permit public access.

Not Protected

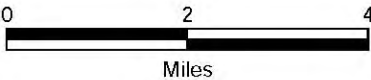
- PRIVATE RECREATION LANDS
- SCHOOLS

* Freedom Woods and Kayati properties went through the county open space process, but were entirely funded by the state

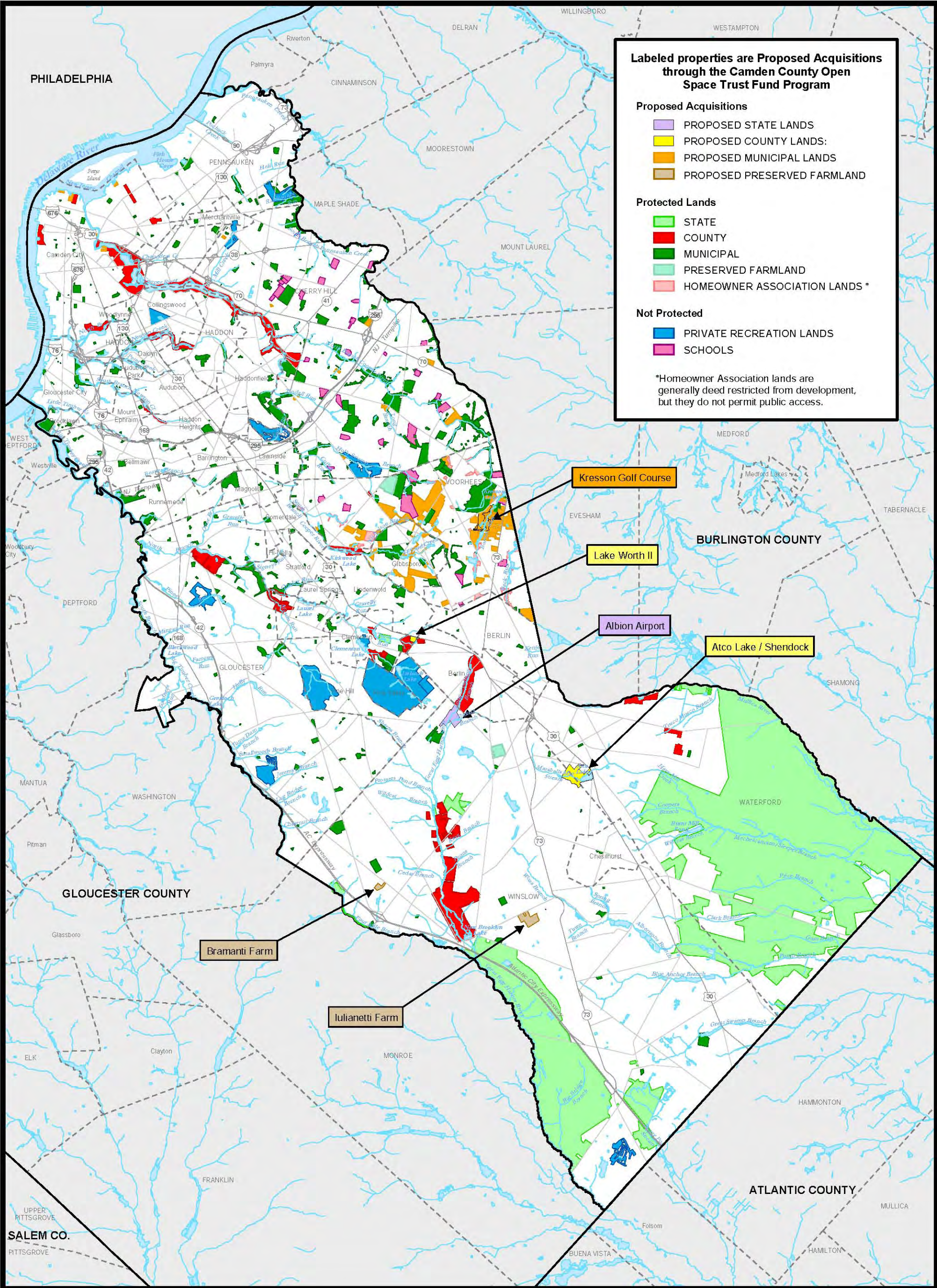
**CAMDEN COUNTY : LANDS PROTECTED WITH
COUNTY OPEN SPACE TRUST FUNDS**

Source : DVRPC, NJDEP
This map was developed using New Jersey
Department of Environmental Protection
Geographic Information System digital data,
but this secondary product has not been
verified by NJDEP and is not state authorized.

DELAWARE VALLEY
REGIONAL PLANNING COMMISSION
MAY 2004



MAP 4



Labeled properties are Proposed Acquisitions through the Camden County Open Space Trust Fund Program

Proposed Acquisitions

- PROPOSED STATE LANDS
- PROPOSED COUNTY LANDS:
- PROPOSED MUNICIPAL LANDS
- PROPOSED PRESERVED FARMLAND

Protected Lands

- STATE
- COUNTY
- MUNICIPAL
- PRESERVED FARMLAND
- HOMEOWNER ASSOCIATION LANDS *

Not Protected

- PRIVATE RECREATION LANDS
- SCHOOLS

*Homeowner Association lands are generally deed restricted from development, but they do not permit public access.

**CAMDEN COUNTY :
PROPOSED ACQUISITIONS**


MAP 5

Source : DVRPC, NJDEP
This map was developed using New Jersey
Department of Environmental Protection
Geographic Information System digital data,
but this secondary product has not been
verified by NJDEP and is not state-authorized.

DELAWARE VALLEY
REGIONAL PLANNING COMMISSION
MAY 2004



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Miles



CHAPTER 3

NATURAL AND CULTURAL RESOURCES INVENTORY

A Natural and Cultural Resources Inventory is a compilation of text and mapped information about the natural and cultural resource characteristics and environmental features of a place. The inventory identifies critical natural and cultural resources and provides a major input to the Proposed Open Space maps. The following series of maps (beginning with a Base Map of the local street network for referencing feature's locations) and narrative describes the environmental conditions in the county and why they are important to preserve.

The cultural resource inventory consists of mapping the location and names of historic resources from the National and State Registers of Historic Places, along with some other historic resource survey work carried out by a consultant for the county. Historic resources were included in the inventory and mapping because their preservation, especially in their original settings, is also important to the attractiveness and livability of the county, and because part of the Open Space Trust Fund is dedicated toward historic preservation.



Setting: The Natural Environment of Camden County

Geology: Camden County occupies 145,586 acres in the Atlantic Coastal Plain physiographic province of New Jersey. The state is divided into four such provinces, ranging from the rocky terrain of the Ridge and Valley Province at one extreme to the sands of the coast at the other. The Atlantic Coastal Plain is the most southerly of these four provinces in New Jersey. The region is characterized by young, weak, unconsolidated sediments consisting of alternating layers of clay, silt, sand, and gravel. The layers of sand and gravel are aquifers and the layers composed predominantly of silts and clays are confining units.

The county is divided into the Inner and Outer Coastal Plain regions, with the dividing line between these two segments represented by a belt of low hills called a cuesta, running northeast and southwest through Pine Hill and Berlin Township. The Inner Coastal Plain is derived primarily from sediments eroded from the Appalachian Mountains between 150 to 60 million years ago and deposited onto the continent shelf. This deposition was interrupted by layers laid down by the ocean, as the ocean shoreline advanced and receded over long stretches of time. The resulting geology is a stacking of layers of eroded sedimentary, igneous, and metamorphic rock interspersed by marine deposits of sand and other material. Soils of the Inner Plain are quite fertile.

The Outer Coastal Plain, which covers all the rest of southern New Jersey, was formed more recently than the Inner Coastal Plain.

It was laid down by the ocean and consists of unconsolidated deposit of quartz sand and minor gravel. As glaciers melted and reformed and sea level rose and fell, layers of marine sediment were deposited over much of the earlier strata. Outer Coastal Plain soils are less fertile than those of the Inner Coastal Plain and do not hold water as well. They become progressively less rich as one goes east, to the poor agricultural soils of the Pine Barrens, which are sandy, acidic, and prone to dryness because rainwater drains through them so rapidly.

Geology also determines stream characteristics. Waterways in the Coastal Plain have sandy streambeds and gentle slopes, especially in comparison to those in north Jersey. Streamflow is less impeded than in rocky-bottom streams where friction between the water and the channel plays a role. Stream velocity tends to be less in channels with gentle slopes than in those with steeper gradients.

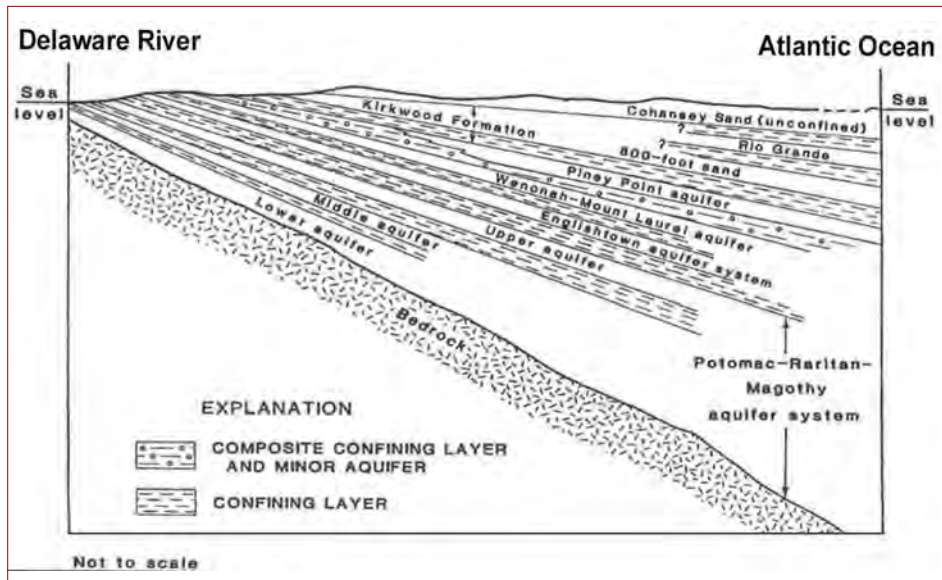
Headwaters of Inner Coastal Plain streams and rivers originate at points of slightly higher elevation and flow northwest to the Delaware River. Headwaters of Outer Coastal Plain streams and rivers have a strong hydraulic connection with the Kirkwood-Cohansey aquifer and are fed by it. Most of the Outer Coastal Plain slopes more gradually to the east, with drainage toward the Atlantic Ocean, although some streams, such as the Rancocas Creek, start in the Outer Coastal Plain and, having cut through the cuesta, flow toward the Delaware.

Watersheds: A watershed is any area of land that drains into a common water body such as a stream, river, lake, or wetland. Each watershed is separated from other watersheds by high points in the terrain, such as hills and ridges. A watershed includes not only the water body itself, but also the entire land area that drains into it. Each watershed is a dynamic and unique place, where natural resources such as soil, water, air, plants, and animal interact in a complex web.

There are seven watersheds that are wholly or partially within Camden County. See Map 7. Two of these consist of the headwater streams of two large river systems that flow east to the Atlantic Ocean: The Mullica River and the Great Egg Harbor watersheds. The other five have streams that flow westward to the Delaware River, and are part of the Delaware River watershed, or basin. They are the Big Timber Creek, Cooper River, Newton Creek, Pennsauken Creek, and the Rancocas Creek watersheds.

Slightly more than half of Camden County is within the Delaware River basin, which is 13,000 square miles and covers parts of four states: New Jersey, Pennsylvania, Delaware, and New York. Although the Delaware River basin occupies only 1% of the land of the United States, it supplies water to 10% of the U. S. population. Many municipalities and metropolitan centers, including Philadelphia, Trenton, and New York City, get all or part of their drinking water from the river.

THERE ARE SEVEN WATERSHEDS THAT ARE WHOLLY OR PARTIALLY WITHIN CAMDEN COUNTY.



Aquifers: Three major aquifers exist beneath Camden County: the Potomac-Raritan-Magothy aquifer system (PRM), the Mt. Laurel-Wenonah aquifer, and the Kirkwood-Cohansey aquifer system. See Map 8. The Kirkwood-Cohansey is unconfined. The other two are confined except where they reach the surface or are overlain by permeable surficial deposits. Because the underlying strata slope downward from west to east, each aquifer layer drops from its outcrop on the surface to the southeast. Thus, the PRM, which is the deepest aquifer, exists from the Delaware River and underlies the entire county. The Mt. Laurel-Wenonah underlies a strip of the county generally between Mt. Laurel and Deptford. The Kirkwood-Cohansey underlies

the eastern half of the county. The PRM is the most productive of the three aquifers, and is also the most extensively used confined aquifer in the Coastal Plain.

WETLANDS WERE ONCE MORE ABUNDANT THROUGHOUT THE STATE, BUT DRAINING AND FILLING FOR DEVELOPMENT ACTIVITIES HAVE REDUCED THE AMOUNT OF WETLANDS

Soils: The differences in geology within Camden County generate different kinds of soils that support characteristic vegetation. On the Inner Coastal Plain, with its more fertile soils, the county was once covered with a forest of mixed deciduous trees.

Moving southeast across the county, the vegetation transitions into Pine-dominated varieties that thrive in sandy, acidic soils that drain rapidly. Soils also determine the fertility of land for agriculture.

Map 9 shows prime farmland soils in the county. The map is based on soils data from the US Department of Agriculture and the Natural Resources Conservation Service. Comparing this map to the 2000 land use map shows that the best soils for farming are also the best soils for growing houses, as most prime farmland areas from Cherry Hill, Voorhees, and Gloucester townships, are now developed. See Map 10. In fact, only 46% of prime farmland soils in the county remain.

However, within the Pinelands, much of the prime farmland and farmland of statewide, local and unique importance has not been paved over, and most extant farms are located in the Agricultural Production Area of the Pinelands Management Areas. The Auwarter Farm, the first farm preserved with County Open Space Trust Funds, consists of

prime, statewide, and locally important farmland soils. Stafford Farm, the second preserved farm in the county, consists 100% of prime farmland soils.

Steep Slopes: Only a small percentage of Camden County has steep slopes over 10%. The steepest slopes are found along stream corridors, especially the North Branch of the Big Timber Creek and its tributaries. Other steep slopes are found at the geological cuesta area, where the Inner and Outer Coastal Plains meet between Pine Hill and Gibbsboro. See Map 11.

Inappropriate development of and changes to steep slopes, such as excessive tree and vegetation removal and regrading, can result in soil instability, erosion, sedimentation, increased stormwater runoff, and flooding. This causes habitat

Table 4 - Remaining Prime Agricultural Soils

SOIL CATEGORY	ACREAGE	ACREAGE REMAINING AFTER YEAR 2000 DEVELOPED AREAS ARE SUBTRACTED OUT	% PRIME SOILS REMAINING
PRIME FARMLAND	27,178	12,442	46%
FARMLAND OF LOCAL IMPORTANCE	5,835	3,163	54%
FARMLAND OF STATEWIDE IMPORTANCE	25,025	16,066	64%
FARMLAND OF UNIQUE IMPORTANCE	6,205	5,691	92%



Big Timber Creek, courtesy of www.hoganphoto.com

destruction, degraded water quality, and potential damage to lives and property. Steep slopes raise construction costs and restrict the use of individual septic systems due to the difficulty of installation and the potential health hazards caused by seepage.

Wetlands: Wetlands form where water is at or near the land surface, most commonly along rivers and in low-lying coastal areas. They are characterized by particular types of vegetation and/or soils. In inland areas, impervious clays can restrict vertical movements of water and thus form wetlands. Wetlands can receive water from the surrounding area, can recharge the surrounding area, or both. (Winters and others, 1998) Wetlands are critical habitat for many forms of wildlife and can also serve as water filtering systems and water storage sites. Wetlands were once more abundant throughout the state, but draining and

filling for development activities have reduced the amount of wetlands and their ability to provide wildlife habitat and to filter out nonpoint source pollution before it enters surface or groundwater.

Map 12 shows wetlands in the county categorized into 15 types. Wetlands are found all over the county, but the largest wetland areas are along the Great Egg Harbor River, the Hidden Lake area of Gloucester Township and Pine Hill, the Beagle Club area of Voorhees, the South Branch Cooper River headwaters in Gibbsboro and Voorhees, and the Mullica River and its branches in Waterford.

Floodplains: Map 13 shows floodplains, which are those areas adjacent to waterbodies that would be flooded by a 100-year flood, or a flood that has the statistical probability of occurring every 100 years. A flood of that magnitude can occur at any given time, however. Left untouched, floodplains serve many vital functions and perform many environmental services. Located between waterways and adjacent lands with extensive human use, floodplains serve to filter out nonpoint source pollutants before they reach the stream beds. Vegetated floodplains form a physical screen for material moving downslope toward streams, thereby also preventing erosion and maintaining natural fluvial morphology. Wide floodplains provide areas for water storage during flooding events, decreasing the need for costly flood mitigation projects. And finally, floodplains left in their natural vegetated state provide important ecological resources for many plants, animals, and microbes, thereby maintaining stream ecology.

Wildlife in Camden County: A surprising array of wildlife is found throughout Camden County. Bald eagles have been spotted hunting along the North Branch of the Big Timber Creek, the Cooper River, and most recently on the Pennsauken Creek. Great Blue Herons are abundant on county ponds, lakes, and marshes. Migrating birds fly north in spring along the Delaware River corridor. Flights of smaller woodland species that are heading to New England and Canada to nest are often sighted in Camden City and Pennsauken. Frogs and salamanders breed in small and remaining wetland areas in the

western half of the county, and in parts of the Pineland areas in eastern townships. Important sites for endangered and threatened species, such as the Bog Turtle and a variety of butterflies and moths, are also found in the eastern half of the county.

THE PRIMARY REASON FOR MOST OF THESE SPECIES' PENDING DEMISE IS DESTRUCTION OF HABITAT FROM ENCRoACHING DEVELOPMENT.

In Pinelands areas of Camden County, there are species of animal life that are rare outside this ecosystem. These include

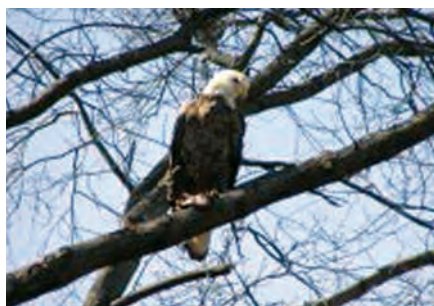
some small Hair Streak and Elfin butterflies, a few moths, the Pine Barrens Tree Frog, the Carpenter Frog, the Northern Pine Snake, and the Timber Rattlesnack.



Seagulls enjoying a day in Camden County, courtesy of Andrea C.

Fish populations in the county have begun a slow recovery from the days when the streams flowing to the Delaware River, and the river itself, were extremely polluted. Shad numbers have increased over the past 10 years. Fish ladders established on several lakes have allowed migrating varieties to return to their historic upstream spawning grounds. Although significant improvements in fish numbers have occurred, there are still State Health Advisories against eating many of the fish species in Camden County waters, due to concentration of contaminants such as mercury and polychloryl biphenyls (PCBs) in some fish from river, stream, and lake sediments.

Natural Heritage Priority Sites: Data from the Natural Heritage Program at the NJDEP indicate records for over 115 occurrences of rare species and natural communities, and 15 Natural Heritage Priority sites in Camden County, which are shown on Map 14. Of the rare species/natural community recordings, 6 are vertebrates, 18 are invertebrates, 3 are ecosystems, and the rest are vascular plants. Some of the rare species include the bog turtle, peregrine falcon, pine barrens treefrog,



This bald eagle has been spotted hunting along the County's streams, photo courtesy of Camden County Parks Department

red-headed woodpecker, northern pine snake, and swamp pink. The biodiversity ranks of the 15 priority sites include one B1 - site of outstanding significance, four sites ranked B2- of very high significance, 6 sites ranked B3 - of high significance, three sites ranked B4 - good occurrences of natural communities, and one site ranked B5 - of general biodiversity interest.

Many of the species in the database are globally rare and vulnerable to extinction, and all of the species recorded are considered endangered at the state level. This means their prospects for survival within the state are in immediate danger, requiring immediate assistance, or extinction will probably follow. The primary reason for most of these species' pending demise is destruction of habitat from encroaching development.

Groundwater Recharge: Based on a New Jersey Geological Society (NJGS) model, Map 15 shows areas of the county that have high groundwater recharge value based on land cover, soils and local climate data. The highest category of groundwater recharge, 14 to 16 inches per year, is found mostly in the Mullica River watershed in Waterford Township and in Berlin Township near its border with Voorhees. The next highest category, 12 to 13 inches per year, is found mostly in Winslow, Waterford, Chesilhurst, Pine Hill, and Berlin Borough. Low recharge is found in the western, largely built-out half of the county. Also note the absence of recharge along major highways and roads shown on map 15. The highly urbanized areas surrounding the City of Camden and Gloucester City were not even included in the recharge model's calculations.

Table 5 - Land Use 2000

LAND USE CATEGORY	ACREAGE	% OF TOTAL COUNTY
Single Family Detached	32,408	22%
Single Family Attached	999	1%
Multi-Family	2,593	2%
Light Industry	2,769	2%
Heavy Industry	687	0.5%
Transportation	18,591	13%
Utility	1,792	1%
Commercial	6,446	4%
Community Service	2,327	2%
Military	5	0%
Recreation	4,355	3%
Agriculture	9,979	7%
Mining	1,178	1%
Wooded	53,387	37%
Vacant	4,042	3%
Water	4,061	3%
Total	145,618	100%
Developed Land Uses: (residential, industrial, transportation, utility, commercial, community service, military, recreation, mining)	74,149	51%
Undeveloped Land Uses: (agriculture, wooded, vacant, water))	71,469	49%

Wooded Areas: Woodlands, Map 16, derived from the DVRPC 2000 aerial interpretation, show where significant patches of woodlands remain in the county. The wooded areas are significant to the environment in that they may also be part of floodplains or wetlands, they provide habitat and migration pathways for wildlife, provide groundwater recharge, and offer scenic and recreational opportunities for human use.

Land Use 2000: Map 17 shows all the developed categories as one color: orange. The categories that make up developed uses include all residential, industrial, transportation, and commercial uses. The map also shows open space categories of wooded, agricultural, vacant and water, and categories that offer open space opportunities, including mining, utilities (power lines), recreation (golf courses, ball

fields, courts and recreation centers) and community services (schools, cemeteries, churches, hospitals, etc). Table 5 lists the acreage and percent of land in each category for the year 2000. For an analysis of land use trends and forecasts, see Trends and Forces, on page 2 of Chapter One.

Historic Resources: Map 18 shows the approximate location of almost 171 documented sites and districts from the National and State Registers, as well as from a survey conducted between 1999 and 2001 of 10 municipalities. The resources are referenced in Table 6, which indicates the name, municipal location, designation, and map number of the feature. Camden County has two National Historic Landmarks, meaning the properties have national significance: The Walt Whitman House in the City of Camden, and the Hadrosaurus Foulkii

Leidy Site in Haddonfield. (The Hadrosaurus Site is the location of the first excavated dinosaur bones in the country.) Camden County also contains other documented archaeological sites, but these have been excluded from the map and table for security reasons (some sites have been raided resulting in lost resources). More information on archaeological sites can be gained by contacting the New Jersey Historic Preservation Office by appointment.

Although Camden County hosts many historic resources, the mere existence of these places, as well as preserving them in their historic context, should not be taken for granted. In fact, many historic structures have already been either demolished to make room for new buildings, have fallen into disrepair due to lack of maintenance and investment, have been destroyed by vandalism and fire, or still stand but have lost their integrity due to inappropriate alterations and/or inappropriate surrounding development. Similarly, many potentially significant archaeological artifacts may never be excavated and interpreted because they have been paved over.

Yet, it is often the historic structures in their landscape (whether that be an urban historic district, small town Main Street, or farm buildings in their agrarian setting) that provide Camden County's communities with their unique character and identity. Combined with opportunities for parks, trails, and waterfront access, historic preservation efforts are extremely important to maintaining community character, attracting people, boosting neighborhood pride, and stimulating greater interest and investment in these areas.

There are various mechanisms to enhance historic preservation from the federal down to the local level. At the federal level, placing sites and districts on the National Register of Historic Places affords them added consideration in the planning for federally assisted projects, and makes properties eligible for certain tax benefits and grant programs. It does not, however, prevent properties from being altered or demolished. Local historic districts, on the other hand, can be created by municipalities to preserve significant historic sites by regulating the erection, alteration, restoration, and demolition of buildings within the historic district. Historical Commissions are government bodies that oversee historic preservation planning and decision making in their community, and the establishment of these commissions is typically the first step in implementing local preservation efforts.

Camden County municipalities have benefitted from the historic resource documentation work provided by the Camden County Cultural and Heritage Commission and the Camden County Historical Society. Some municipalities have gone farther by establishing historical commissions, enacting local historic preservation districts, and even by incorporating Historic Impact Statements or other similar site plan submission procedures that require development applicants to show the proposed subdivision or land development's impact on historic resources. These local land use regulations can (and should) also apply to the protection of archaeological remains, for which the stream valleys of the county remain an untapped reservoir. ♦



Laurel Ravine foliage

Table 6: Historic Resources in Camden County

SITE	LOCATION	TYPE	MAP #
19 Princeton Avenue	Audubon	PE	1
224 Wyoming Avenue	Audubon	PE	2
256 E. King's Highway	Audubon	PE	3
Audubon Senior Center	Audubon	PE	4
Breach-Dialogue House	Audubon	PE	5
Audubon Park Historic District	Audubon Park	PE	6
Berlin Historic District	Berlin	NR and SR	7
Berlin Hotel	Berlin	DOE	8
Long-A-Coming Depot	Berlin	NR and SR	9
The Saltbox	Berlin	DOE	10
Wooster Manor	Berlin	DOE	11
Noreg Village Historic District	Brooklawn	DOE	12
107 N. 8th Street	Camden City	DOE	13
109-111 N. 8th Street	Camden City	DOE	14
726-728 Cooper Street	Camden City	DOE	15
A. S. Woodruff and Law Buildings	Camden City	NR and SR	16
American National Bank	Camden City	NR and SR	17
Battleship New Jersey	Camden City	SR	18
Ben Franklin Bridge	Camden City	DOE	19
Benjamin Cooper Ferry and Tavern	Camden City	DOE	20
Benjamin Shreve House	Camden City	SR	21
Berkeley Street Streetscape	Camden City	DOE	22
Broadway Subway Station	Camden City	DOE	23
Broadway Trust Company	Camden City	NR and SR	24
Building 17, RCA Victor Company	Camden City	NR and SR	25
Camden Free Public Library Main Build.	Camden City	NR and SR	26
Camden Housing Sections 1 & 2	Camden City	DOE	27
Camden Safe Deposit & Trust Co.	Camden City	NR and SR	28
Cathedral of the Immaculate Conception	Camden City	COE and SR	29
Central Trust Company	Camden City	DOE and SR	30
Charles S. Boyer Building	Camden City	NR and SR	31
Concrete Block Streetscape	Camden City	DOE	32
Cooper Grant Historic District	Camden City	NR and SR	33
Cooper Library in Johnson Park	Camden City	NR and SR	34
Cooper Plaza Historic District	Camden City	DOE	35
Cooper Plaza Historic District Extension	Camden City	DOE	36
Cooper River Swing Span RR Bridge	Camden City	DOE	37
Cooper Street Historic District	Camden City	NR and SR	38
Cramer Hill Streetscape	Camden City	DOE	39
Dr. Henry Genet Taylor House and Office	Camden City	NR and SR	40
East End Trust Company	Camden City	NR and SR	41
Edward Sharp House	Camden City	NR and SR	42
Fairview Historic District	Camden City	NR and SR	43
Federal Street Bridge	Camden City	DOE	44
Finance Building	Camden City	NR and SR	45
First Camden National Bank & Trust	Camden City	NR and SR	46
Former US Post Office	Camden City	DOE	47

SITE	LOCATION	TYPE	MAP #
Harleigh Cemetery	Camden City	DOE	48
Inter-County Mortgage and Finance Co.	Camden City	NR and SR	49
James M. Downey Building	Camden City	NR and SR	50
Jesse Starr School	Camden City	DOE	51
Joseph Cooper House	Camden City	NR and SR	52
Macedonia AME Church	Camden City	COE	53
Marcouse Building	Camden City	NR and SR	54
Market Street Historic District	Camden City	DOE	55
Morgan Boulevard Bridge	Camden City	DOE	56
National State Bank	Camden City	NR and SR	57
New Jersey Battery B Armory	Camden City	DOE	58
New Jersey Safe Deposit and Trust Co.	Camden City	NR and SR	59
Newton Avenue Garage	Camden City	DOE	60
Newton Friends Meetinghouse	Camden City	NR and SR	61
Parkside Historic District	Camden City	DOE	62
Pomona Hall (Cooper House)	Camden City	NR and SR	63
Public Service Corporation Building	Camden City	DOE	64
RCA Victor Office Building	Camden City	DOE	65
Ruby Match Factory Building	Camden City	DOE	66
Sears, Roebuck and Co.	Camden City	NR and SR	67
Smith-Austermuhl Insurance Co.	Camden City	NR and SR	68
South Camden Historic District	Camden City	NR and SR	69
South Camden Trust Company	Camden City	NR and SR	70
St. Joseph's Polish Catholic Church	Camden City	SR	71
State Street Bridge	Camden City	DOE	72
State Street Streetscape (400 & 600 Blocks)	Camden City	DOE	73
US Post Office & Courthouse	Camden City	DOE	74
Victory Trust Company	Camden City	NR and SR	75
Volney G. Bennett Lumber Company	Camden City	NR and SR	76
Walt Whitman House	Camden City	NHL, NR, and SR	77
Walt Whitman Neighborhood	Camden City	NR and SR	78
Westfield Acres	Camden City	DOE	79
Wilson Building	Camden City	NR and SR	80
Cooper River Park Historic District	Camden City, Cherry Hill	DOE	81
Barclay Farmhouse	Cherry Hill	NR and SR	82
Bonnie's Bridge	Cherry Hill	NR and SR	83
Gatehouse at Colestown Cemetery	Cherry Hill	NR and SR	84
Inskeep Homestead/Farm Historic Dist.	Cherry Hill	DOE	85
Kay-Evans Farmstead	Cherry Hill	NR and SR	86
Samuel Coles House	Cherry Hill	NR and SR	87
Grant AME Church	Chesilhurst	NR and SR	88
122 Ohio Avenue	Clementon	PE	89
2 Cedar Lane	Clementon	PE	90
217 Berlin Road	Clementon	DOE	91
315 Berlin Road	Clementon	DOE	92
Clementon Amusement Park	Clementon	PE	93
Collings-Knight Homestead	Collingswood	NR and SR	94

Table 6: Historic Resources in Camden County (cont.)

SITE	LOCATION	TYPE	MAP #
Collingswood Circle	Collingswood	DOE	95
Collingswood Commercial Historic Dist.	Collingswood	NR and SR	96
Collingswood Residential Historic Dist.	Collingswood	NR and SR	97
Collingswood Theatre	Collingswood	NR and SR	98
Excelsior Scottish Rite Auditorium	Collingswood	COE	99
Pure Oil Company Service Station	Collingswood	DOE	100
Stokes-Lee House	Collingswood	NR and SR	101
Thackara House	Collingswood	NR and SR	102
401 Monmouth Street	Gloucester City	DOE	103
Gloucester City Mill Blocks	Gloucester City	DOE	104
Gloucester City Water Works Engine House	Gloucester City	NR and SR	105
St. Mary's Roman Catholic Church	Gloucester City	COE	106
Three Timber Crib Wharves	Gloucester City	DOE	107
US Coast Guard Training & Immigration	Gloucester City	DOE	108
Blackwood Historic District	Gloucester	NR and SR	109
Chew-Powell House	Gloucester	NR and SR	110
Gabriel Davis Tavern	Gloucester	NR and SR	111
Solomon Wesley United Methodist Church	Gloucester	NR and SR	112
St. John's Episcopal Church & Burying Ground	Gloucester	NR and SR	113
Colonel Joseph Ellis House	Haddon Heights	NR and SR	114
Glover Fulling Mill Site	Haddon Heights	NR and SR	115
Haddon Heights Post Office	Haddon Heights	DOE	116
Hinchman-Lippincott House	Haddon Heights	NR and SR	117
Isaac Glover House	Haddon Heights	NR and SR	118
John Thorn Glover House	Haddon Heights	SR	119
Station Avenue Business Historic Dist.	Haddon Heights	NR and SR	120
White Horse Pike Residential Historic Dist.	Haddon Heights	NR and SR	121
Ebenezer Hopkins House	Haddon	DOE	122
Newton Union Schoolhouse	Haddon	NR and SR	123
The Ritz Theatre	Haddon	NR and SR	124
Westmont Theatre	Haddon	COE	125
Maple Avenue Bridge	Haddon, Haddonfield	DOE	126
218 E. Park Avenue	Haddonfield	DOE	127
Greenfield Hall	Haddonfield	NR and SR	128
Haddon Fortnightly Clubhouse	Haddonfield	NR and SR	129
Haddonfield Historic District	Haddonfield	NR and SR	130
Hadrosaurus Foulkii Leidy Site	Haddonfield	NHL, NR, and SR	131
Indian King Tavern	Haddonfield	NR and SR	132
Lullworth Hall	Haddonfield	COE	133
Samuel Mickle House (Hip Roof House)	Haddonfield	NR and SR	134
Peter Mott House	Lawnside	NR and SR	135
Ephraim Tomlinson House	Lindenwold	PE	136
11 Linden Avenue	Merchantville	PE	137
127 St. James Avenue	Merchantville	PE	138
15 Morris Street	Merchantville	PE	139
19 Springfield Avenue	Merchantville	PE	140
2 East Maple Avenue	Merchantville	PE	141

SITE	LOCATION	TYPE	MAP #
201 East Maple Avenue	Merchantville	PE	142
210 East Maple Avenue	Merchantville	PE	143
214 Westminster Avenue	Merchantville	PE	144
23 Linden Avenue	Merchantville	PE	145
33 Fithian Avenue	Merchantville	PE	146
401 West Maple Avenue	Merchantville	PE	147
9 Centre Street	Merchantville	PE	148
Arthur Dorrance House	Merchantville	NR and SR	149
Cattell Tract Historic District	Merchantville	NR and SR	150
Centennial House	Merchantville	NR and SR	151
Collins & Pancoast Hall	Merchantville	NR and SR	152
Merchantville Town Center Historic Dist.	Merchantville	DOE	153
The Oaks Historic District	Merchantville	NR and SR	154
Trinity United Methodist Church	Merchantville	PE	155
1505 49th Street	Pennsauken	PE	156
2426 Cove Road	Pennsauken	PE	157
Burrough-Dover House	Pennsauken	NR and SR	158
Burrough-Lawrence House	Pennsauken	PE	159
Griffith Morgan House	Pennsauken	NR and SR	160
Sherwood Terrace Historical District	Pennsauken	PE	161
Universal-Rundle Manufacturing Plant	Pennsauken	DOE	162
Tomlinson House	Pine Hill	COE	163
Glendale Methodist Episcopal Church	Voorhees	NR and SR	164
Solid Rock Baptist Church	Voorhees	PE	165
Voorhees Historical Society	Voorhees	PE	166
Renault Winery Champagne Bottle Advert.	Winslow	COE	167
Spring Garden Inn	Winslow	DOE	168
Woodlynne Log Cabin	Woodlynne	NR and SR	169
Camden & Atlantic RR Historic District	12 Municipalities	DOE	
City of Camden to Atlantic City			
Camden & Amboy RR Historic District	Pennsauken, Camden	DOE	
City of Camden to Amboy			

NHL = National Historic Landmark, property has national significance

NR = National Register of Historic Places

SR = State (New Jersey) Register of Historic Places

SHPO = State Historic Preservation Officer

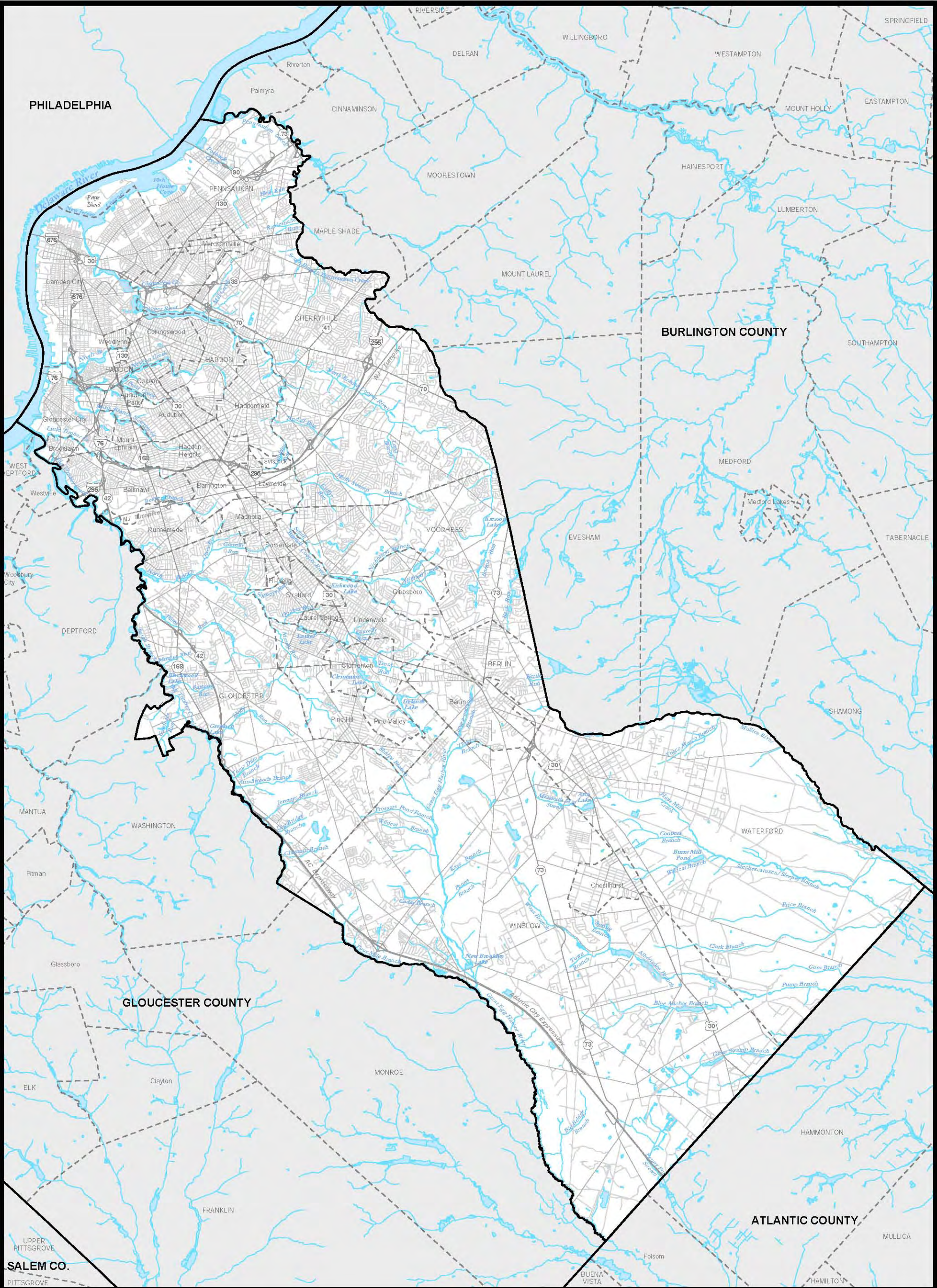
DOE = The New Jersey SHPO has determined the site to be eligible for inclusion in the National Register of Historic Places

COE = Certificate of Eligibility, issued by the SHPO, for properties not already on the SR, the COE satisfies a prerequisite to apply to funds from the NJ Historic Trust, as well as several county preservation funding programs

PE = Potentially Eligible for Listing in the National Register, according to a survey by Kise Straw and Kolodner (KSK)

of Philadelphia. KSK conducted an historic architectural survey of 10 municipalities in Camden County for the Camden County Office of Community Development between 1999 and 2001. The survey built on the recommendations included in The Inter-Municipal Preservation Zoning Study prepared in 1992 by Elizabeth Malesich and Gail Greenberg.

Those sites identified as potentially eligible were all of local significance and were believed to meet certain National Register criteria for their significance in American history, archaeology, architecture, engineering or culture, and posses integrity of location, design, setting, materials, workmanship, feeling and association.



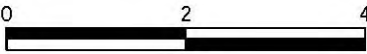
CAMDEN COUNTY : Natural Areas Inventory
BASE MAP

MAP 6

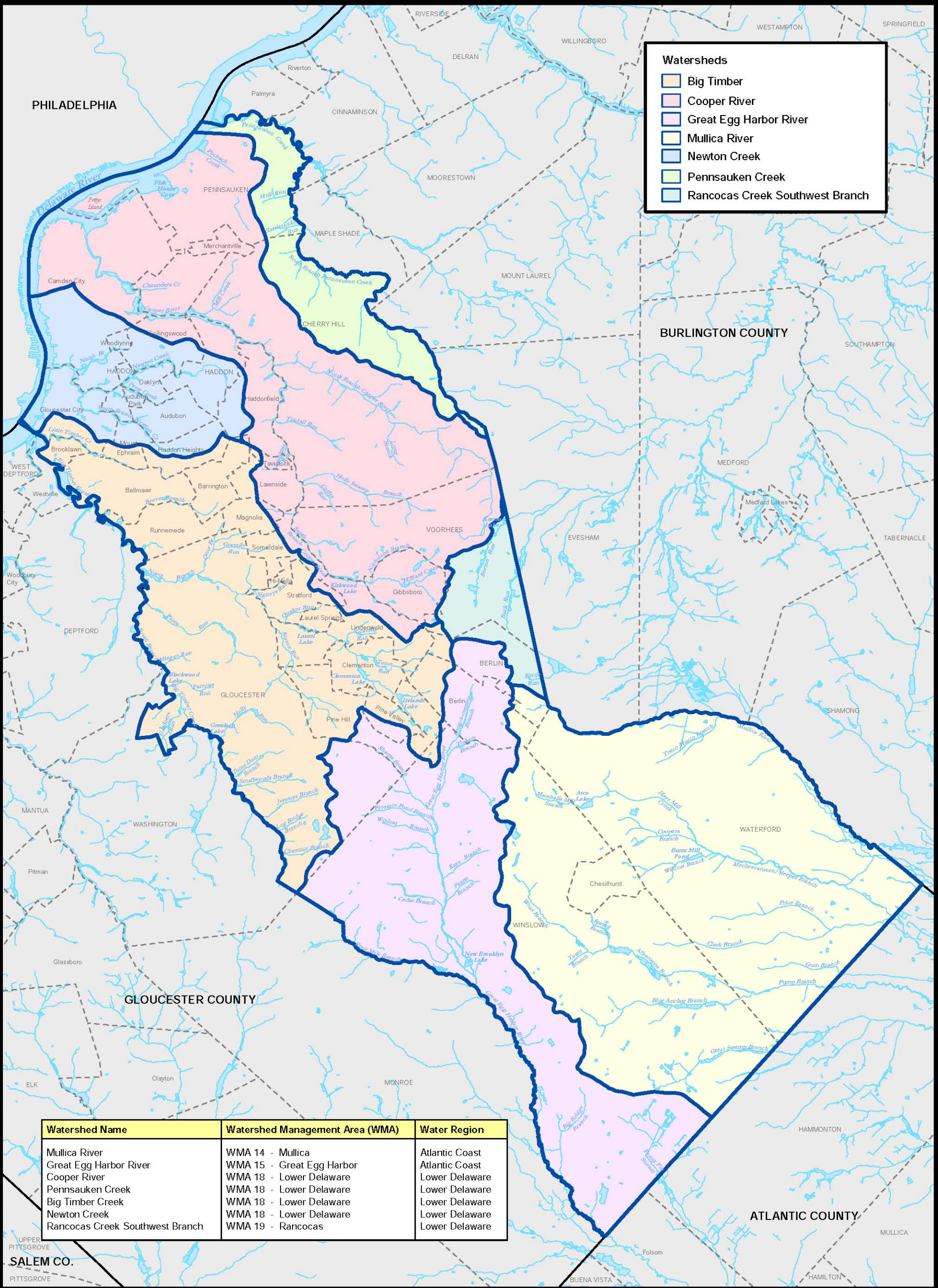
Source : DVRPC, NJDEP
This map was developed using New Jersey
Department of Environmental Protection
Geographic Information System digital data,
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verified by NJDEP and is not state-authorized.



DELAWARE VALLEY
REGIONAL PLANNING COMMISSION
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Miles

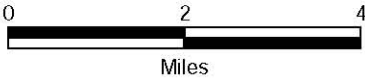


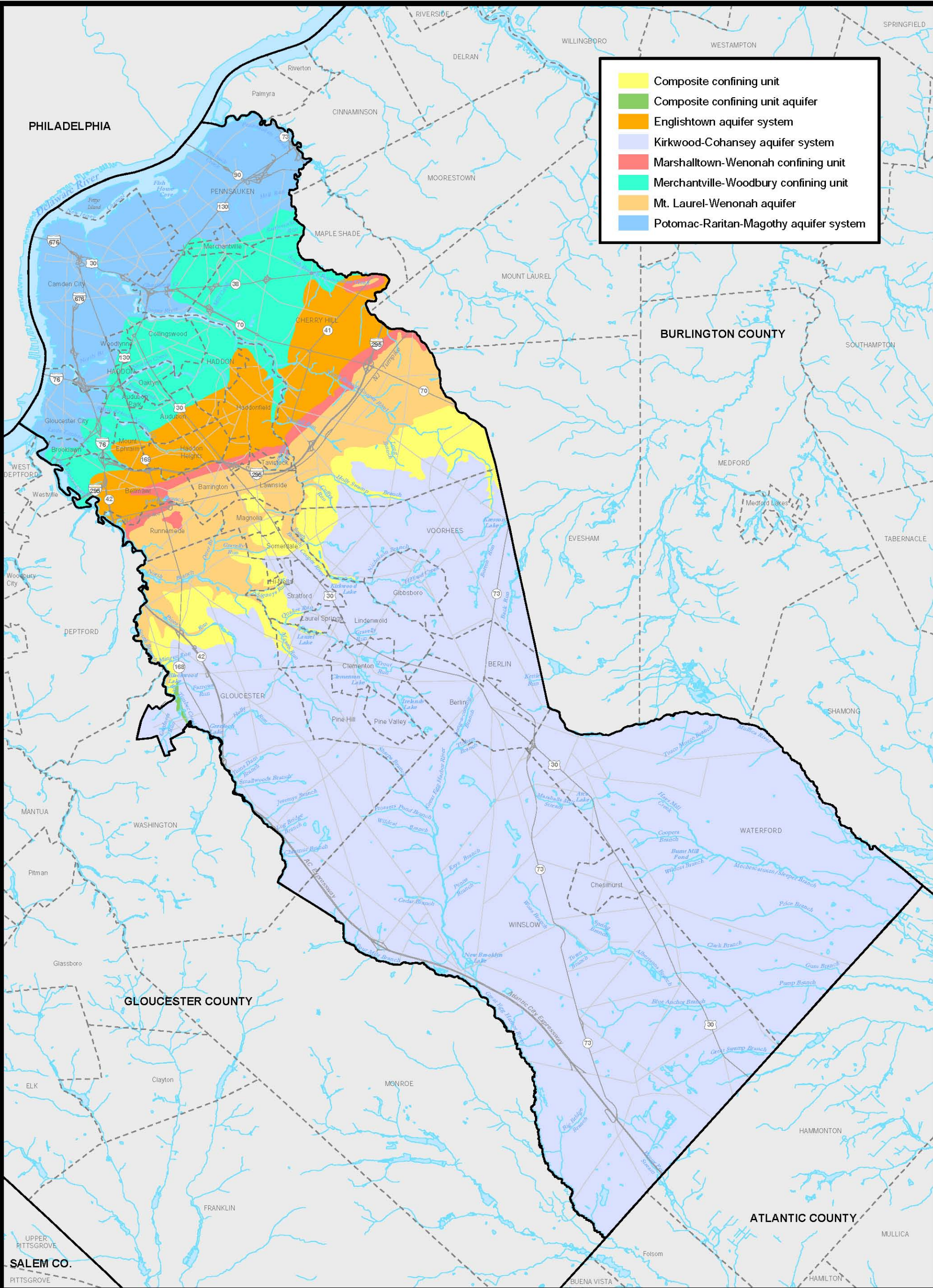
Watershed Name	Watershed Management Area (WMA)	Water Region
Mullica River	WMA 14 - Mullica	Atlantic Coast
Great Egg Harbor River	WMA 15 - Great Egg Harbor	Atlantic Coast
Cooper River	WMA 18 - Lower Delaware	Lower Delaware
Pennsauken Creek	WMA 18 - Lower Delaware	Lower Delaware
Big Timber Creek	WMA 18 - Lower Delaware	Lower Delaware
Newton Creek	WMA 18 - Lower Delaware	Lower Delaware
Rancocas Creek Southwest Branch	WMA 19 - Rancocas	Lower Delaware

CAMDEN COUNTY : Natural Areas Inventory

WATERSHEDS


Source : DVRPC, NJDEP
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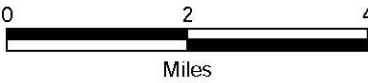


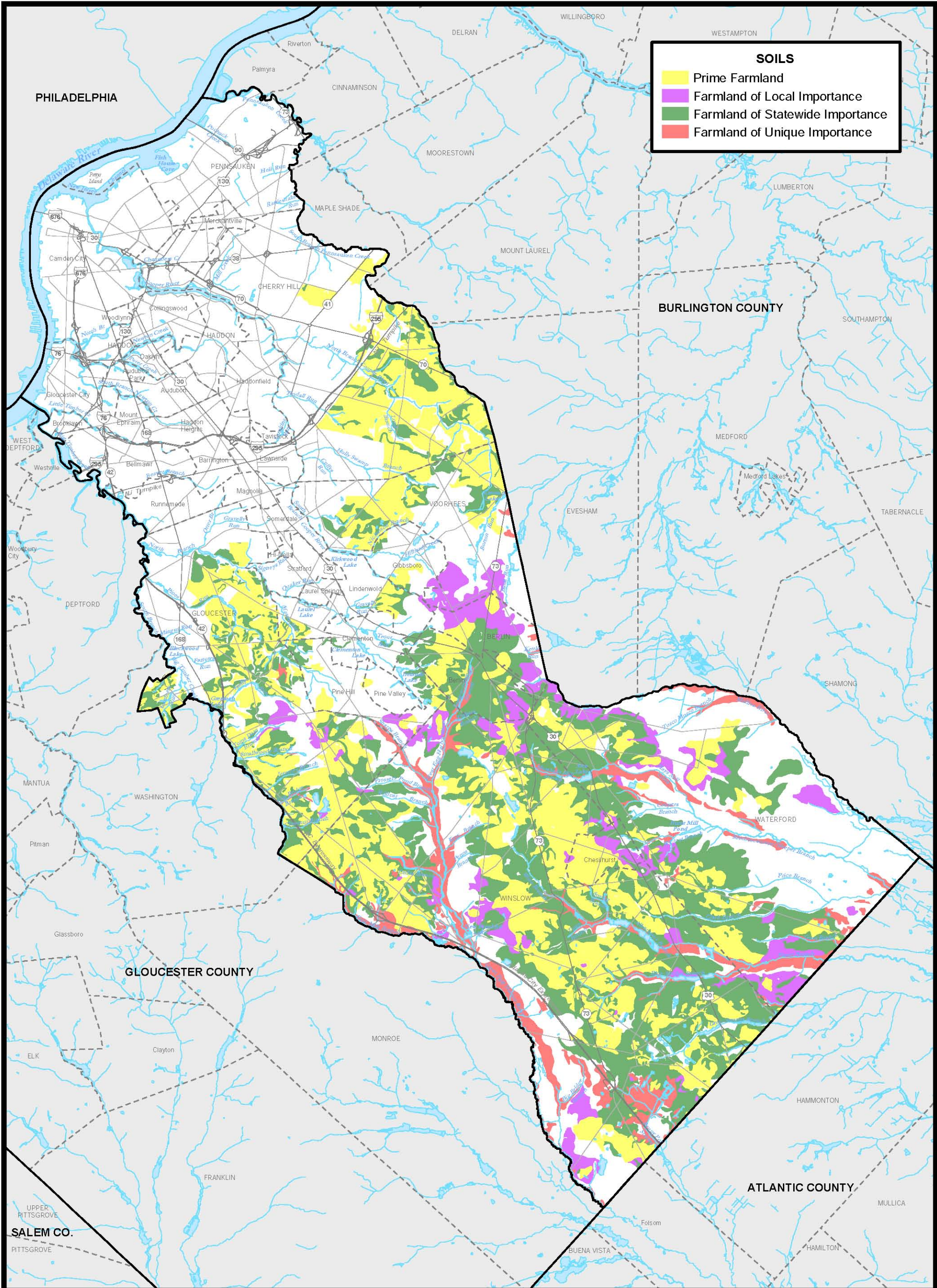


CAMDEN COUNTY : Natural Areas Inventory
AQUIFER RECHARGE AREAS
AND CONFINING UNITS

Source : DVRPC, NJDEP, NJGS
This map was developed using New Jersey
Department of Environmental Protection
Geographic Information System digital data,
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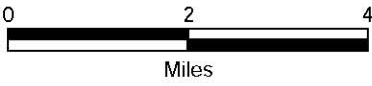


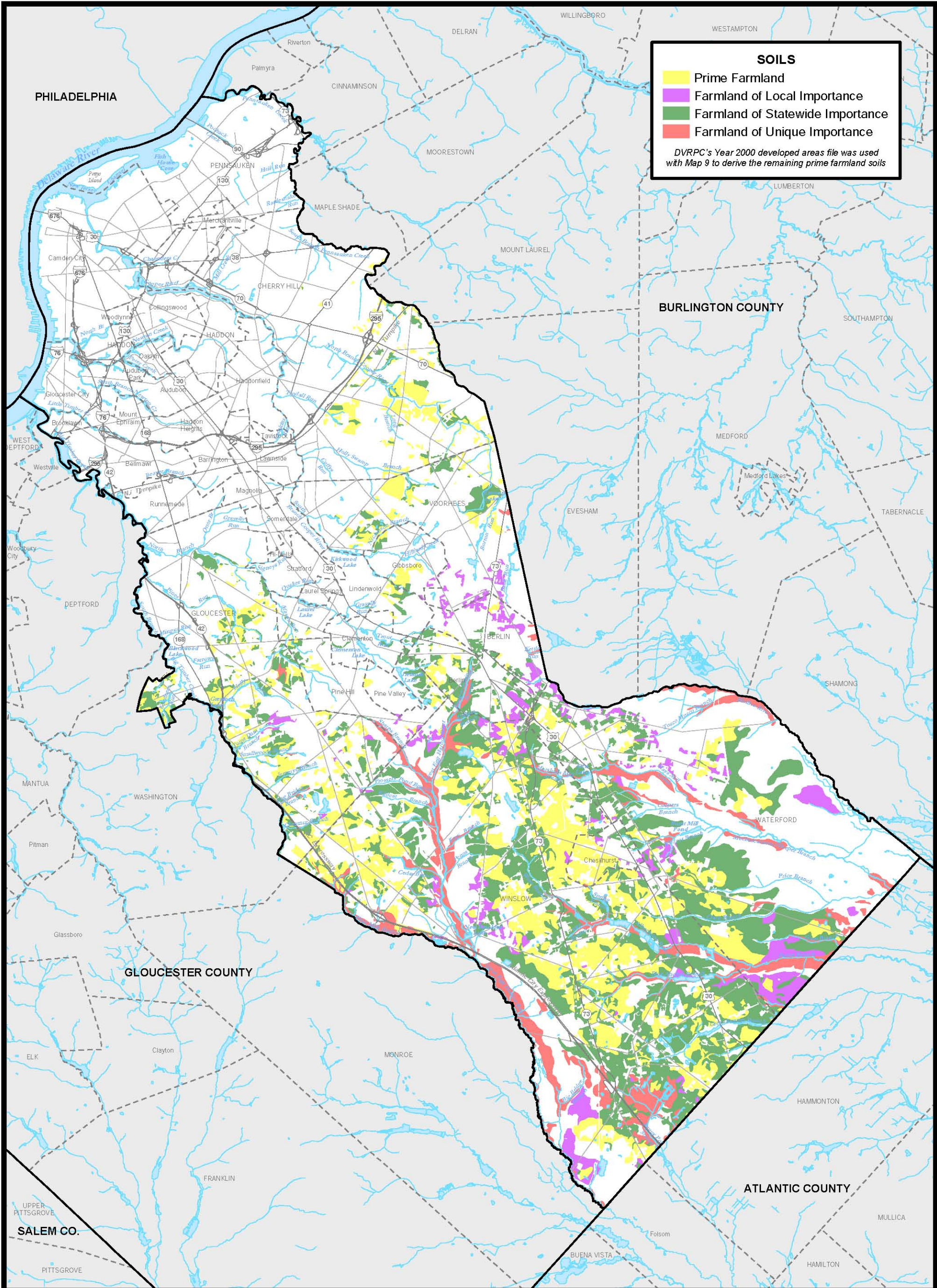
CAMDEN COUNTY : Natural Areas Inventory

PRIME FARMLAND SOILS

Source : DVRPC, NJDEP, NRCS-SSURGO
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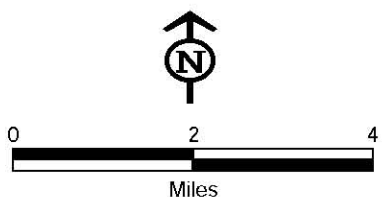


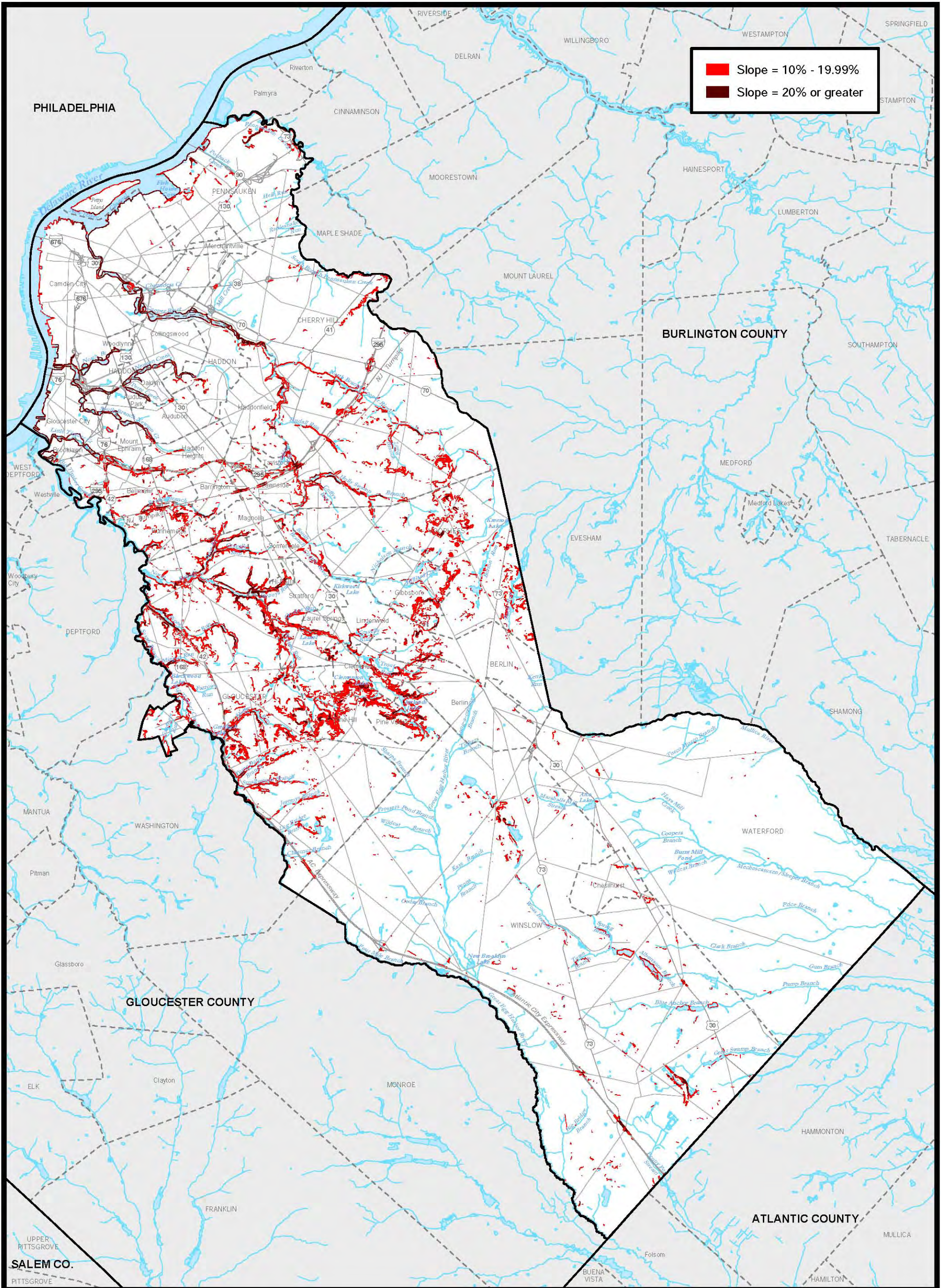
CAMDEN COUNTY : Natural Areas Inventory
REMAINING PRIME FARMLAND SOILS

Source : DVRPC, NJDEP, NRCS-SSURGO
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MAP 10

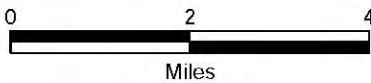


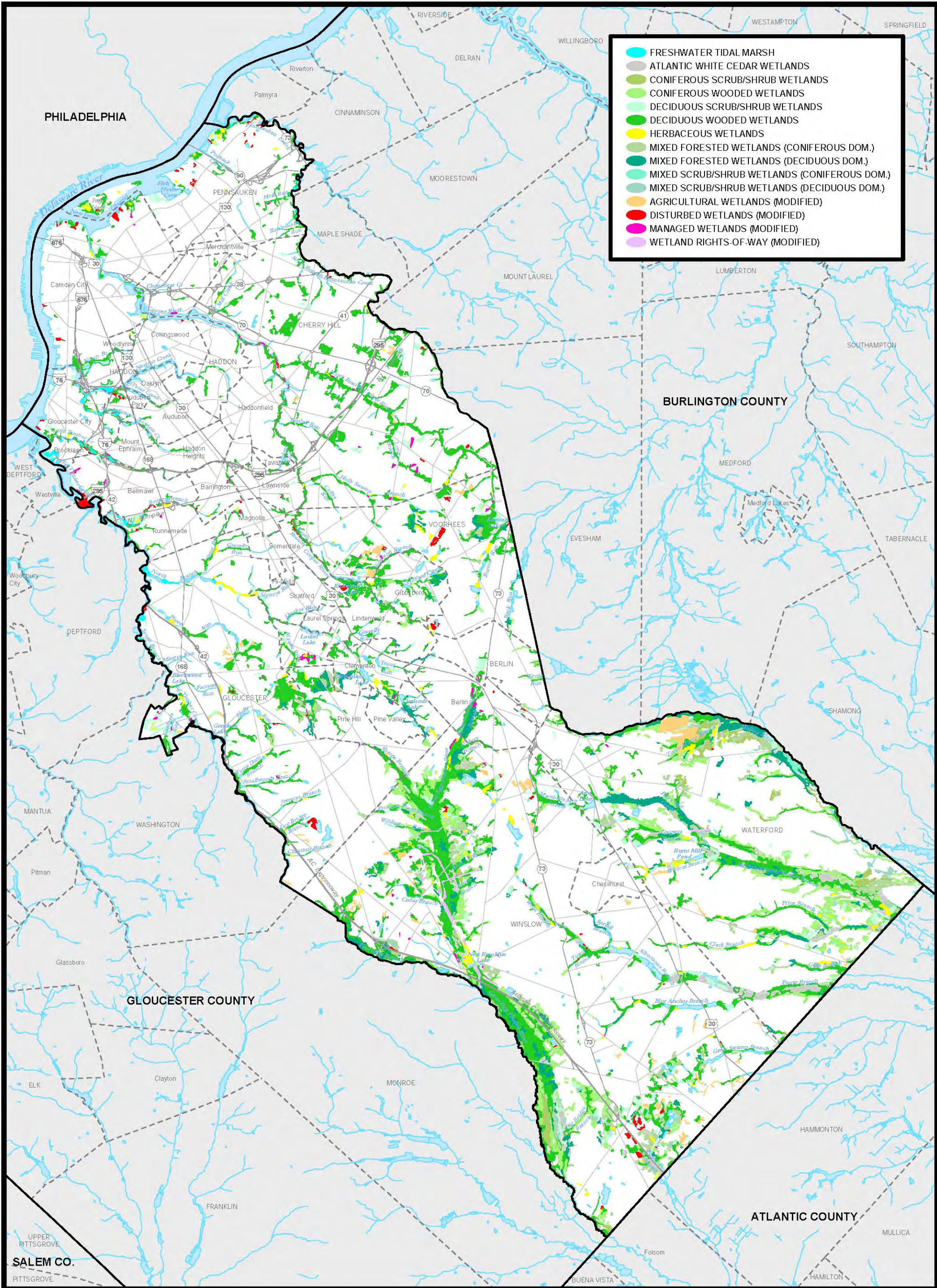


CAMDEN COUNTY : Natural Areas Inventory
STEEP SLOPES

Source : DVRPC, NJDEP
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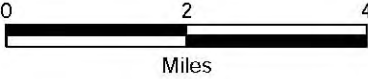


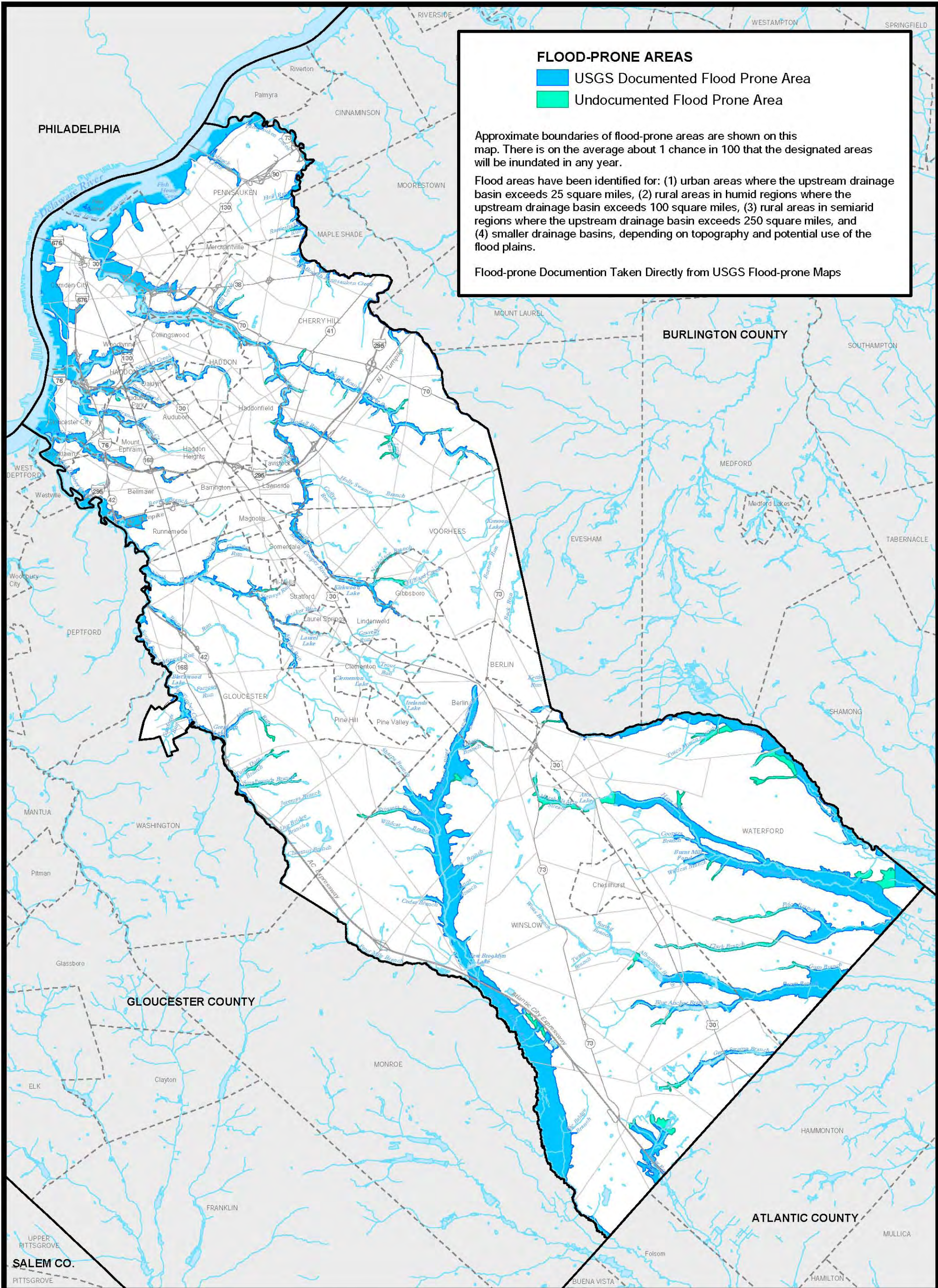
CAMDEN COUNTY : Natural Areas Inventory

WETLANDS

Source : DVRPC, NJDEP
This map was developed using New Jersey
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FLOOD-PRONE AREAS

- USGS Documented Flood Prone Area
- Undocumented Flood Prone Area

Approximate boundaries of flood-prone areas are shown on this map. There is on the average about 1 chance in 100 that the designated areas will be inundated in any year.

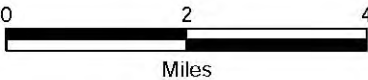
Flood areas have been identified for: (1) urban areas where the upstream drainage basin exceeds 25 square miles, (2) rural areas in humid regions where the upstream drainage basin exceeds 100 square miles, (3) rural areas in semiarid regions where the upstream drainage basin exceeds 250 square miles, and (4) smaller drainage basins, depending on topography and potential use of the flood plains.

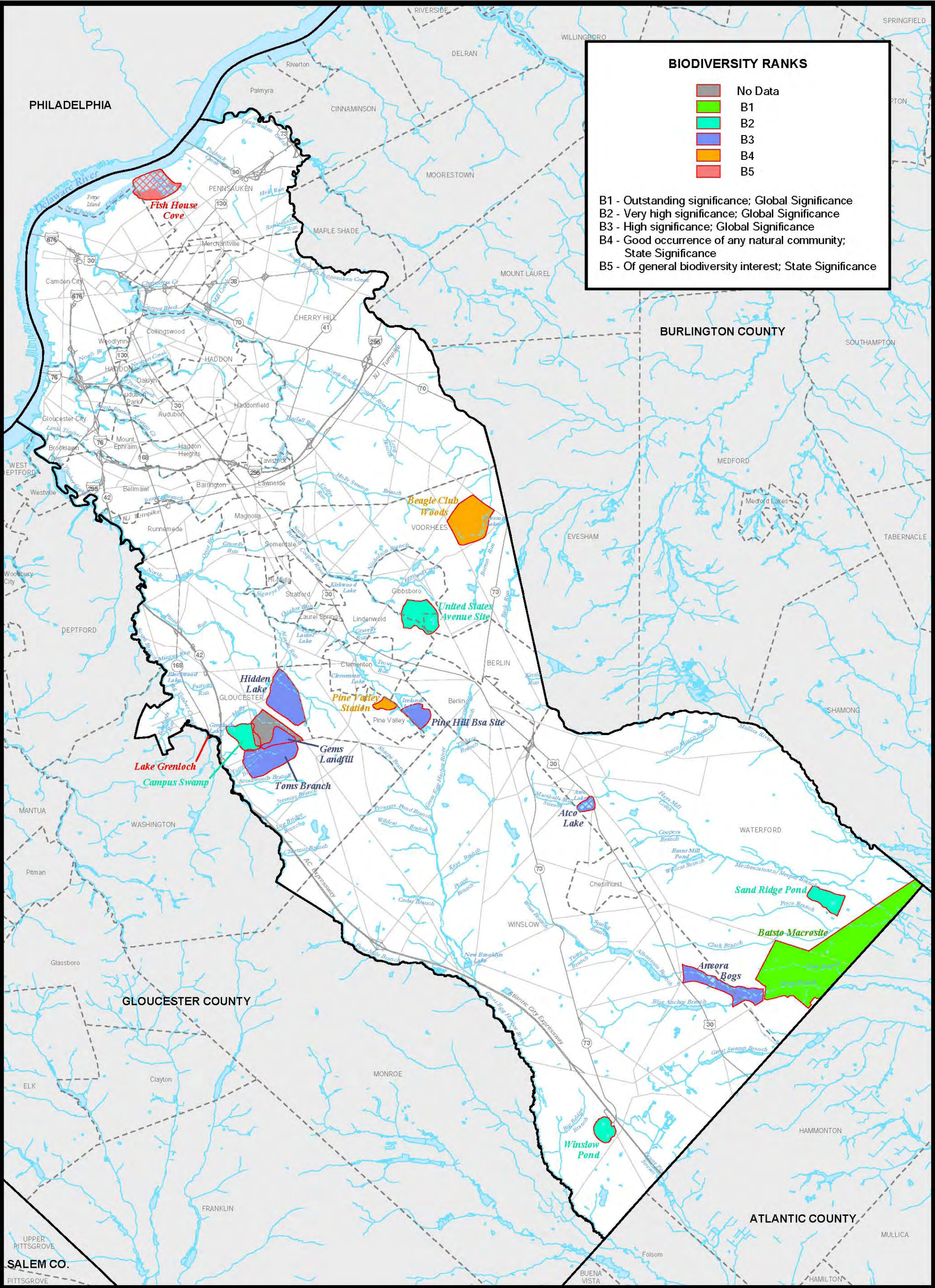
Flood-prone Documentation Taken Directly from USGS Flood-prone Maps

**CAMDEN COUNTY : Natural Areas Inventory
FLOODPLAINS**

Source : DVRPC, NJDEP, USGS
This map was developed using New Jersey
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Geographic Information System digital data,
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DELAWARE VALLEY
REGIONAL PLANNING COMMISSION
MAY 2004



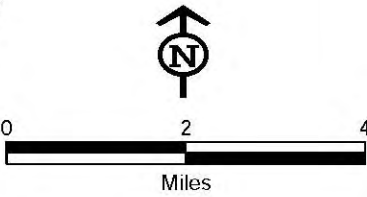


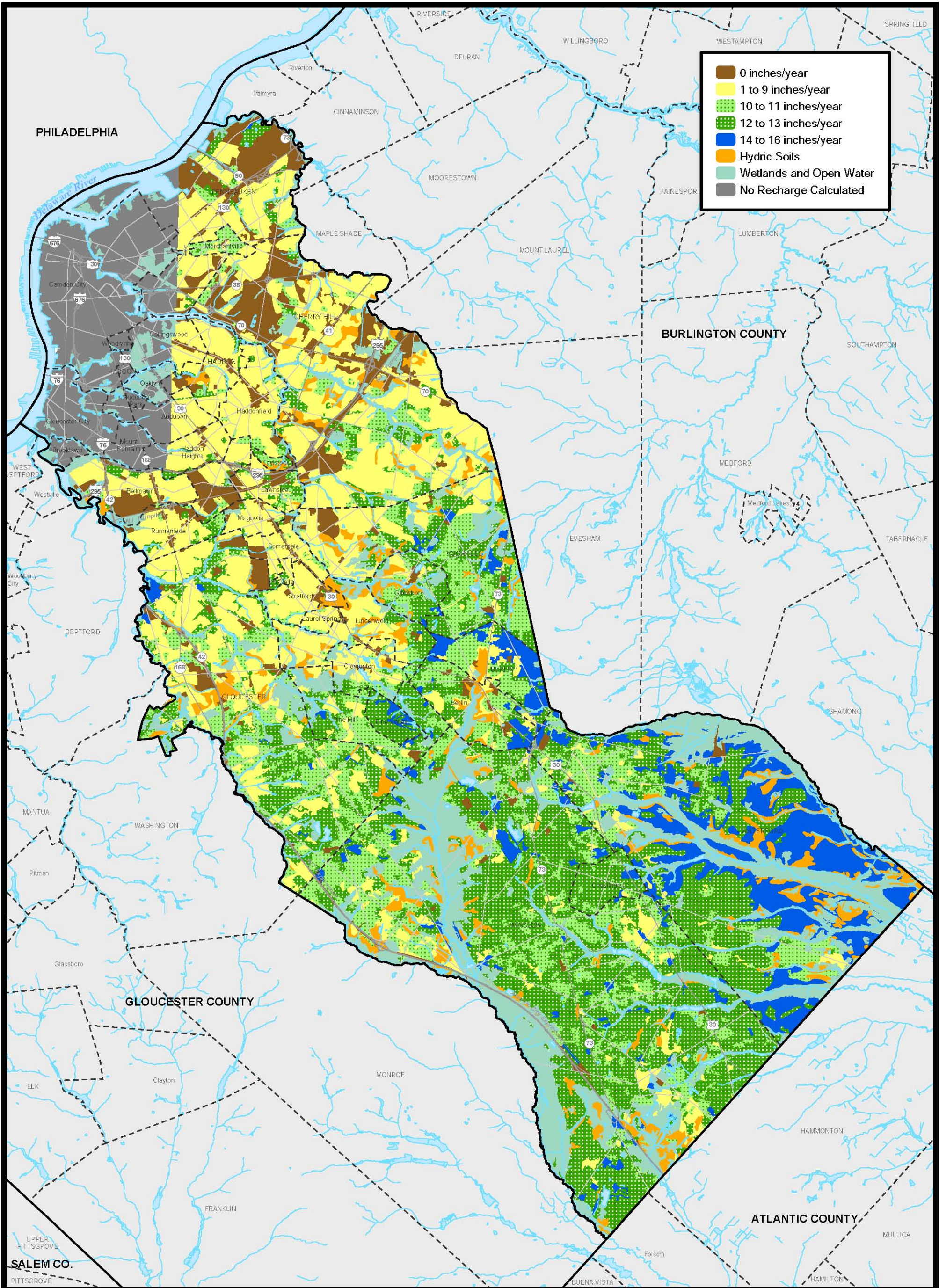
CAMDEN COUNTY : Natural Areas Inventory
NATURAL HERITAGE PRIORITY SITES

Source : DVRPC, NJDEP
This map was developed using New Jersey
Department of Environmental Protection
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 DELAWARE VALLEY
REGIONAL PLANNING COMMISSION
MAY 2004


MAP 14

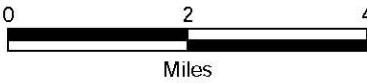


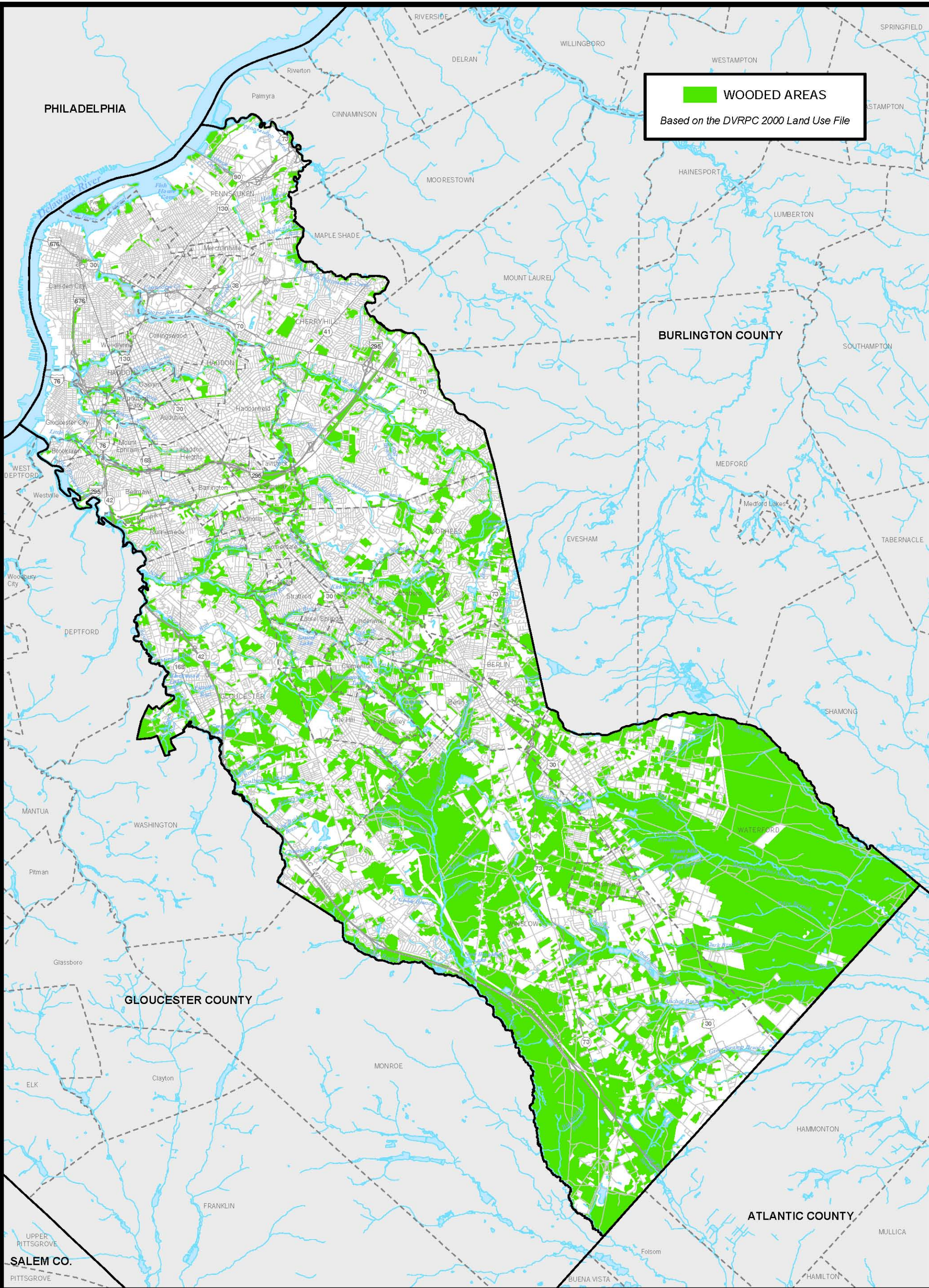


CAMDEN COUNTY : Natural Areas Inventory
GROUNDWATER RECHARGE

Source : DVRPC, NJDEP, NJGS
This map was developed using New Jersey
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 DELAWARE VALLEY
REGIONAL PLANNING COMMISSION
MAY 2004

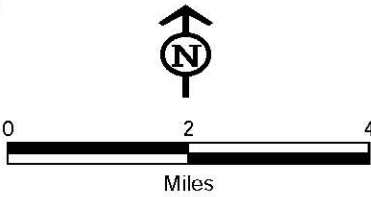


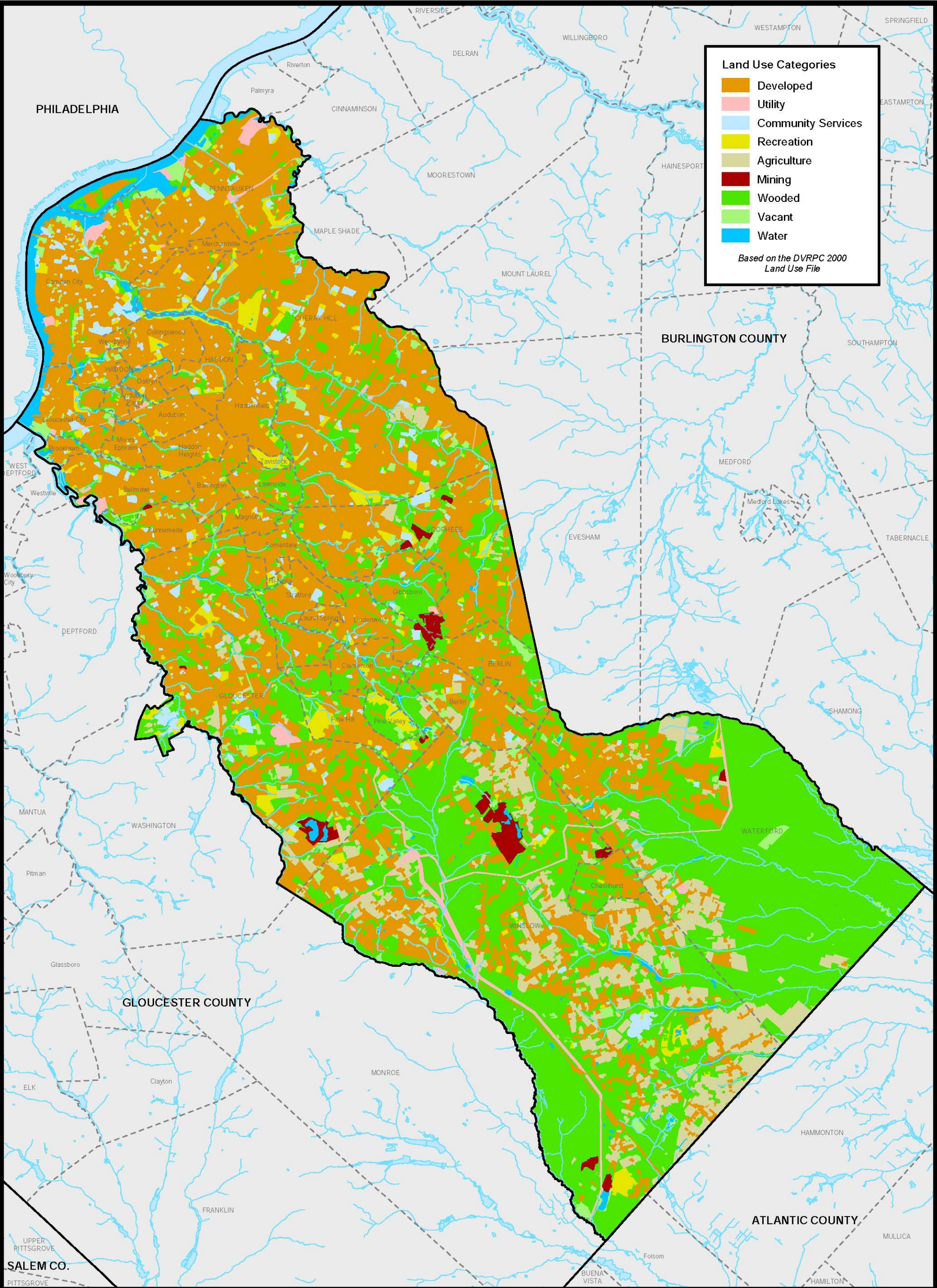


CAMDEN COUNTY : Natural Areas Inventory
WOODED AREAS

Source : DVRPC, NJDEP
This map was developed using New Jersey
Department of Environmental Protection
Geographic Information System digital data,
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verified by NJDEP and is not state-authorized.

 DELAWARE VALLEY
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MAY 2004






Land Use Categories

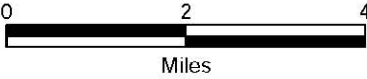
- Developed
- Utility
- Community Services
- Recreation
- Agriculture
- Mining
- Wooded
- Vacant
- Water

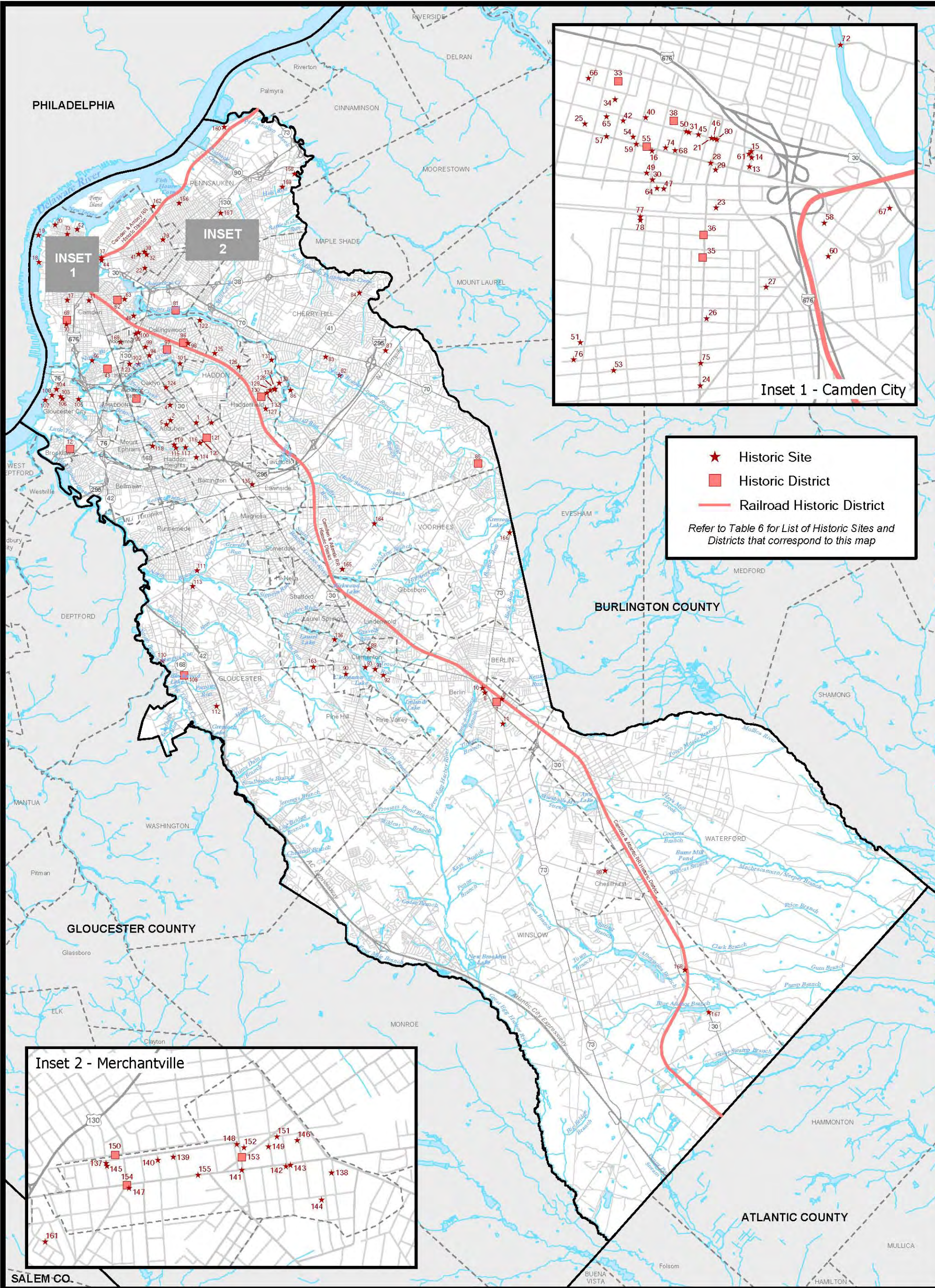
*Based on the DVRPC 2000
Land Use File*

CAMDEN COUNTY : Natural Areas Inventory
LANDUSE - 2000

Source : DVRPC, NJDEP
This map was developed using New Jersey
Department of Environmental Protection
Geographic Information System digital data,
but this secondary product has not been
verified by NJDEP and is not state-authorized.

 DELAWARE VALLEY
REGIONAL PLANNING COMMISSION
MAY 2004



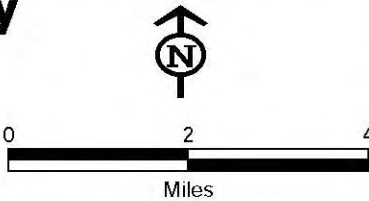


CAMDEN COUNTY : Natural Areas Inventory

HISTORIC RESOURCES

Source : DVRPC, NJDEP, National Park Service
This map was developed using New Jersey
Department of Environmental Protection
Geographic Information System digital data,
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DELAWARE VALLEY
REGIONAL PLANNING COMMISSION
MAY 2004





CHAPTER 4

PROPOSED OPEN SPACE SYSTEM

Camden County has a vibrant recreation and open space system, with 25,976 acres, or 17% of the county in public parkland and another 2,000+ acres of private golf courses, camps, and homeowner association lands. The parks are generally well-distributed throughout the population centers of the county. The county's crown jewel park, Cooper River Park, is centrally situated between the City of Camden and Cherry Hill in a densely populated area and is an excellent example of an existing greenway within the county. Beyond Wiggins Park and the promenade, however, there is very little waterfront access on the Delaware River.

Despite the large amount and reasonably good distribution of parkland in Camden County, the county's sprawling growth pattern since World War II has led to a widespread feeling of loss of open space and scenery within the county. Part of these perceptions are due to development patterns that strip out development along road corridors, leaving little undeveloped road frontage, and to zoning regulations that do not require meaningful (sizeable, accessible, and useful), if any, open space set-asides in subdivisions. Plus, the bulk of the county's total parkland (75% of the acreage) are state forest or wildlife management areas located in the southeastern, less populated, and therefore less accessible, part of the county.

The Proposed Open Space System for Camden County needs to achieve four objectives:

- ❖ It should realize the county's overall goal: "To support the development of a public system of open space which forever preserves the valued environmental, cultural, historic, and scenic features of Camden County and provide sufficient lands to accommodate a variety of active and passive recreational activities";
- ❖ It should be far-reaching by identifying all the lands that should possibly be preserved to meet the county's overall goal, even

if the complete vision may not be achievable due to competing interests and funding limitations;

- ❖ It should prioritize which areas of the proposed system need attention first, based on key factors in meeting the county's goals, as well as measured threat of conversion to other uses;
- ❖ It should define a multi-pronged approach to preserving the system, since one size does not fit all, and no single entity can do it all.

To accomplish these four objectives, the rest of this chapter lays out a comprehensive proposed open space system for Camden County that, if implemented, will achieve the county's goals and objectives. It is far-reaching in that it identifies more open space than the county will actually ever pursue, but, by identifying these countywide open space opportunities, others (municipalities, the state, non-profits, landowners, etc.) may also choose to plan for them and help achieve the vision. To help prioritize what needs to be addressed first, the plan includes a "Threat Assessment" that measures the relative likelihood of any area being converted to other uses. Complementing the Threat Assessment approach to prioritization is a look at "Key Factors". Key Factors are Delaware Riverfront access,

...THE COUNTY'S SPRAWLING GROWTH PATTERNS SINCE WORLD WAR II HAVE LED TO A WIDESPREAD FEELING OF LOSS OF OPEN SPACE AND SCENERY WITHIN THE COUNTY.



Fishing on the Cooper River, courtesy of Fred Stine

Urban Aid Status, Natural Heritage Priority Sites, and Regional Projects, projects on which the county places high value, regardless of the threat of those areas being developed for other uses. Finally, a multi-pronged approach is discussed in Chapter 6 for achieving the Camden County Open Space Vision, since no single entity or source of funding can be expected to realize the vision on its own.

Open Space Prioritization

This section further describes the two-pronged prioritization method applied to the Proposed Open Space System: the Threat Assessment and Key Factors Analysis. There are clearly many ways to prioritize open space areas, and, in fact, the application process itself (see Appendix A) is designed to rank properties' importance to the county based on agreed-upon criteria. The following method is not parcel specific, but rather landscape-oriented to qualify, more than quantify, which proposed open space areas the county Open Space Advisory Committee and Division of Open Space and Farmland Preservation should pursue over others. When more parcel-



Laurel Ravine

specific information is available, it should supersede the outcomes of this analysis.

Threat Assessment:

Due to its excellent road network and transit service, and its proximity to Philadelphia and other major employment centers, all lands in Camden County are under threat of development. However, not all lands are under equal threat. To determine which parts of the county are more likely to be developed than others, DVRPC applied its Threat Assessment Model to show relative development threat across the county. The model was originally developed for Southeastern Pennsylvania under contract to the Media, Pennsylvania-based Natural Lands Trust, as part of their Smart Conservation project. The assessment methodology was developed in 2002 and underwent a year of monthly reviews by an advisory committee of state,

...ALL LANDS IN CAMDEN COUNTY ARE UNDER THREAT OF DEVELOPMENT. HOWEVER, NOT ALL LANDS ARE UNDER EQUAL THREAT.

county, university and non-profit representatives. The data inputs include population and employment forecasts, the DVRPC 2025 land use plan, building permit data, simulated travel time to employment centers, sewer service areas, and a municipality's ability to manage growth based on an audit of its plans and ordinances. The model is somewhat easily transferable to other areas within the DVRPC region, for which DVRPC has the same data available. Again, it is important to note that the model is a "landscape" approach to show an area's relative development threat, and does not account for up-to-date, parcel-specific plan submissions or agreements of sale. When

that data is available, it, of course, supersedes the model. Instead, the model is intended to help the county prioritize its greenway and focus area efforts. An abridged methodology is in Appendix E, and the complete report on the methodology is available as a separate document from DVRPC.

The outcome of the model is shown on Map 19 - Development Threat Assessment. It shows Voorhees Township, Gibbsboro, Gloucester Township, and portions of Pine Hill, Berlin Borough, and Lawnside to be under the highest development threat. Next are Cherry Hill, Haddonfield, Runnemede, and Berlin Township. According to the model, these are the areas of the county that are most likely to have their remaining

open spaces converted to other uses in the near future. The areas under the least development threat, according to the model, are the Pinelands areas of Winslow and Waterford townships. These areas come up as low threat due to the low municipal forecast and building permits issued relative to municipal size, lack of sewer service, long travel distance to major employment centers, and the existence of the Pinelands growth management regulations. These are the areas less likely to undergo significant changes in the near future, according to the model.

Key Factors: The Threat Assessment Model shows most of the urbanized areas of the county under low threat, because these areas are mostly built-out and simply have little room left for more development. Yet many of these areas also contain Key Factors indicating that they should be prioritized for open space investments. **The Key Factors are:**

- ❖ Delaware River Waterfront Access,
- ❖ Urban Aid Status,
- ❖ Natural Heritage Priority Sites, and
- ❖ Regional Project.

The Delaware River waterfront is a Key Factor because it is the major waterway in the area. It could offer a multitude of recreational and scenic opportunities, and the public should have increased access to it. Increased waterfront access would offer

scenic views of Philadelphia, the chance to watch large ships travel by, and economic spinoffs for the communities that provide the access. Designation as an Urban Aid municipality by the state is a Key Factor in the prioritization to ensure that the poorer communities of the county receive their share of county open space investments.

This is especially timely due to the recently announced new Green Acres Open Space Priorities (NJDEP Press Release 7/31/03) which

will allocate greater funding for densely populated, Urban Aid municipalities in the new Parks for People policy initiative. Improving quality of life through the provision of open space amenities in such underprivileged neighborhoods is important on moral grounds, and as a means to stem the flow of residents to greenfields in other parts of the county. Although this plan is not scaled to identify neighborhood parks for creation or restoration, it is acknowledged that pocket parks, community gardens, and street trees within the urban fabric are extremely important to the livability in those communities.

Another Key Factor is based entirely on environmental data – the Natural Heritage Priority Sites. Camden County is blessed and entrusted with 15 such sites of globally or state-endangered species or ecosystems, and should therefore give high priority to preserving them. Finally, regional projects

THE DELAWARE RIVER WATERFRONT IS A KEY FACTOR BECAUSE IT IS THE MAJOR WATERWAY IN THE AREA



Frozen Delaware River from Gloucester City Park, courtesy of www.hoganphoto.com

that extend beyond Camden County are given Key Factor standing because they provide the ability to protect and connect even larger areas, to serve more people, to raise the profile of Camden County, to improve intergovernmental coordination and cooperation, and to bring people into Camden County through eco-tourism.

Each greenway is given a priority ranking of High, Medium or Low, based on a qualitative assessment of the Threat Analysis and the presence of Key Factors. Generally, greenway projects are given High Priority rankings when the area is under high threat of development and there are at least three Key Factors present. In

some cases, there may be fewer Key Factors present, but they are weighted heavier because they are re-occurring within the greenway (i.e. more than one Natural Heritage Priority Site or Urban Aid Municipality within the greenway). Medium rankings are given with two Key Factors and moderate threat, and Low Rankings are given for one or less Key Factors and low development threat.

Proposed Open Space System

The open space remaining in Camden County tends to be of three types, and is therefore organized, displayed, and discussed in three categories: First are the

remaining open lands along stream corridors. These are the **Proposed Greenways**. Second are the larger hubs of open space that still exist, primarily at the southern end of the county, as well as within isolated places within the developed portion of the county. These are the **Proposed Focus Areas**. Third are serendipitous undeveloped lands adjoining parks and other open spaces which may not otherwise be identified as part of a corridor or hub. These are the **Proposed Adjoining Lands As Opportunities Arise**.

A fourth type of potential open space not fully addressed in this plan are brownfields. Brownfields are abandoned industrial sites that have some level of contamination, although they are not Superfund sites. As an older, largely urbanized county, Camden County has 52 preliminarily identified brownfield sites according to a map produced by the NJ Office of Smart Growth. More brownfield sites are likely to be identified in the future. The redevelopment of brownfields provides numerous potential open space opportunities. The Camden County Improvement Authority (CCIA) is currently assessing the best reuse for brownfields in the county, which may, in certain cases, be as parkland. However, the CCIA's analysis is not yet available, so this plan does not generally include recommendations for specific brownfield sites. Nevertheless, where brownfield sites provide crucial open space linkages or would provide needed open space in underserved areas, this



Big Timber Creek near Clements Bridge Road, courtesy of www.hoganphoto.com

plan recommends that their reuse as parkland (provided necessary cleanup is conducted) be considered. Map 23 - Brownfield Locations Compared to Proposed Greenways is included in the plan to help inform the CCIA's brownfield reuse assessment. Appendix F provides more information on the sites shown on the map.

Proposed Greenways: The proposed greenways are based on a detailed analysis of undeveloped corridors of land from the year 2000 aerial digital photography and on four preexisting greenway plans: the Camden Greenways Plan, the Trust for Public Lands (TPL's) River to Bay Greenway; the New Jersey Conservation Foundation (NJCF) Garden State Greenways Project, and the National Park Service's Wild and Scenic River Study for the Great Egg Harbor. The greenway system is largely based on the county's waterways (also evidenced in the greenway names). In addition, connections between the greenways were identified in order to create



Atco Lake

a true open space network, which functions better for both wildlife migration and recreational purposes. Linkages along undeveloped lands were identified where they were available, and when no such connection could be achieved, an on-road connector was identified. Existing and proposed trails were incorporated to provide connections as well. Complete connections between greenways were identified with the thought that the greenways themselves would contain a public access/trail component, and that they should therefore all be connected.

Altogether, 16 greenways are proposed. See Map 20. The following alphabetical list briefly describes each greenway, its priority status, and recommendations for achieving it. Note that not all greenway lands are proposed for acquisition; many greenways can be formalized through land use regulations and good stewardship by landowners. Only greenway areas with noteworthy features like the Delaware waterfront, Natural Heritage Priority Sites, areas appropriate for new parks,

and greenways with trail connections need conservation easements with public access or acquisitions.

1. Atco Lake Greenway: With Atco Lake in the middle, this greenway connects two major preservation areas - the Great Egg Harbor Greenway and the Wharton State Forest - along Marshalls Mill Stream, Hays Mill Creek and the Mechescatuxin Branch of the Sleeper Branch of the Mullica River in Winslow and Waterford Townships. Atco Lake itself is a Natural Heritage Priority Site ranked B3, of high significance and global significance. The greenway's main function would be for natural resource protection around a Natural Heritage Priority Site and one of the headwaters of the Mullica River. The greenway would be best achieved through a combination of acquisition around Atco Lake, and local land use regulations that preserve a minimum 150 foot buffer along the stream corridor. Preservation of the Atco Lake Natural Heritage Priority Site is a High Priority, and is in fact under review by the Open Space Trust Fund Advisory Committee as of the spring of 2004. The other parts of the greenway are Low Priority due to their low threat of development.

2. Big Timber Greenway: The Big Timber Greenway forms a boundary between Camden and Gloucester counties from the creek's mouth at a cove in the Delaware River to where the North and South Branches fork near Clements Bridge Road (Route 41). The aerial photography analysis

showed that development was built right up to the creek's edge in many cases. The New Jersey Turnpike, the 42 Freeway, Route 295, Route 130 and Route 47 all cross the creek, further breaking up the continuity of the greenway. However, there are also opportunities presented in this greenway area. For example, with proper environmental controls, the land fill areas in Bellmawr and Runnemede could be re-used as greenway lands, and the proposed I-295/Route 42 connector could provide right-of-way lands and possible wetland mitigation parcels to augment the greenway. Efforts by bordering Gloucester County municipalities Westville and

Deptford would also be needed to create the greenway. The greenway terminates at the Delaware River, providing an opportunity to increase access to the Delaware Riverfront, especially if the Delaware Waterfront Promenade is achieved in Gloucester City. In addition, this greenway links the North Branch Big Timber Greenway and other southeastern greenways connected to it, to the Delaware Riverfront. Based on these factors, the greenway is a Medium Priority.

3. Camden Greenway: The Camden Greenway is being promoted by Camden Greenways, Inc. as an urban greenway



Big Timber Creek



A foggy day on the Delaware River at Gloucester Park, courtesy of www.hoganphotos.com

along the Cooper River and Delaware River waterfront. The greenway would complete the connection between Cooper River Park and the Delaware River, providing a continuous green ribbon from the Delaware River to Brace Road in Cherry Hill. A greenway on the south side of Petty Island is also included here, though Petty Island is actually part of Pennsauken Township. Camden Greenways Inc. proposes that the greenway be created through a combination of acquisitions and a stream corridor protection overlay ordinance. The Camden Greenways Plan also includes a trail. The Camden Greenway would provide a major connection between an existing park and the Delaware Riverfront, would add public open

space along the Delaware River, and would improve the quality-of-life in an Urban Aid municipality, the City of Camden. Due to these Key Factors, the Camden Greenway is a **High Priority**.

4. Delaware Waterfront Promenade: Like many places throughout the United States that have boosted their quality-of-life and tourism by re-discovering their waterfronts, Camden County should build on and strive to connect the City of Camden's, Gloucester City's, and Pennsauken Township's waterfront redevelopment efforts to create a promenade along the entire length of the Delaware River. A waterfront promenade would offer beautiful views of the

Philadelphia skyline and shores, it would provide "front-row" seats for waterfront-related festivals and celebrations, such as July 4th and New Year's Eve Fireworks, and it would offer unique maritime views of large ships, barges, tug boats, and other, recreational boats that cruise the river. In addition, this walkway would connect to two regional projects: the Delaware River Heritage Trail and the East Coast Greenway. The Delaware River Heritage Trail is a loop trail extending from Trenton down to Palmyra, across to Tacony and back up the Pennsylvania side to Morrisville. The East Coast Greenway is a proposed urban equivalent of the Appalachian Trail, traversing from Maine to Florida. Large portions of the East Coast Greenway are in place, and a Delaware River Promenade would be a welcomed and exciting contribution to this multi-state effort.

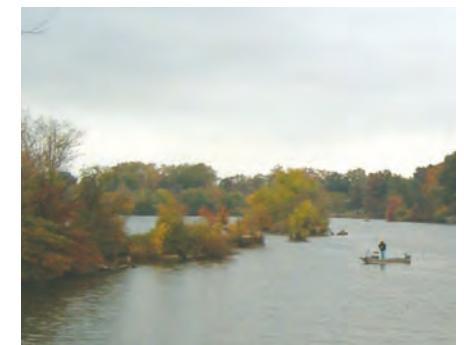
In support of this idea, each of the three municipalities involved has waterfront redevelopment plans that incorporate public walkways along the Delaware.

The City of Camden has been actively working toward creating a mixed-use waterfront community that includes a wide offering of family entertainment and cultural attractions, as well as office buildings, a hotel-conference center, and new residences since 1984, when Cooper's Ferry Development Association was formed to oversee the process. Since that time,

redevelopment accomplishments include a marina and waterfront park and promenade, the New Jersey State Aquarium and Children's Garden, the Tweeter Center at the Camden Waterfront, Campbell's Field, the battleship New Jersey Museum, One Port Center, and the conversion of the Nipper Building into luxury apartments. The Camden waterfront is connected to Penn's Landing by the Ben Franklin Bridge, PATCO line, ferry service, and, in the future, by the proposed aerial tram.

The City of Camden's Land Use Plan of their Master Plan shows a greenway/green corridor from the mixed-use waterfront area north to the border with Pennsauken. Most of the greenway hugs the river shoreline, with the exceptions just north of the Ben Franklin Bridge, where the green corridor is inland to the Riverfront Prison and dredging business. The greenway then goes back to the shoreline, to the mouth of the Cooper

A WATERFRONT PROMENADE WOULD OFFER BEAUTIFUL VIEWS OF THE PHILADELPHIA SKYLINE AND SHORES...



Fisherman on the Cooper River, courtesy of Fred Stine

River up to 36th Street. Port-related industry lies south of the mixed-use waterfront area and the land use plan shows only two waterfront access points, one at Jackson Street and the other at Newton Creek.

The county open space plan differs from the city land use plan by showing a conceptual waterfront promenade along the entire shoreline, including through what is now port-related industry. The county plan intends this to be a long-term goal, to be implemented over time as land uses change and opportunities arise. Ultimately, a waterfront promenade extending the length of the city's shoreline would serve as a unifying element in Camden's renaissance.

Gloucester City also has plans to redevelop their waterfront and improve public access. The city has extensive frontage on three bodies of water (Newton Creek including north and south branches, Big Timber Creek/Little Timber Creek, and the Delaware River), but there are only two parks that are adjacent to waterways - the Newton Creek Recreational Complex and Proprietors Park on the Delaware River. According to the city's Recreation Element of their current Master Plan, the Zoning Board of Adjustment recently approved plans to redevelop the former Coast Guard Station as a rack storage, marina, restaurant, and commercial facility.

THE PROPOSED DELAWARE WATERFRONT PROMENADE, IS A LONG-TERM PROJECT THAT CAN BE ACHIEVED INCREMENTALLY.

The proposed redevelopment of the site includes a public access walkway around the water's edge of the pier. Proprietors Park sits only 170 feet south of the Coast Guard Station redevelopment site. The proximity of the park to the proposed marina/restaurant/commercial complex presents the city with an opportunity to create a recreational focal point at a prominent location along the Delaware River in between the Holt Port Facility and the Gloucester Point industrial area. The city's goal is to ultimately compile a critical mass of river-related recreational uses to establish and stabilize the recreational component along the river. A river promenade linking up with the City of Camden would support the Master Plan recommendation.

Similar to the City of Camden and Gloucester City, Pennsauken Township has a redevelopment plan for the waterfront area, and will have completed a newer waterfront plan by the summer of 2004. The draft waterfront plan shows about 5 miles of waterfront walking trails, including paths on Petty Island, boardwalks through wetland areas adjacent to Fish House Cove (a Natural Heritage Priority Site), and a continuous walkway up to the Pennsauken Creek. The proposed walkways take advantage of the river amenities to enhance future redevelopments in Pennsauken's waterfront area.



View from the Big Timber Creek of the Philadelphia skyline

The public promenade along the Delaware River shoreline is a **High Priority** because it goes through three Urban Aid municipalities (Pennsauken, City of Camden and Gloucester City), it maximizes access to the Delaware waterfront, it incorporates a Natural Heritage Priority Site, and it is part of two regional projects: the Delaware River Heritage Corridor and the East Coast Greenway. There are a number of brownfield sites along the river that are ripe for redevelopment, and having a plan for a continuous walkway paralleling the river is important to ensure that public access and waterfront trails are incorporated into future redevelopment



The Federal Street Bridge, courtesy of Fred Stiene

plans. Fortunately the Cramer Hill Redevelopment Project proposed by Cherokee Camden in September 2003, shows a continuous multi-use trail and green buffer from Cooper River to 36th Street, the border with Pennsauken.

It is also recognized that there are currently active uses along the Delaware, namely heavy industry and port uses, that are important to the regional economy and are largely incompatible with public access. The proposed Delaware Waterfront Promenade, therefore, is a long-term project that can be achieved incrementally. As land uses change and redevelopment occurs, public access to

the waterfront with a trail component that links to other waterfront trails should be incorporated into redevelopment plans. Although it is a long-term goal, having the promenade in the county open space plan helps to keep the vision of a unified Delaware waterfront promenade alive and viable.

5. Fourmile Branch Greenway: This proposed greenway encompasses a major tributary of the Great Egg Harbor River which forms part of the boundary between Winslow Township and Monroe Township in Gloucester County. The greenway is anchored on the west by Fourmile Branch Park, a municipal park in Winslow, and is

bounded to the north by the Atlantic City Expressway. Although the expressway has an interchange adjacent to the greenway, the existing development patterns have left a swath of open space along the creek allowing the greenway to be formalized through additional planning and negotiations. Based on its moderate development threat coupled with the Urban Aid status of Winslow Township, the greenway is a **Low Priority**.

6. Great Egg Harbor Greenway: This proposed greenway follows the delineation of the Great Egg Harbor Wild and Scenic Study area, anchored by the Winslow Wildlife Management Area to the south and Berlin Park to the north. This is a uniquely beautiful and ecologically important area of the county, and is part of an even larger effort that goes all the way to the Great Egg Harbor River's mouth at the Atlantic Ocean. Most of this greenway is within the Pinelands National Reserve, with permitted land uses and densities determined by the Pinelands Comprehensive Management Plan (PCMP). The area directly adjacent to the Great Egg Harbor River is designated as Forest Area by the PCMP. Permitted uses in the Forest Area are forestry, cultivation of berries and native plants, and operation of recreational facilities, such as canoe rental services and campgrounds designed with minimal impact on the landscape. Other limited commercial establishments, and housing at a density of one unit to 15.8 acres is also permitted. The Great Egg Harbor Greenway also has land designed

as Rural Development Area in the PCMP. This designation permits modest development at an overall density of 200 units per square mile, or one unit per 3.2 acres.

Because this greenway is largely within the Pinelands, Camden County should work cooperatively with the Pinelands Commission, which oversees all development within the Pinelands. The Greenway is **High Priority** based on its regional nature and Urban Aid status. It can be achieved through a combination of acquisitions and land use regulations, including the added reviews necessary due to its Wild and Scenic status.

7. Great Swamp Greenway: This is a small greenway within Winslow Township that would connect the Winslow Wildlife Management Area to Wharton State Forest. The Great Swamp is a branch of the Mullica River, and it also falls within the Pinelands Agriculture Production Area, which limits new, non-farm related housing to 1 dwelling unit per 40 acres. The greenway should be achieved through vegetated stream buffers of at least 150 feet wide, in coordination with the Pinelands Commission. Although it is low threat, it is anchored by Winslow Pond, a Natural Heritage Priority site ranked as globally significant, and it is located in an Urban Aid municipality. The Great Swamp Greenway is therefore ranked a **Medium Priority**.



Park Drive



Lake Worth



Slim's Ranch

8. Hobb Lake Greenway: This proposed greenway links the West Atco Greenway with Wharton State Forest, along the Woas and Albertson's Branches of the Pump Branch, a tributary of the Mullica River. Hobbs Lake, also referred to as Bates Sawmill Pond and Lake of the Four Fountains, is on Blue Anchor Road in Winslow Township. The upper portion of the greenway is in the Regional Growth Area of the Pinelands, which permits base densities ranging from 1 to 3.5 dwelling units per acre in public sewer service areas. (This portion of Winslow is sewered). The majority of the greenway is in the Agricultural Production Area, limiting

development of new non-farm related housing to one unit per 40 acres. Although Hobb Lake is located in Winslow, an Urban Aid municipality, the greenway is ranked a **Low Priority** based on its low development threat and absence of other Key Factors.

9. Little Timber Greenway: This small greenway extends from the creek's mouth at a cove on the Delaware River, to the municipal border of Mt. Ephraim Borough. After that point, there is little available streamside land according to the aerial photography analysis. A proposed realignment of I-295/NJ Route 42 is under review by the New Jersey Department of Transportation, providing an opportunity to bolster this greenway with excess right-of-way and wetlands mitigation parcels. Nearby institutional uses with open space, such as New St. Mary's Cemetery and the adjacent parochial school could also be woven into this greenway. The greenway borders Gloucester City, an Urban Aid municipality, and it terminates at the Delaware River, another Key Factor. It is under low development threat because the area is built-out. Meeting the above two Key Factors makes this greenway a **Medium Priority**.

10. Newton Creek Greenway: This greenway includes the North and South Branches, Peter Creek, and Newton Lake in the following municipalities: City of Camden, Woodlyne, Haddon Township, Collingswood, Oaklyn, Audubon Park, Audubon, Haddon Heights, Mt. Ephraim



Pennsauken Creek

and Gloucester City. This is an older, high-density, built-out area of the county, where the presence of green space is especially important to enhancing the quality of life and livability in the area. This greenway is also proposed by Camden Greenways, Inc., and can link to the existing greenway along the Cooper River through Collingswood's Knight Park and Browning Road. A link to the Little Timber Creek Greenway to the south is proposed through Gloucester City near the Gloucester City Junior and Senior High School.

The Newton Creek Greenway can be best achieved through good landowner stewardship and formalizing the greenway through landowner research and new conservation easements or public acquisitions, as opportunities arise. The greenway borders two Urban Aid communities, City of Camden and Gloucester City, and it terminates at the Delaware River. It is under low development threat because the area is fully



A bike path in Gibbsboro

developed. Meeting the above two factors makes the greenway a **Medium Priority**.

11. North Branch Big Timber Greenway :

This greenway is primarily along the North Branch of the Big Timber Creek, with some extensions going north and south to connect with the River to Bay Greenway Spine B and with the South Branch Big Timber Greenway, respectively. This greenway shows great potential because it already has a large number of parks along it, and it is in a developed portion of the county that would derive great benefit from additional open space and recreation resources. Two recent county acquisitions form the north and south

anchors of this greenway - Slims Ranch in the north and Lake Worth in the south. These two parks should be connected through acquisitions in order to also provide a trail. Other areas of the greenway can be protected through a combination of easements and land use regulations, such as steep slope ordinances to protect the ravines along the creek. The proposed greenway also incorporates the Hidden Lake Natural Heritage Priority Site. The North Branch Big Timber Greenway is a **High Priority** due to its high development threat, Urban Aid status, incorporation of a Natural Heritage Priority Site, and its ability to connect two recent major county park additions.

12. Pennsauken Creek Greenway: The Pennsauken Creek and the South Branch of the Pennsauken Creek form the boundary between Camden and Burlington County from the Delaware River to Route 70 at the Evesham Township border. There is a lot of municipal parkland along the South Branch in Cherry Hill Township, and the aerial interpretation shows an existing green buffer along most other parts. Based on the development patterns viewed from the aerial interpretation, it is suspected that much of this green buffer may be subdivision set-aside lands rather than in individual homeownership. Formalizing the Pennsauken Greenway may therefore not involve acquisition so much as ownership research and negotiations.

FOCUS AREAS SHOW THE AREAS REMAINING IN THE COUNTY THAT ARE IMPORTANT TO PRESERVE PRIMARILY FOR ECOLOGICAL REASONS.

Since the Pennsauken Creek forms the boundary with Burlington County, efforts from Burlington County or the municipalities of Palmyra, Cinnaminson, Maple Shade, Mount Laurel, and Evesham will also be needed to create the Pennsauken Greenway. According to conversations with staff at the Burlington County Office of Resource Conservation, the only known Pennsauken Creek greenway plans are in Palmyra Borough. Palmyra Borough hosts the Palmyra Cove Nature Park, a new, approximately 350 acre state owned park with an environmental center and trails, opened in 2003, and managed by the Burlington

Bridge Commission. Adjacent to the park is an approximately 190 acre Redevelopment Area. Plans for the redevelopment area include creating a buffer along the Pennsauken Creek, with trails that would tie into Palmyra Cove Nature Park and the Delaware River Heritage Trail. The Pennsauken Creek Greenway is a **Medium Priority** based on its moderate threat, Urban Aid status for Pennsauken, connection to the Delaware River Heritage Trail, and the large amount of existing parkland along the creek.

13. River to Bay Greenway Spine A :

When the Trust for Public Land conducted the Delaware River to Barnegut Bay Greenway Framework and Concept Plan, they called the North Branch of the Cooper River Spine A and the South Branch Spine B. Spine A continues past the North Branch's headwaters in Voorhees to connect with Wharton State Forest in Waterford Township. The greenway already encompasses many municipal parks in Cherry Hill and Voorhees Townships, and what is not parkland is still open, offering the possibility of a continuous green connection from the state forest to the Delaware River. Because a trail connection is part of the concept for the River to Bay Greenway, acquisition and conservation easements with public access need to be the primary strategy. The Spine A River to Bay Greenway is a **High Priority** due to

its regional nature, relative high threat of development, connection to the Delaware River waterfront, and incorporation of the Beagle Club Woods Natural Heritage Priority Site.

14. River to Bay Greenway Spine B: In the original TPL framework plan, Spine B followed the South Branch of the Cooper River to its headwaters in Gibbsboro, and then down to Pine Hill Borough, where it then reconnected with Spine A through Berlin Borough and Township. That connection is maintained in the county plan, but Spine B is also continued south to connect with the Great Egg Harbor Greenway. Acquisition and easements

with public access are the primary strategies to provide the trail linkages. The Spine B River to Bay Greenway is a **High Priority** due to its regional nature, relative high threat of development, its incorporation of three Natural Heritage Priority sites (United States Avenue, Pine Hill Bsa Site, and Pine Valley Station, ranked B2, B3, and B4, respectively), and its connection to the Delaware River waterfront.

15. South Branch Big Timber Greenway : This proposed greenway begins where the South Branch of the Big Timber Creek forks from the North Branch, just upstream of Clements Bridge Road (Route 41). The aerial photography analysis showed that development was built right up to the creek's edge in many cases, and the area lacks parkland. The greenway would link

Blackwood Lake with Grenloch Lake, and could incorporate existing open space at the Camden County Community College and the Lakeland complex. In addition, four Natural Heritage Priority Sites are adjacent to this greenway: Grenloch Lake, Campus Swamp, Toms Branch and Gems Landfill. In addition, the greenway is in a High Threat area and an Urban Aid municipality; Gloucester Township. The South Branch Big Timber Creek Greenway is therefore considered a **High Priority**.

TRAILS FOR BIKING, WALKING, JOGGING, ROLLER BLADING, AND EVEN CROSS-COUNTRY SKIING ARE BECOMING EVER MORE POPULAR FORMS OF EXERCISE, RECREATION AND TRANSPORTATION.

16. West Atco Greenway: This greenway connects the Great Egg Harbor Wild and Scenic Designated Area Greenway with Wharton State Forest. This greenway is unique in that it does not follow a waterbody, as all the other greenways do, but is instead identified as an existing open space corridor that could provide a direct connection between two other major open spaces. The greenway falls mostly within the Regional Growth Area of the Pinelands and could be achieved through conservation design ordinances that should be recommended as part of the Pinelands Excellence Program for Winslow. The West Atco Greenway is a **Low Priority** due to its low development threat.

Focus Areas: The Focus Areas are based on the New Jersey Conservation Foundation's Garden State Greenways Project, which analyzed existing GIS data to identify hubs of ecological importance



Runners enjoying a trail in Samost

across the state. The resource considerations included in the hub data GIS analysis are surface water quality impact, patch size/contiguity, rare species, resource protection/gaps, groundwater recharge, biologically productive soils, and agriculturally productive soils.

Four types of Hubs are identified in the method for Camden County:

- ❖ Farmland/Grassland
- ❖ Emergent Wetlands
- ❖ Forested Wetlands - Pinelands
- ❖ Upland Forest - Piedmont

These were mapped for the county, and DVRPC drew boundaries around clusters of the hubs and termed them "Focus Areas."

The Focus Areas are essentially clusters of different types of NJCF identified hubs of statewide ecological importance. They are given names based on their locations. See Map 22.

These Focus Areas show the areas remaining in the county that are important to preserve primarily for ecological reasons. In most cases, the Focus Areas are also appropriate for passive recreation (trails, bird watching, fishing, boating, picnicking, etc.) which will allow people to enjoy the environment without negatively impacting it. Preservation of the Focus Areas also provides groundwater recharge, farmland preservation, and wildlife habitat.



Bike crossing in Gibbsboro

The NJCF model allows the local user to prioritize hubs based on different criteria that are important to the user. However, this was not done for the Camden County Plan. Instead, the Threat Assessment is used to help prioritize which Focus Areas should receive attention first, before they are developed for other uses. A variety of acquisition, easement, regulatory, and stewardship techniques will be needed to protect these areas. **The focus areas are ranked below:**

High Priority: Headwaters, Hub, Cooper and Rancocas Headwaters, Hidden Lake, Natural Heritage Priority Site Hub, Stafford Farm Area

Medium Priority: Rancocas and Mullica River Headwaters, Pine Valley Environs

Low Priority: Mullica River, Sleeper Branch Headwaters, Great Egg Harbor, Winslow Environs, Winslow Wildlife Management Area Expansion, Farm Belt A, B, and C, Great Swamp Branch Area

Proposed Adjoining Lands as Opportunities Arise: In addition to the plan's identified Greenways and Focus Areas, the plan also includes the concept of Proposed Adjoining Lands as Opportunities Arise. The basis for their inclusion is that it is almost always productive to add land to existing parks or other open spaces to simply enlarge existing facilities, to create a critical mass of open space for environmental protection related purposes, and to help link nearby open spaces together. Proposed Adjoining Lands as Opportunities Arise are not shown

on a map, because the detailed tax parcel information on where such opportunities may occur is not readily available. However, where such opportunities do arise, they are intended to be part of the Camden County Open Space and Farmland Preservation Plan, and the Planning Incentive Grant streamlined process.

CAMDEN COUNTY IS BLESSED WITH SOME LENGTHY OFF-ROAD TRAILS, AND THERE ARE ONGOING PLANS FOR NEW TRAILS THROUGHOUT THE COUNTY AS WELL.

Trails in Camden County: Trails for biking, walking, jogging, roller blading, and even cross-country skiing are becoming ever more popular forms of exercise, recreation and transportation. Camden County is blessed with some lengthy off-road trails, and there are ongoing plans for new trails throughout the county as well. As a form of recreation and open space, trail planning and development is an integral part of the plan. Map 21 shows existing and proposed trails.

Table 7 - Camden County Trails, describes the status of the various existing and proposed trails within the county. Not included in the table (but indicated on Map 21) are connections to three regional trails. Along the Delaware River in Pennsauken, the Pennsauken Riverfront Trail will connect with the Delaware River Heritage Trail, a planned loop trail between Trenton and Palmyra, New Jersey, and Tacony and Morrisville, Pennsylvania. Directly across the Benjamin Franklin Bridge, Camden trails can connect with the East Coast Greenway. The East Coast Greenway is planned as an urban version of the

Appalachian Trail, and will go from Maine to Florida. Another potential regional trail connection opportunity resides at the eastern end of Route 70, near Marlton in Evesham Township, Burlington County. A trail along the wide right-of-way of Route 70 from Marlton to Medford is proposed in the Rancocas Greenway Plan for the Main Branches.

That trail, in turn, would connect from Medford to Mt. Holly to Pemberton and beyond. All told, there are some impressive intracounty, intercounty, and interstate trail possibilities.

The Proposed Greenway Network also identifies connections between greenways for trail and wildlife migration purposes. Where connections along undeveloped lands are possible, the greenway network shows them. Where no such land connections were found, the greenway network identified on-road connections on what appeared to be low traffic roads. These are shown as "On-Road Connectors" on Maps 20 and 21. ♦

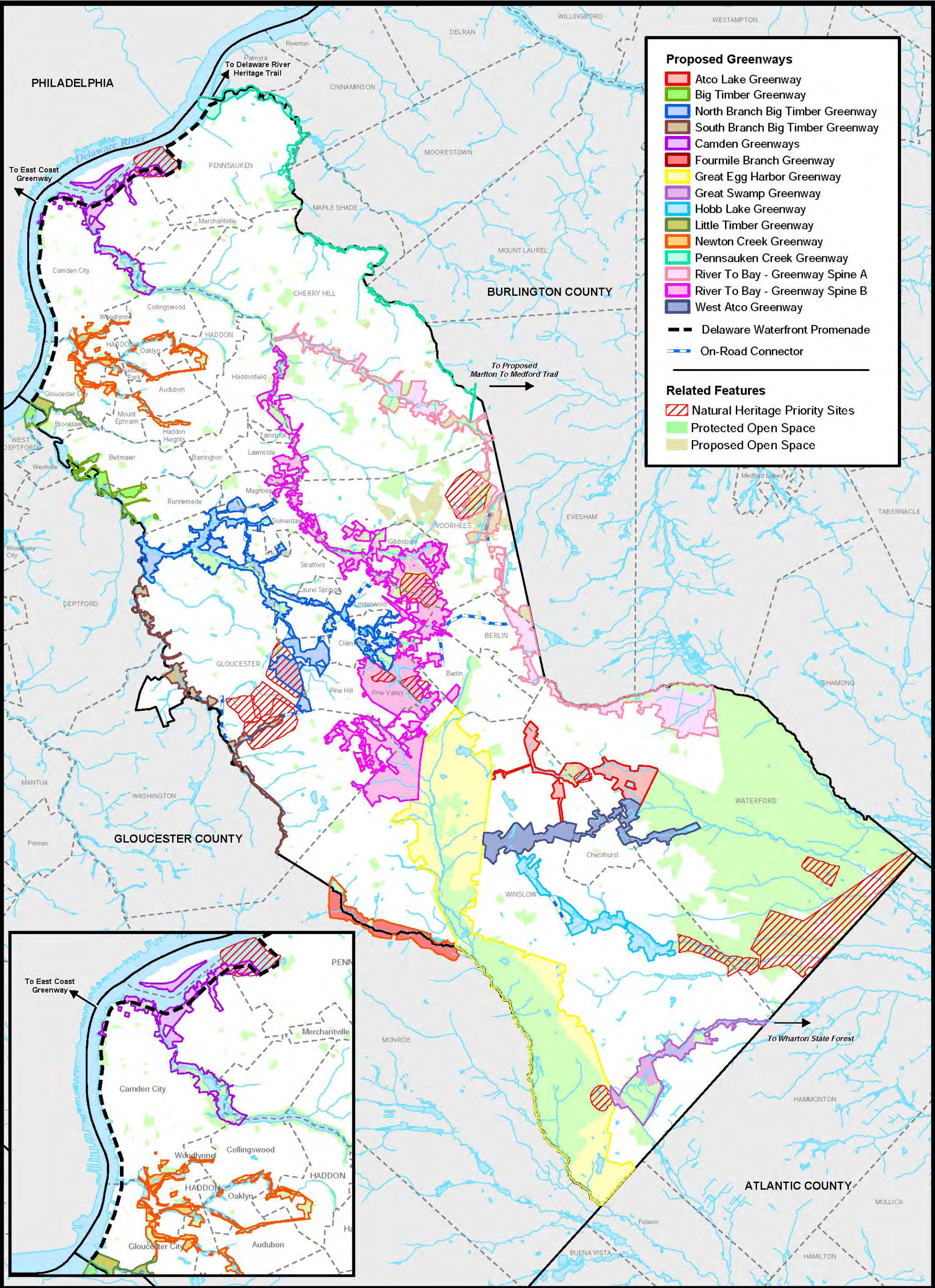
Table 7: Camden County Trails

TRAIL NAME	DEVELOPMENT STATUS	TRAIL DESCRIPTION	END POINTS/LOCATION	LENGTH
ADMIRAL WILSON BOULEVARD BIKE PATH	Complete	This 12 to 14 foot wide smoothly paved asphalt trail runs along the Cooper River on the south side of Admiral Wilson Boulevard.	The trailhead begins at the sidewalk on the south side of the Admiral Wilson Blvd. (Rt. 30) just before the interchange with Baird Blvd. The trail crosses over Baird Blvd., continues along between the Cooper River and Rt. 30 and terminates just before the intersection with Kaighns Av., Rt. 130 and Rt. 38.	1 mile
BERLIN PARK BIKE TRAIL	Complete	Paved, recreational bike trail running through the park.	Trail runs from the White Horse Pike to New Freedom Road in the Borough of Berlin.	0.8 miles
CHALLENGE GROVE PARK TRAIL	Complete	Paved, recreational bike trail.	The path runs from Grove St. to Brace Rd. along the Cooper River and Evans Mill Rd.	0.4 miles
COOPER RIVER PARK BIKE TRAIL	Complete (plans exist to extend the trail to the Delaware River, Wiggins Waterfront Park, Farnham Park, 29th Street Park, and Pyne Poynt Park, see Cooper River Park Trail Extension and Cooper River Greenway below)	Two bike trails can be found in the park: 1) A 3.8 mile loop from Cuthbert Blvd. to Route 130, and; 2) A 1.4 mile loop from Cuthbert Blvd. to Grove St. Parking is available off of North and South Park Drives. Connections are made with Greenwald Memorial Park, Wallworth Park, and Challenge Grove. (NJ State Trails, p. 25, map).	The park is bounded by Route 130 and Grove St. (running from west to east) and North and South Park Drives. The park extends from Pennsauken to Cherry Hill.	5.3 miles
GIBBSBORO BIKE PATH	Complete (plans exist to extend the path to other parts of the Borough)	Paved bike path connecting Gibbsboro to Lindenwold along a former rail right-of-way.	The path runs from Foster Ave. to the Lindenwold Township border along United States Ave.	1 mile
HADDON LAKE PARK BIKE TRAIL	Complete	Purely recreational, exclusively in park.	The trail is located within the park in Haddon Heights, Mt. Ephraim and Audubon townships. The park runs from Station Ave. to the Mt. Ephraim playground.	2.1 miles
LINDENWOLD BIKE PATH	Complete	Two short sections of paved bike path running through Lindenwold. These paths are linked via a signed on-road bike facility.	The paths run from Alkmonton Ave. to Egg Harbor Rd. along United States Ave. and from Gibbsboro Rd. to Linden Ave. along Berlin Rd.	Path 1- .33 miles Path 2- .66 miles
MARIA-BARNABY GREENWALD MEMORIAL PARK BIKE PATH	Complete	This off-road paved trail links Greenwald Memorial Park with Wallworth Park and Challenge Grove. It also provides a connection with the Cooper River Park Trail. The trail runs along the Cooper River.	Grove Street to Kings Highway along the north side of the Cooper River.	1.2 miles
MERCHANTVILLE BIKE PATH	Complete	This short paved bike path occupies a former rail right-of-way in the Borough of Merchantville.	Center Street to Euclid Street along Chestnut Avenue.	0.7 miles
NEW BROOKLYN PARK BIKE TRAIL	Complete	Paved, recreational bike trail running through the park.	The park is located in southern Winslow Township along New Brooklyn-Blackwood Road.	1 mile

Table 7: Camden County Trails (cont.)

Source: DVRPC 2003

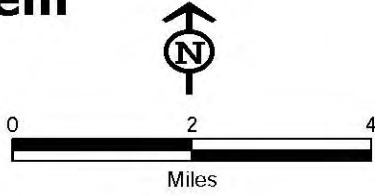
TRAIL NAME	DEVELOPMENT STATUS	TRAIL DESCRIPTION	END POINTS/LOCATION	LENGTH
NEWTON LAKE PARK BIKE TRAIL	Complete	The Newton Lake Park Bike Trail is a paved, recreational trail running exclusively through the park. The trail forms a complete loop.	The trail is located within the park in Collingswood, Oaklyn and Haddon.	2.5 miles
WALLWORTH PARK BIKE TRAIL	Complete	This is a short, paved, recreational trail running through the park.	Kings Highway to Caldwell Road.	0.4 miles
CENTRAL RR OF NJ RAIL TRAIL	Proposed	The ROW appears to follow Raritan Ave. as a dirt road and as an undermined alignment to Atsion. There is housing growth in the area, but it is still relatively undeveloped. (DVRPC Abandoned Railroad Study, #32).	From Atco to Atsion	8 miles
CAMDEN GREENWAY TRAIL	Proposed	This proposed greenway would link the planned extension of the Cooper River Park Bike Trail with Farnham Park and will continue to Pyne Poynt Park and 29th Street Park. (Identified in DVRPC's Southern New Jersey Bicycle and Pedestrian Mobility Plan, B-10, p. 55)	Kaighns Avenue to 29th Street Park along the Cooper River	
COOPER RIVER PARK BIKE TRAIL EXTENSION	Planned	An extension of the existing Cooper River Park Bike Trail from Rt. 130 to Kaighns Avenue is currently in the planning stage.	Rt. 130 to Kaighns Avenue along the Cooper River	0.5 miles
EAST ATLANTIC BIKEWAY	The East Atlantic Bikeway is in the design stage. A RFP for preliminary and final engineering was issued by the Delaware Valley Regional Planning Commission during the summer of 2001.	The East Atlantic Bikeway will be a paved 9 mile multi-use trail running from Oaklyn to Clementon. The trail will be constructed along an existing public ROW between Rt. 727 and an active rail corridor.	Trail will run from the Borough of Oaklyn to an existing amusement/water park in the Borough of Clementon.	9 miles
GLOUCESTER AND MT. EPHRAIM RAIL TRAIL	Proposed	Glendora-Grenloch section has cinder base and is already being used intensively by local citizens as a bike and walking trail. Parallels Route 168 and passes some schools and playgrounds. Bellmawr to Glendora ROW is overgrown but passable. Area surrounding ROW is residential and built-up (Abandoned Railroad Inventory and Policy Plan, #22).	Glendora to Grenloch and Glendora to Bellmawr	5.5 miles
PENNSAUKEN RIVERFRONT TRAIL	Proposed	A riverfront bike path (Southern New Jersey Bicycle and Pedestrian Mobility Plan, B-12, p. 56).	The trail would run along the Delaware River in Pennsauken	2 miles
RIVER TO BAY GREENWAY	Planned		The River to Bay Greenway trail, if constructed according to current plans, would extend from the Maria-Barnaby Greenwald Memorial Park Bike Path to the Wharton State Forest along an alignment roughly parallel to the northeastern boundary of the county.	
WEST JERSEY AND SEASHORE RAIL TRAIL	Proposed	Right-of-way still visible. (Abandoned Railroad Inventory and Policy Plan, #21).	Haddonfield to Westville	4.7 miles in Camden County

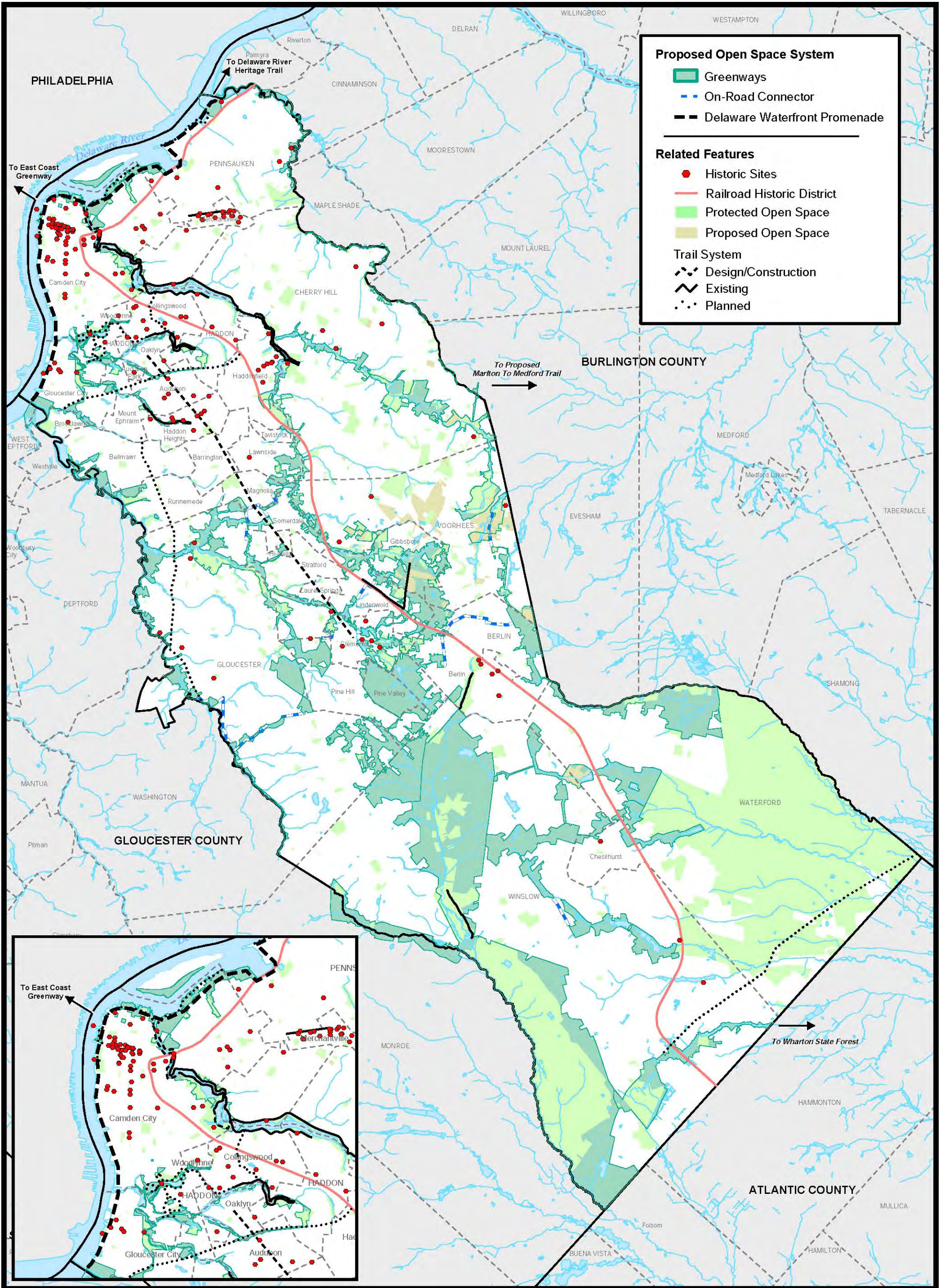


CAMDEN COUNTY : Proposed Open Space System GREENWAYS

Source : DVRPC, NJDEP
This map was developed using New Jersey
Department of Environmental Protection
Geographic Information System digital data,
but this secondary product has not been
verified by NJDEP and is not state-authorized.

DELAWARE VALLEY
REGIONAL PLANNING COMMISSION
MAY 2004

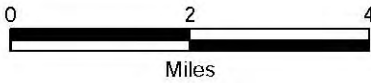


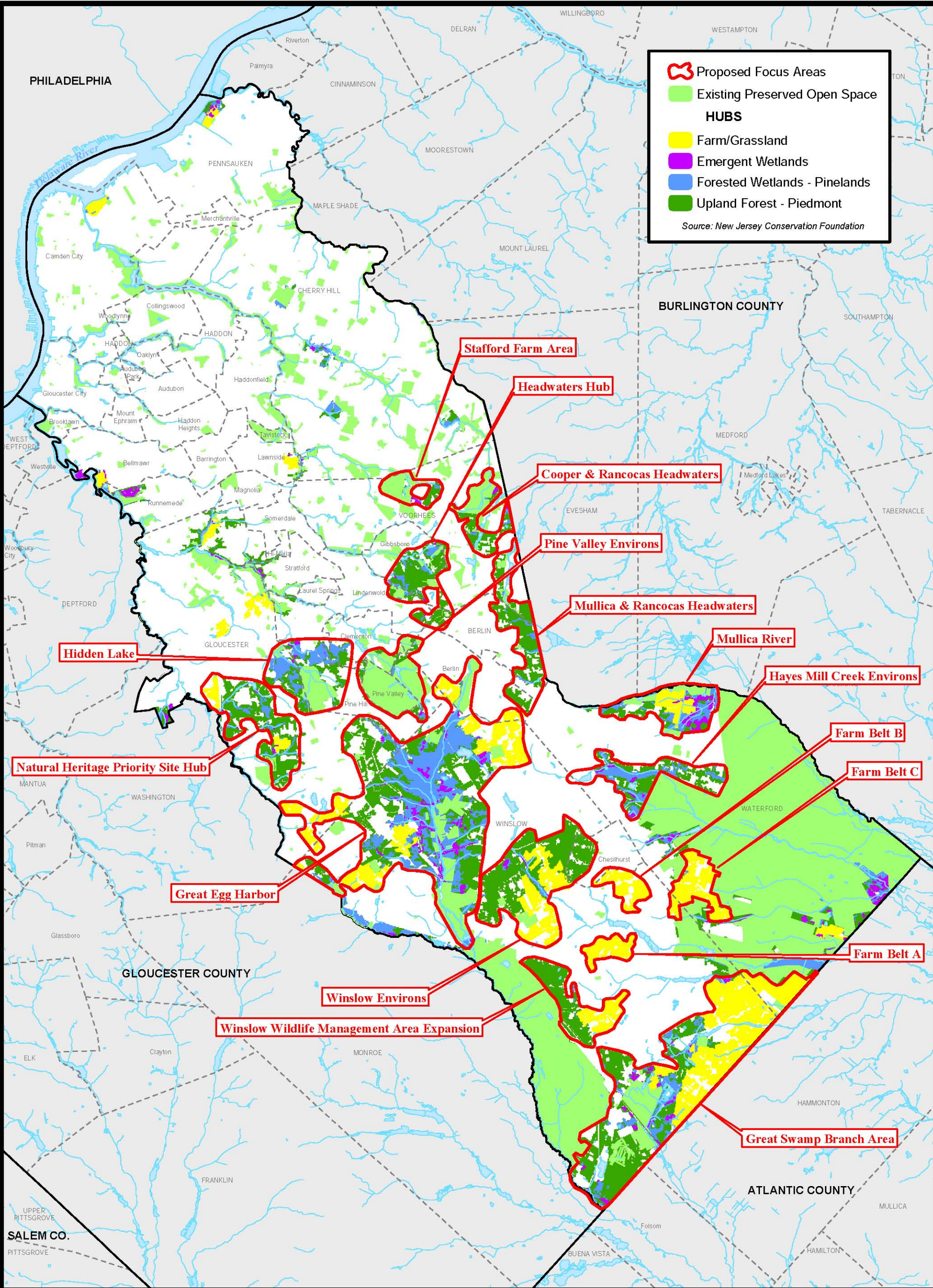


CAMDEN COUNTY : Proposed Open Space System
GREENWAYS WITH TRAIL SYSTEM

Source : DVRPC, NJDEP
This map was developed using New Jersey
Department of Environmental Protection
Geographic Information System digital data,
but this secondary product has not been
verified by NJDEP and is not state-authorized.

DELAWARE VALLEY
REGIONAL PLANNING COMMISSION
MAY 2004

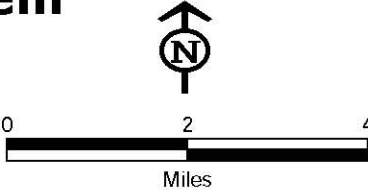


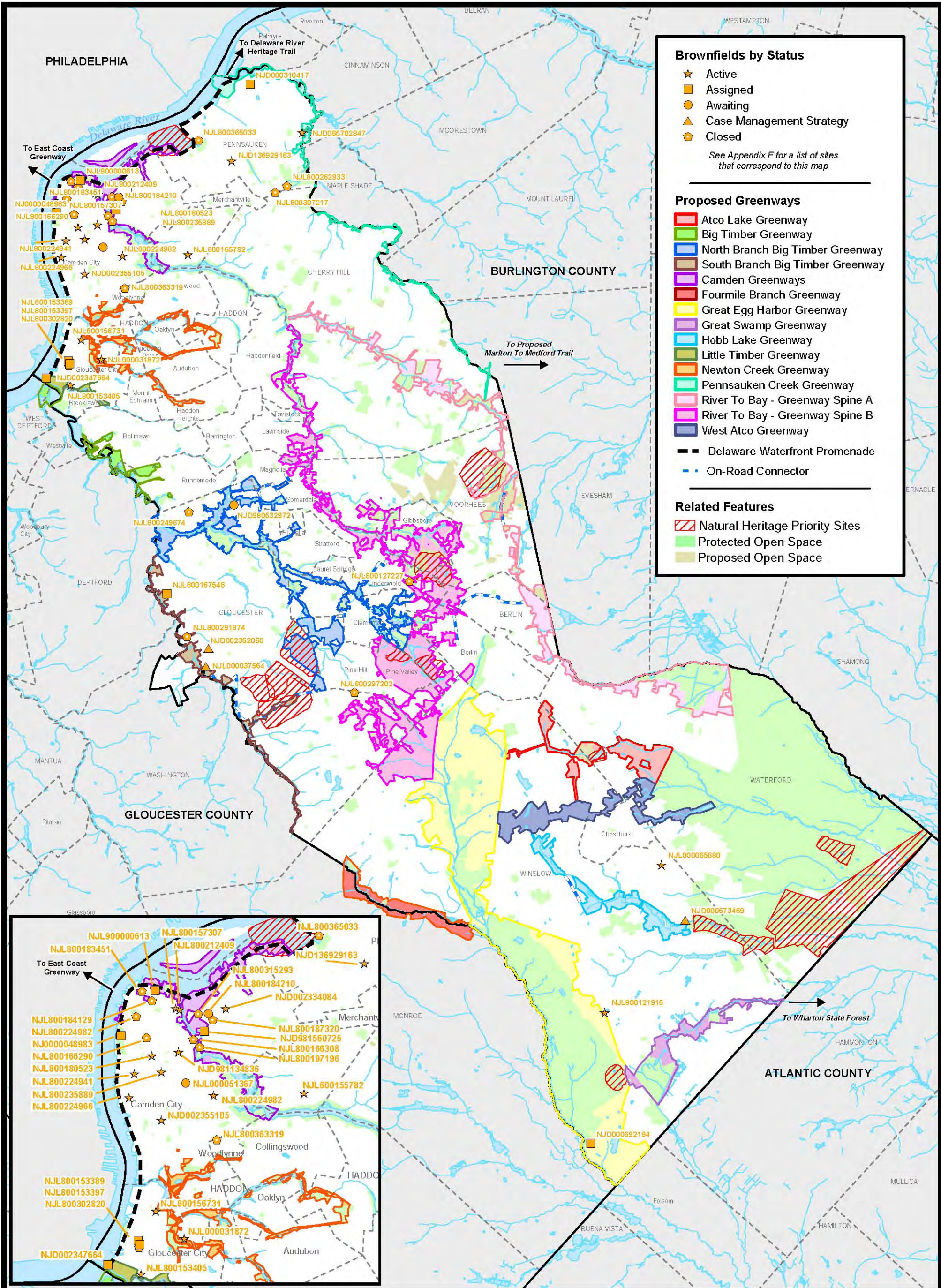


CAMDEN COUNTY : Proposed Open Space System FOCUS AREAS

Source : DVRPC, NJDEP, NJCF
This map was developed using New Jersey
Department of Environmental Protection
Geographic Information System digital data,
but this secondary product has not been
verified by NJDEP and is not state-authorized.

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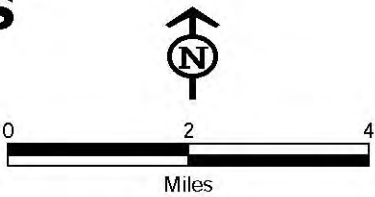




**CAMDEN COUNTY : BROWNFIELD LOCATIONS
COMPARED TO PROPOSED GREENWAYS**

Source : DVRPC, NJDEP,
New Jersey Office of Smart Growth
This map was developed using New Jersey
Department of Environmental Protection
Geographic Information System digital data,
but this secondary product has not been
verified by NJDEP and is not state-authorized.

DELAWARE VALLEY
REGIONAL PLANNING COMMISSION
MAY 2004



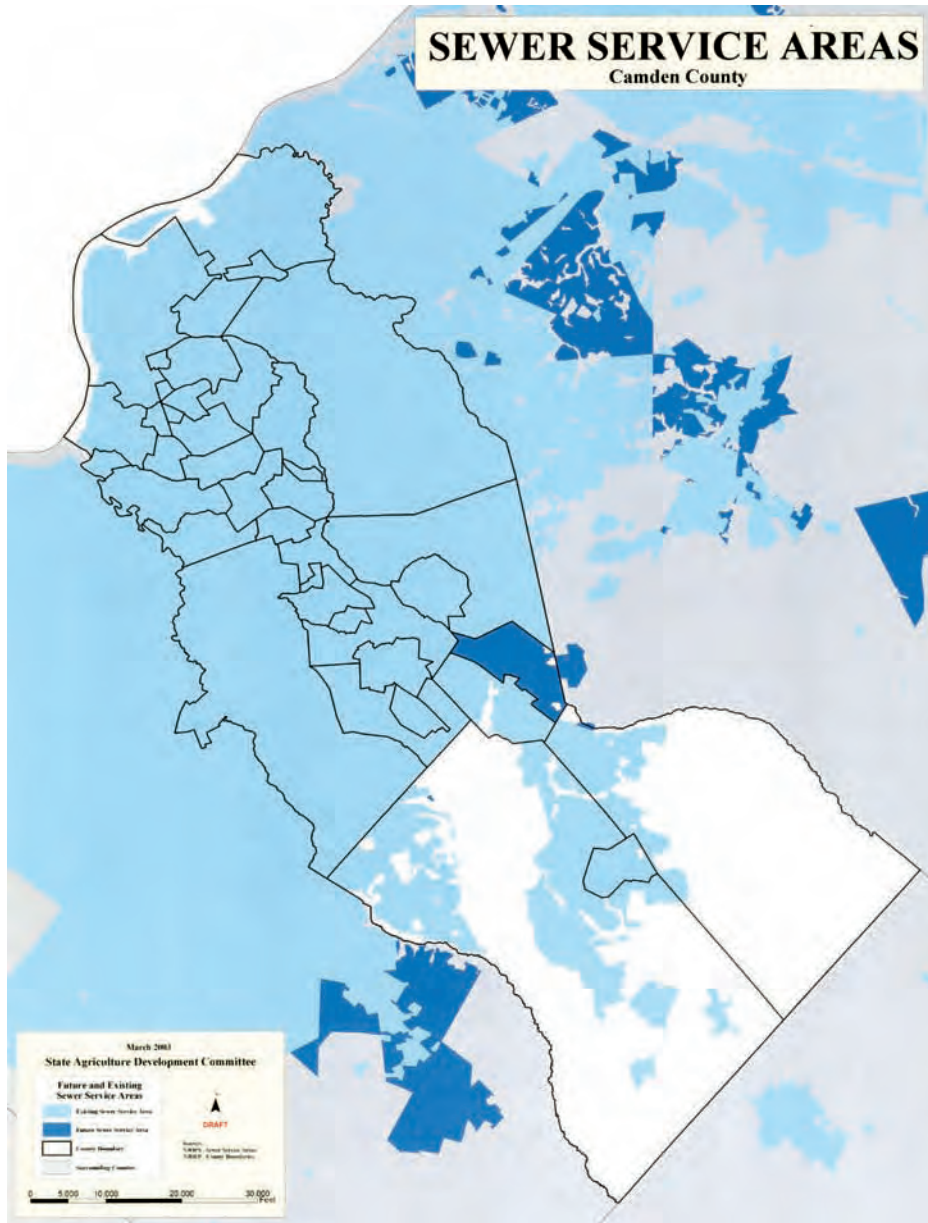


CHAPTER 5

FARMLAND PRESERVATION IN CAMDEN COUNTY

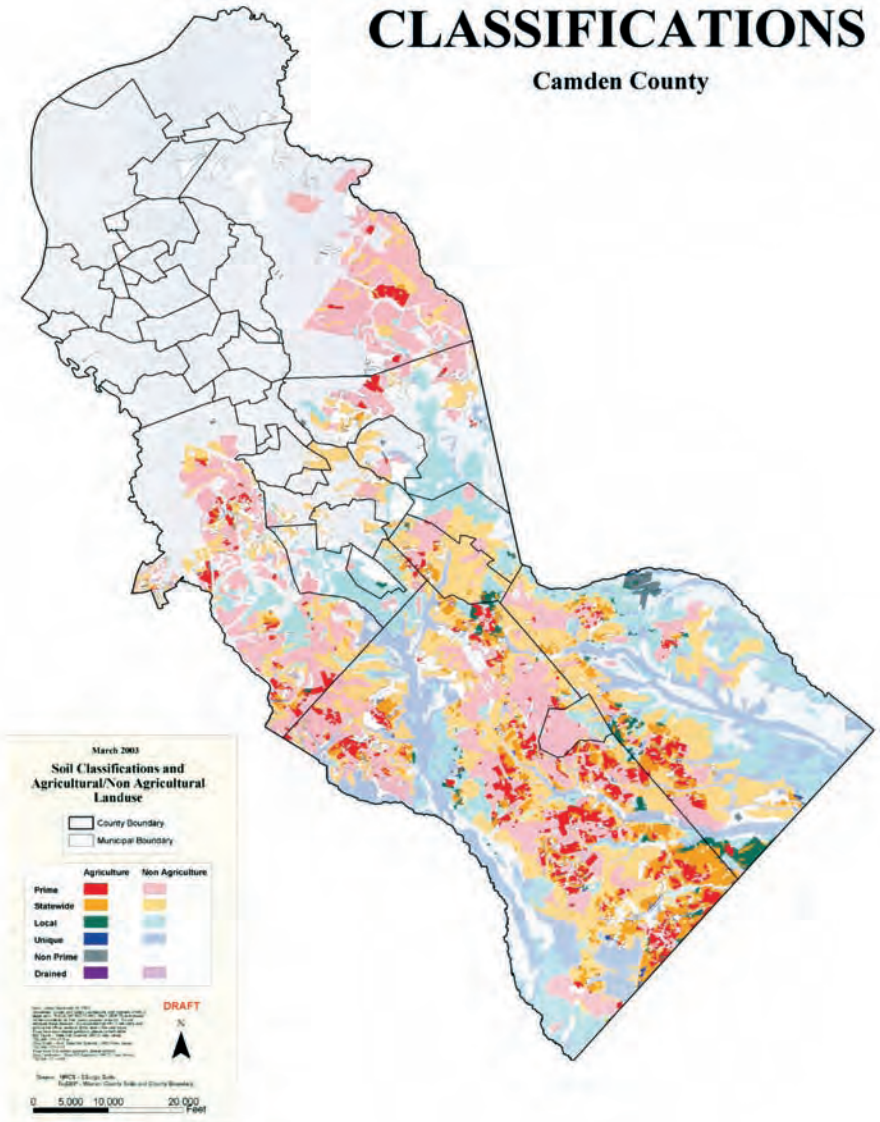
The New Jersey State Agriculture Development Committee (SADC) released a preliminary report titled "Strategic Targeting Project" in March 2003 with the primary goals of coordinating farmland preservation/agricultural retention efforts with proactive planning initiatives, updating/creating maps to target preservation efforts, and coordinating farmland preservation efforts with open space, recreation, and historic preservation investments. This farmland preservation chapter of the Open Space and Farmland Preservation Plan for Camden County is aimed at fulfilling those goals. Maps from the SADC report, which were incorporated into the farmland preservation planning for Camden County, are shown on the following pages.

SEWER SERVICE AREAS Camden County

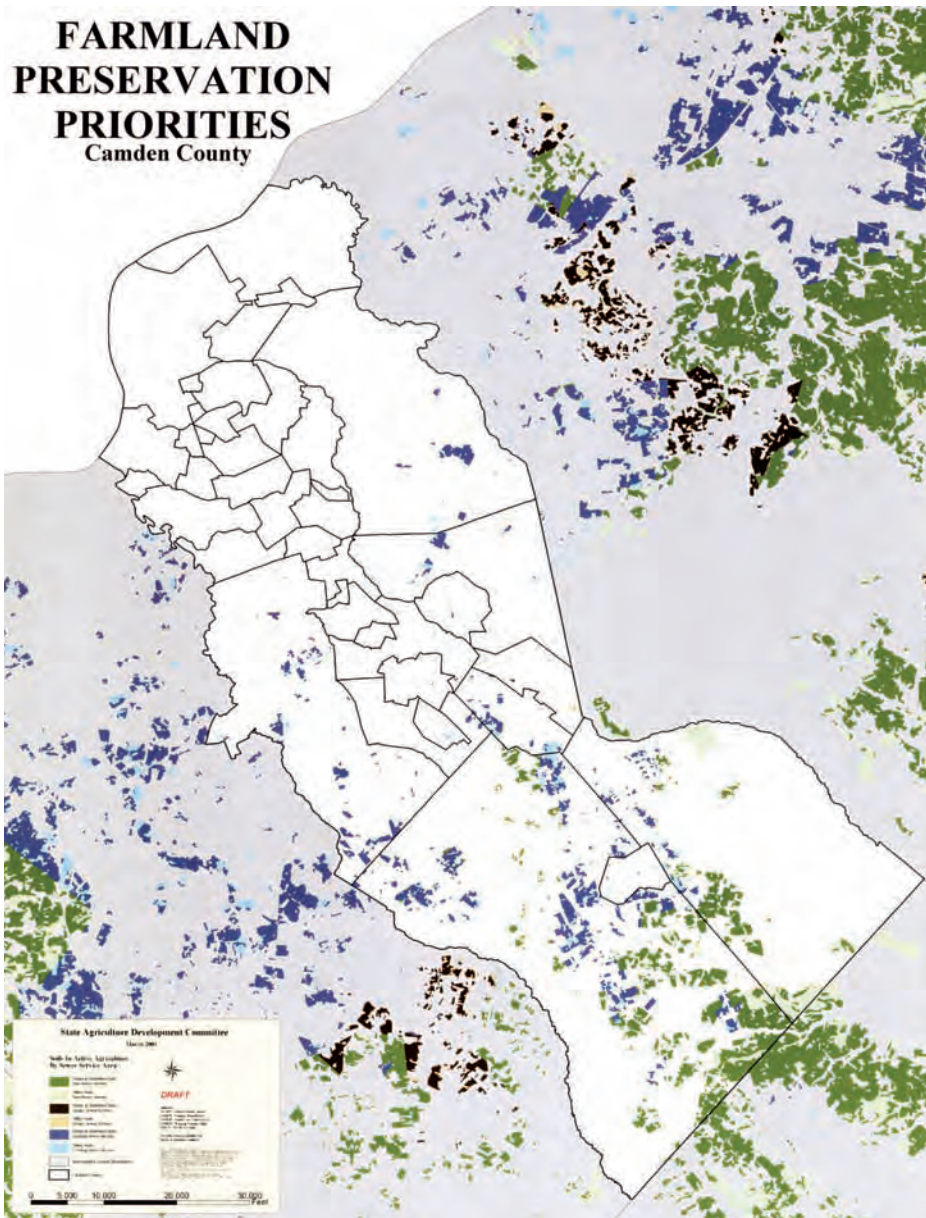


LANDUSE AND SOIL CLASSIFICATIONS

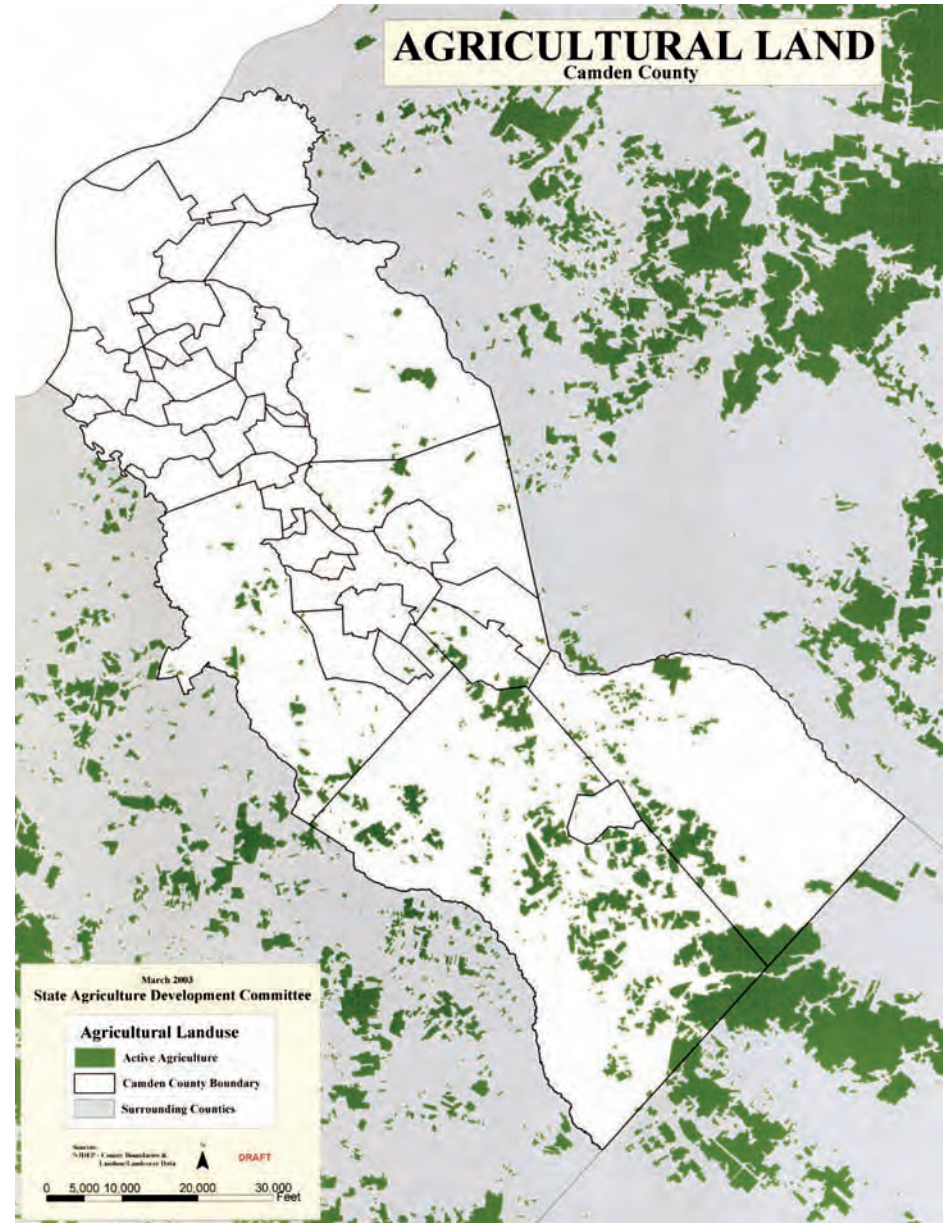
Camden County



FARMLAND PRESERVATION PRIORITIES Camden County



AGRICULTURAL LAND Camden County



Maps Courtesy of NJ Department of Agriculture

Within Camden County, the Camden County Agriculture Development Board (CCADB) administers the Farmland Preservation Program. This program was begun in 1986 to address the preservation of farmland, monitor preserved farmland, and promote the development of the agriculture industry in Camden County. In addition, the county funds 50% of the Rutgers Cooperative Extension Program, an educational program to help farmers improve their farms' profitability.

THE CAMDEN COUNTY AGRICULTURE DEVELOPMENT BOARD (CCADB) ADMINISTERS THE FARMLAND PRESERVATION PROGRAM.

The CCADB has established Agricultural Development Areas (ADAs) within the County. (See Map 21.) These ADAs are areas of prime agricultural land where farming is the preferred, but not necessarily the exclusive, use of the land. The original ADAs were updated for this plan by removing blocks of land that have been developed up to the year 2000 (note that there is still a patchwork of developed lands within the ADAs due to sprawling development patterns), by lining up the ADAs' boundaries with the Pinelands Agricultural Production Area boundaries where they had been off, and by incorporating nearby blocks of farmland that were in prime agricultural soils.

These updates are GIS based, which was not an available tool when the original ADAs were drawn. The updated ADAs

incorporate most of the Farmland Preservation Priorities for Camden County shown on the draft map from the NJ Department of Agriculture, above. Some of the state farmland preservation priority areas were not included on the county revised ADAs map because either they were considered too small, isolated and fragmented, or they were no longer in farming based on 2000 aerial interpretation. The updated ADAs total 27,000 acres, whereas the original ADAs totaled 26,000 acres. Even

though the county lost farmland over the period, the updated ADAs became slightly larger due to the ability to incorporate more layers of information using GIS. Currently there are approximately 754 owners of 1,224 parcels, totaling about 15,068 acres, of farmland assessed property in the county. Many, but not all of these lands fall within the ADAs.

Up until recently, the CCADB has focused its preservation efforts on promoting New Jersey's Eight-Year Farmland Preservation Program. Applicants who are accepted into this program agree to preserve their farmland through an eight-year deed restriction. In return for this restriction, the landowner is eligible to apply for soil and water conservation matching funds, obtains the right to use farm structure designs developed by Cook College, and is eligible to sell a development easement on the

FARM	MUNICIPALITY	DATE APPROVED and RENEWED
Stella	Winslow Township	3/6/95 renewed 3/6/03
Anthony Melora	Winslow Township	3/17/95 renewed 3/17/03
De Silvio	Winslow Township	August 4 1997
Bertino Brothers	Waterford Township	September 25 1997
Thomasello Winery	Winslow Township	March 13 1998
Rosedale Nursery	Winslow Township	August 3 1998
Anthony Grasso	Waterford and Winslow Township	February 19 1999
Bates Run	Winslow Township	July 22 1999
William and Patricia Augustine	Winslow Township	March 8 2001

Source: CCADB 2003

land. Since 1986, the CCADB has approved temporary deed restricted plans for 11 landowners encompassing over 700 acres. The following table shows the nine farms currently enrolled in the eight-year program. Two of the farms, Stella and Anthony Melora, had their original eight-year program period expire, but they renewed. Four other farms, Anthony Grasso, Bates Run Farm (56

acres), Donio Farm (100+ acres), and Iulucci Farm (42 acres) have applications pending before the State Agriculture Development Committee (SADC) direct easement program.

The establishment of the Camden County Open Space, Recreation, Farmland and Historic Preservation Trust Fund is allowing the CCADB to pursue the preservation of

SINCE 1986, THE CCADB HAS APPROVED TEMPORARY DEED RESTRICTED PLANS FOR 11 LANDOWNERS ENCOMPASSING OVER 700 ACRES.

Camden County farmland on a permanent basis through the acquisition of development rights. This method of preservation was heretofore unavailable to the CCADB due to a lack of county matching funds. The acquisition and preservation of farmland in Camden County is guided by criteria and procedures developed by the CCADB. The CCADB established a goal of 1,000 acres of Camden County farmland to be preserved by 2010.

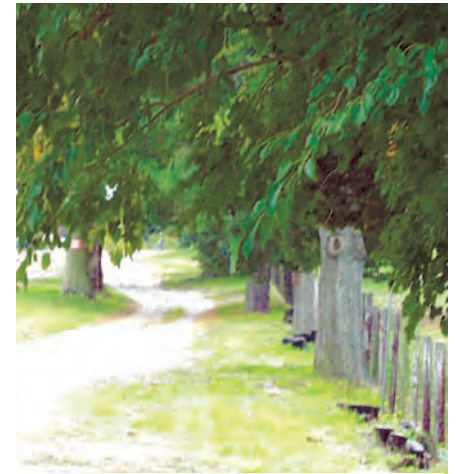
To date, two farms have been permanently protected using County Open Space Trust Funds. The first was the 49-acre Auwarter Farm, a horse farm in rural Winslow

Township, in 2002. In early 2004, the 140-acre Stafford Farm in Voorhees Township became permanently protected through SADC's Fee Simple Program. The Stafford Farm commanded a very high price - \$20.6 million, one of the highest amounts ever paid to conserve land in New Jersey. The price of \$147, 143 per acre was based on the farm's prime location, zoning, and consequent development opportunities. Preserving the farm was considered a priority, despite the high price, due to its high visibility, the community's attachment to the picturesque pastureland, its stance as one of the last farms left in a fully suburbanized area, and neighbors' opposition to any new development

proposals. The effort was a partnership between the SADC, the Green Acres Program, Camden County, Voorhees Township and the Trust for Public Land (a non-profit conservation group), who brokered the deal. Voorhees contributed \$7 million to preserve 70 acres of woodlands behind the farm, which will become a township passive park for hiking, bird watching and education. The other 70 acres will be auctioned off by the SADC with a deed restriction that permanently preserves the land for agricultural use. In addition to ensuring permanent preservation of the land, this program also helps make farmland available for purchase by other farmers at more affordable prices.

Coordination: The administration of the CCADB is under the Director of the Camden County Division of Open Space and Farmland Preservation, who administers the Open Space, Farmland and Historic Preservation Trust Fund. The Director has established a relationship with elected officials and municipal staff in Winslow Township, which has the most remaining farmland. Winslow is currently reexamining their land use patterns and growth management strategies under the Pinelands Excellence

FARMING IN THE COUNTY IS THREATENED BY ENCRANCHING SUBURBAN DEVELOPMENT, THE AGING OF SOME FARMERS WHO MAY NOT HAVE HEIRS, AND ECONOMIC COMPETITION FROM CORPORATE FARMS FROM OUTSIDE THE REGION THAT ARE ABLE TO TRANSPORT THEIR PRODUCTS IN BULK CHEAPLY



Auwarter Farm in Winslow Township

Program, and DVRPC is sharing information on the open space and farmland preservation plan with their consultant. The county and township are working together to identify farmers that may be interested in selling their development rights. The not-for-profit Trust for Public Land (TPL), which brokered the deal on the Stafford Farm, remains instrumental in working with the county in land preservation negotiations and in identifying supplemental funding sources to complete the transactions.

The CCADB/Division of Open Space and Farmland Preservation coordinates with other county agencies through a sharing of



Aerial of Stafford Farm, courtesy of Trust for Public Land

responsibilities: all mapping work is conducted by the Camden County Improvement Authority (CCIA), the Director of the County Planning Department coordinates by membership on the Open Space Preservation Trust Fund Advisory Committee meetings, where all farmland purchases are reviewed by the Committee, and legal counsel is provided by the county's Office of County Counsel.

Farming Trends and Threats to Farming in Camden County:

Farming in the county is threatened by encroaching suburban development, the aging of some farmers who may not have heirs, and economic competition from corporate farms from outside the region that are able to transport their products in bulk cheaply. The economic competition was identified as the biggest problem facing Camden County farmers by the Rutgers Cooperative Extension Agent. According to the agent, the farmers need to distinguish themselves by producing higher quality and unique products in order to successfully compete. The Rutgers Cooperative Extension Program helps farmers identify areas that may improve their profitability.

As farmers age, a new generation will be needed to take over management of the farms. According to the 1997 Census of Agriculture, the average age of the principal operators of family farms was

56.1 years in Camden County. Many farms in the county are run by families with heirs apparent, so a farmer's aging is not an immediate threat to the farm's continuance. However, in cases where heirs are not apparent, a farm's continuance may be threatened. The state administers a Farm Link Program, which matches farm sellers with potential buyers, to assuage this issue. The program also serves as a clearinghouse for information on everything from the availability of preserved farms for sale, to business contacts and resources.

Another trend influencing the viability of farming in the county is that the farms are becoming smaller, as lots are subdivided off for offspring, to raise money for the farm, or other purposes. The 2002 Census of Agriculture released statewide data on February 3, 2004, showing average farm

size statewide declining from 130 acres in 1974 to 82 acres in 2002. Of almost 10,000 farms remaining in the state, more than two-thirds are small farms, ranging from 1 to 49 acres. Only 1% of farms are over 1,000

acres. At the county level, the most recent statistics are from the 1997 Census of Agriculture. For Camden County in 1997, the average size farm was only 43 acres, and the median size farm was 13 acres. The Census of Agriculture county level data for 2002 will be available in June 2004. Another statewide trend shows a 31% increase in farms with less than \$2,500 in

sales, which may only indicate that more people are farming to take advantage of lower farmland tax assessment. Statistics for Camden County (from the 1997 Census) show that about 37% of the county's farms earned less than \$2,500, and 76% earned less than \$25,000, indicating that most Camden County farmers do not actually make a living out of farming.

The 2002 release of statewide data also showed a 21% increase in women farmers. Between 1997 and 2002, 337 more


women reported themselves as the principal farm operator, a person who manages the farm on a daily basis. By 2002, almost 40% of the principal farm operators in New Jersey were women. But farming was the main occupation for only 55% of these women, reinforcing the conclusion that many farmers in New Jersey do not make a living from farming and have outside employment.

NICHE FARMING, COMMUNITY FARMER'S MARKETS, PICK-YOUR-OWN, AND COMMUNITY SUPPORTED AGRICULTURE (CSAs) ARE GROWING TRENDS FOR SUSTAINING FARMING ON THE EDGE OF SUBURBIA.

According to Crop Statistics from the 1997 Census of Agriculture, 72 Camden County farms produced nursery and greenhouse



Stafford Farm, photo by: Ken Sherman, courtesy of Trust for Public Land



crops, 38 farms produced hay, 37 produced floriculture crops, 29 produced corn, 27 grew tomatoes, and 22 grew sweet corn. Some farmers are reported to be looking into blueberries and more horticulture crops to improve profitability. Other main crops in the county are peaches, sweet peppers, pumpkins, grapes, and cantaloupes.

Niche farming, community farmer's markets, pick-your-own, and community supported agriculture (CSAs) are growing trends for sustaining farming on the edge of suburbia. In Camden County, there are five community farmers markets: Berlin Farmers Market, Camden Community Farmers' Market, Collingswood Farmers Market, Fairview Farmers Market, and Jersey Fresh Farmers Market at the Camden Waterfront. These markets benefit both the farmers and the community by bringing fresh, locally grown, nutritious produce directly to the community. Five farms in Camden County also sell directly to the public at roadside farms. They are Five R Farms in Berlin, Parzanese Brothers in Winslow, Stella Farms in Winslow, Tony Morelli Produce in Gloucester Township, and Springdale Farm in Cherry Hill. Springdale Farm also offers pick-your-own strawberries, corn, tomatoes, pumpkins and many other vegetables, home-baked goods, and seasonal entertainment such as fall hay rides and spring Easter Egg Hunts.

IT IS IMPORTANT FOR CAMDEN COUNTY FARMERS TO EMPLOY CONSERVATION PRACTICES ON THEIR FARMS.

No Camden County farms are currently known to be involved in community supported agriculture, a program where residents pay a fee at the beginning of the growing season to the farmer, who then provides weekly deliveries of just-picked crops back to the community.

The Garden State Wine Growers Association promotes the 17 wineries in New Jersey, of which one is located in Camden County, Amalthea Cellars in Atco. The Association has put together suggestions for day trips for wine lovers to visit the wineries around the state along with special promotional events such as the Wine Trail Weekends, when visitors get a chance to learn more about wine, wine tasting, and wine making.

Administrative Support for Farming and the Farmland Preservation Program:

As the farmland preservation program progresses in Camden County, and more farms are permanently preserved, the county will need to either add staff, or assign more current staff to deal with the host of items involved in administering and monitoring a farmland preservation program. The increased workload required to conduct annual inspections, respond to public complaints, track the sale of restricted farmland, develop farm conservation plans, provide legal assistance, coordinate with the

SADC, maintain copies of title policies, surveys, and recorded deeds of easement, create and maintain farm-related databases, and develop county policies on replacement of residential units, construction of agricultural labor housing, and subdivision of premises will clearly require more time and effort than the current Division of Open Space and Farmland Preservation can provide, given the Division's small staff and present scope of responsibilities.

With the CCADB/Division of Open Space and Farmland Preservation's limited staff resources, the county currently relies on the Rutgers Cooperative Extension Service, the Camden County Board of Agriculture, the eight-year program, and coordination with the SADC to promote the development of agriculture as an industry in the county. The New Jersey Department of Agriculture also provides many programs to support the overall economic viability and profitability of the agricultural industry through innovative grant and loan programs, programs for beneficial insects that reduce the need for chemical pesticides and herbicides, far-reaching commodity promotion and marketing efforts, and a wide variety of other programs designed to keep the state's agricultural industry thriving.


Conservation Practices and Programs:

To remain consistent with the Plan's goal to "forever preserve the valued environmental . . . features of Camden County . . ." it is important for Camden County farmers to

employ conservation practices on their farms. Fortunately, there are ample financial and economic incentive programs and technical assistance to help farmers plan and use conservation practices on their farms. The United States Department of Agriculture Natural Resources Conservation Service (NRCS) has a Farm Service Agency office in Hainesport that serves Camden, Burlington and Ocean counties. NRCS staff are available to work with farmers to help them identify their conservation goals and then craft appropriate conservation plans to meet those goals.

Numerous programs provide financial incentives to help farmers voluntarily engage in these practices. Financial incentives can include rental payments to farmers for reserved land, easement payments, and cost sharing, up to 100% for some programs, to develop and follow conservation plans. NRCS programs include the Conservation Reserve Program, Wetlands Reserve Program, Grassland Reserve Program, Wildlife Habitat Incentive Program, Environmental Quality Incentives Program, Conservation Security Program, Forest Land Enhancement Program, and Farm and Ranch Lands Protection Program (See Appendix G for a more complete description of these programs).

New Jersey has partnered with the USDA to help farmers protect water quality by establishing a \$100 million Conservation Reserve Enhancement Program. Under an



agreement signed by Governor McGreevey in February 2004, the USDA will provide \$77 million and the state will contribute \$23 million for New Jersey farmers to install stream buffers in order to reduce the flow of nonpoint source pollution into the state's waterways. New Jersey's goal is to enroll 30,000 acres of agricultural lands into this state-federal program over a 10-year period. Types of buffers to be installed include trees, shrubs, vegetative filter strips, contour grass strips and grass waterways. Under the program, a landowner installs and maintains approved practices through a 10 to 15 year rental contract agreement. A landowner entering the state Farmland Preservation Program or Green Acres Program also may opt for a permanent easement under the Conservation Reserve Enhancement Program. This would provide additional payment for permanent maintenance of approved conservation practices. The program will pay landowners annual rental and incentive payments for participating in the program, as well as 100 percent of the cost to establish approved practices.

Obstacles to Farmland Preservation: Certain factors may be inhibiting the county from preserving more farmland. They include a lack of understanding on the part of certain municipal officials as to the value of agricultural land to their municipal tax base. Some officials still perceive that

SOME OFFICIALS STILL PERCEIVE THAT FARMLAND IS LAND WAITING TO BE DEVELOPED INTO A "HIGHER AND BETTER USE" THAT WILL BRING MORE TAX RATABLES TO THE MUNICIPALITY

farmland is land waiting to be developed into a "higher and better use" that will bring more tax ratables to the municipality. They do not understand that agriculture costs less in services than it contributes in taxes. Municipal future land use plans that do not reserve land for agriculture are indicative of this mind-set. A lack of education about the benefits of farmland preservation programs on the part of some farmers may also be preventing more farmland preservation from taking place.

In the Pinelands, where most Camden County farms are located, easement prices are lowered by Pinelands Development Credits, and this discourages many farmers from pursuing preservation. To compensate for this, the Legislature directed the SADC to develop an alternative method of determining easement values that considers a variety of factors relevant to the Pinelands. The Pinelands Valuation Formula was consequently designed to result in easement values averaging approximately 65% of those outside the Pinelands area.

Although there are several obstacles, as described above, to preserving more farmland in the county, county funding is not considered a deterrent. The county issued a \$28 million bond for open space and farmland preservation in the fall of 2002 to fund fee simple and development

rights acquisitions over the next five to seven years. Due to the limited number of farms that may enter the program, the funding is considered sufficient to reach the 1,000-acre goal by 2010.

Recommendations: The CCADB/Division of Open Space and Farmland Preservation should continue reaching out to municipalities with extant farmland, especially Winslow and Waterford Townships, to identify farmers who may be interested in the farmland preservation program. Farms that are part of the plan's Proposed Greenways and Focus Areas are the highest priorities in terms of achieving a network of protected open space, but all interested farms should be considered. Explaining the Pinelands Valuation Formula will be very important within the Pinelands community. The CCADB/Division of Open Space and Farmland Preservation should also facilitate farmers' familiarity and use of NRCS preservation and conservation programs. Furthermore, applying land preservation techniques discussed in the Action Plan will also be important to preservation.

The CCADB/Division of Open Space and Farmland Preservation will need to coordinate and work with many partners to continue promoting farming in Camden County. Partners include municipalities, the Camden County Board of Agriculture, the Camden County Soil Conservation District,

The Camden County Improvement Authority, the South Jersey Resource Conservation and Development Council, Rutgers Cooperative Extension Service, New Jersey Department of Agriculture, the Pinelands Commission, NRCS, and nonprofit conservation organizations. Each plays a role in maintaining and enhancing agriculture in the county. The county departments, in particular, need to focus additional efforts on ensuring the viability of the agricultural industry in Camden County. For example, the county could help farmers establish new market opportunities in local schools, institutions and restaurants. The county could also assist farmers in setting up new farmers' markets or community supported agriculture (CSA) programs. In addition, the county could work with farmers to develop strategies supporting value-added products which would increase farmer participation in the market chain and would provide additional income beyond the sale of harvested products. Finally, the county can support the local agricultural industry by ensuring that county regulations and programs are supportive of the farming community. With the economic viability of the farming industry in Camden County at stake, coordination, cooperation, technical assistance, financial aid and partnerships are key. ♦

WITH THE ECONOMIC VIABILITY OF THE FARMING INDUSTRY IN CAMDEN COUNTY AT STAKE, COORDINATION, COOPERATION, TECHNICAL ASSISTANCE, FINANCIAL AID AND PARTNERSHIPS ARE KEY.



CHAPTER 6

ACTION PLAN AND PRESERVATION TOOLS

The Proposed Open Space System identifies the remaining environmentally significant lands in the county to be protected. The amount of lands identified is more than any one entity can protect, and there may never be enough funding to acquire it all. In addition, at the current rate of about 215 acres per year, some of the lands will be developed before they can be preserved. The county has a critical window of opportunity over the next five to 10 years to preserve a significant amount of open space before its character is changed. Camden County must therefore prioritize acquisitions, seek additional ways to preserve open space, and form partnerships to get the job done.

Five-Point Action Plan:

- ❖ Acquire large remaining open space lands in highly threatened areas first
- ❖ Invest in open space enhancement in densely populated areas to promote urban livability
- ❖ Formalize proposed greenways through planning and negotiations
- ❖ Offer subsidized funding for municipal open space and greenway planning through the County Open Space Trust Fund
- ❖ Develop facilities in recently acquired county parks, and market them to county residents

Action #1: Acquire large remaining open space lands in highly threatened areas first

Camden County should pursue acquiring the limited number of major open space opportunities remaining in suburban, highly threatened areas of the county before they are permanently lost. To date, the county has successfully identified and acquired about ten major open space properties (major properties are defined as large remaining open spaces under single ownership in suburbanized areas. Examples are Stafford Farm, Slims Ranch and Lake Worth. See Map 4 - Lands Protected with County Open Space Trust Funds on page 25. In a highly developed county like Camden, major open spaces in

urbanized/suburbanized areas are limited. Two identified major open spaces include the Kresson Golf Course, which is proposed in Voorhees Township's Open Space Plan and has had development plans submitted, and the Atco Lake/Shendock property on the Winslow/Waterford Township boundary. Both are part of identified greenways and focus areas. Protection of these properties should continue to be pursued by the county along with its municipal and non-profit partners.

The county should also investigate other large remaining open space and farmland preservation opportunities within the prioritized greenways and focus areas by using tax assessment records and local knowledge of these sites. The county has begun this through its effort to create a geographic information system (GIS) of all tax parcels in the county.

As sections of the GIS tax parcel mapping are completed, they should be overlaid with the Proposed Greenways and Focus Area maps to identify the larger remaining unprotected parcels. Although there are many factors that go into the decision to pursue a parcel for acquisition, size

is a legitimate criteria because it can take as much time and effort to pursue a small property as a large one. In addition, it is important to identify and pursue preservation on selected parcels before



The North Branch of the Big Timber running through Slims Ranch

subdivision and site development plans are submitted, which raises the price of the properties and prolongs negotiations.

Action #2: Invest in urban open space to enhance urban livability At the same time the county is pursuing protecting large remaining suburban open spaces, it should also advance projects in urban areas to enhance urban livability. This is important from an environmental justice standpoint as well as to stem the flow of population and jobs from built-out areas to greenfields. Fortunately, three large urban communities

along the Delaware River; the City of Camden, Gloucester City and Pennsauken Township, all have plans completed or largely underway that are consistent with this county plan to increase access to the Delaware Riverfront by creating waterfront pathways. In addition, the open space recommendations for the City of Camden, Gloucester City and Pennsauken Township deserve priority attention and investment because all three meet three Key Factors: all three have Urban Aid status, access to the Delaware Waterfront, and are part of regional projects (the River to Bay



Enjoying a show at the New Brooklyn Park amphitheater

Greenway and East Coast Greenway). In addition, Pennsauken has a Natural Resource Priority Site on the Delaware River called Fish House Cove.

The Division of Open Space and Farmland Preservation should also coordinate with the Camden County Improvement Authority on the Camden Hub Plan and CCIA's efforts to identify brownfields appropriate for conversion to public open space. For example, plans to clean up the Harrison Avenue Landfill in the Cramer Hill neighborhood of Camden and convert it into a public golf course are consistent with this plan. Another issue facing

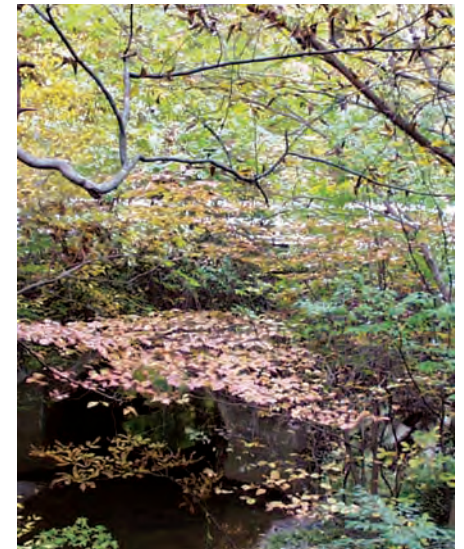
parks in urban areas is one of maintenance and safety. Older, cash-strapped communities often lack the funds to properly maintain their parks, resulting in a vicious cycle of deterioration as parks become unkempt, unused, and eventually unsafe. One solution being proposed by the Trust for Public Land in the City of Camden is to create "Friends of Parks" groups to monitor the upkeep, lobby for park improvements, and conduct clean-ups, plantings, and organized activities to help the neighborhood regain "ownership" and productive use of the park. The County should assist in the creation and support of these groups.

Other ways to improve urban livability related to open space and enhancing the environment are planting street trees and developing community gardens on former vacant lots. The environmental, scenic, and economic benefits of trees are well documented by American Forest, Inc., and others, and include measurable benefits to air quality, stormwater management, and temperature control of urban heat islands. The spin-off benefits of urban community gardens on former vacant lots are well documented by the Pennsylvania Horticultural Society, and include community beautification, improved community relations, and fresh, inexpensive, nutritious home-grown produce. The Open Space Preservation Trust Fund Advisory Committee may wish to also consider offering grants to urban areas for street trees and community gardens as a means to promote the quality of life in urban areas.

Action #3: Formalize proposed greenways through planning and negotiations Greenway creation does not always require acquisition - there are numerous ways to "formalize" greenways. Formalizing a greenway means preserving the corridor through a concerted effort to promote good stewardship, protect through land use regulations, or create through negotiations piecing together remnants of subdivision set-aside lands.

Because most of the land adjacent to streams is difficult to develop due to

environmental constraints, much of the land can continue to be protected through good stewardship by landowners. The Division of Open Space and Farmland Preservation and local watershed associations should continue to play a role in disseminating information about land stewardship techniques to streamside adjacent landowners. Information about maintaining a vegetated buffer along stream banks, minimizing use of pesticides and fertilizers on lawns, planting native species, cleaning up pet wastes and creating backyard habitats is important to relay to property owners adjacent to streams. The Environmental Commission of Camden County recently commissioned the Delaware Valley Regional Planning



Hidden Lake

Commission to compile a Teacher's Guide to the Watersheds of Camden County. The Teacher's Guide covers many of these issues and is one way to disseminate this type of information. The Division of Open Space and Farmland Preservation should work with local watershed associations to target dissemination of this type of information to all streamside landowners in the county. In addition, as another source, concise and easy to duplicate landowner stewardship flyers can be found in Appendix H.

Another way to formalize greenways is through implementation of land use regulations such as stream corridor protection ordinances, Official Greenway Maps, and conservation design ordinances. These are all discussed in greater detail in the next section on Protection Tools. Currently, most municipalities in Camden County are not taking advantage of these tools, which are explicitly enabled by the New Jersey Municipal Land Use Law (MLUL).

The above two methods protect the environmental values of stream corridors, but do not necessarily provide public access. Even when public access is desired, acquisition may still not be necessary. Many of the streamside lands making up proposed greenways in the older suburban

areas of the county may be subdivision set-asides from the development process, or homeowner association lands. The aerial photography review of the Pennsauken Creek greenway, for example, indicated this type of land use pattern. Researching the ownership of these parcels, and pursuing access and conservation easements through talks and negotiations, can create a continuous preserved greenway with public access. Developing trails, (many informal trails along creeks have already been created) where they don't already exist, branding them with names, and

providing appropriate and accessible entry points (signed entrances mapped on a county park brochure and website) can formalize the greenway.

Formalizing greenways through any of the actions described takes time and effort, more than dollars and cents. One way to facilitate this happening is through the next Action Item.

Action #4: Offer subsidized funding for municipal open space and greenway planning through the County Open Space Trust Fund The fourth action item recognizes that there will never be enough funding to acquire all the open space identified in the plan, and that more

THERE WILL NEVER BE ENOUGH FUNDING TO ACQUIRE ALL THE OPEN SPACE IDENTIFIED IN THE PLAN, AND MORE MUNICIPAL OPEN SPACE PLANNING AND USE OF LOCAL LAND USE REGULATIONS ARE NEEDED TO HELP PROTECT GREENWAYS AND FOCUS AREAS.



Lake Avenue Trail

municipal open space planning and use of local land use regulations are needed to help protect greenways and focus areas. Since all land use control in New Jersey is local, municipalities are key partners in preserving open space through the planning and regulatory process. However, most of the 37 municipalities in Camden County are currently not using the open space planning and regulatory tools that they are enabled to use by the New Jersey MLUL. (See Table 9). For example, only four communities

have open space and greenway plans, seven have natural resource inventories, six have open space trust funds, one has a stream corridor protection ordinance, and none outside the Pinelands have open space design ordinances requiring preservation of at least 50% of the tract.

To facilitate municipal use of these tools, the Camden County Open Space Preservation Trust Fund Advisory Committee and Camden County Board of Freeholders should consider

IMPROVE AND MARKET THE USE OF NEWLY ACQUIRED COUNTY PARKS TO SHOW COUNTY RESIDENTS FIRSTHAND WHERE THEIR TAX DOLLARS ARE GOING AND HOW IT BENEFITS THEM.



Lake Worth: Current conditions and how it could look after proposed improvements



offering small grants of \$2,500 - \$7,500 per municipal application to help fund the creation of open space and greenway plans and environmental protection ordinances. Increasing the number of municipalities in the county with Green Acres Planning Incentive Grant Status and/or communities using the development process to preserve open space will further county open space goals.

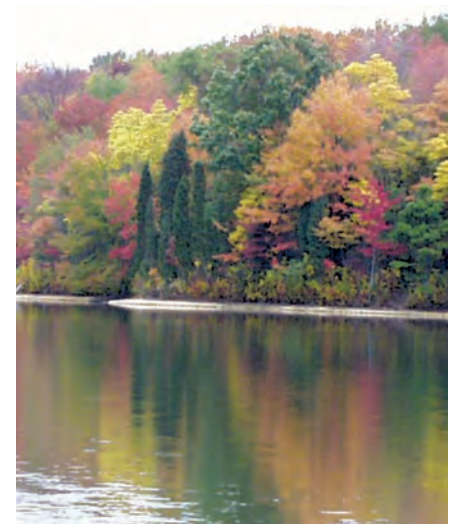
Action #5. Improve and market the use of newly protected county parklands The fifth action item is to improve and market the use of newly acquired county parks to show county residents firsthand where their tax dollars are going and how it benefits them. The County should develop the recent acquisitions into accessible parks with trails, water access, picnic facilities, and other features. The county should also invest in county park signage (including permanent plaques about funding from the Open Space Trust Fund and temporary displays of any landscape architect's plans for park improvements) at park entrances, and continued articles about the parks in municipal and county newsletters.

The cover of this Plan is a rendering of what Lake Worth Park could look like after it is developed as a park. The improvements include a picnic pavilion, pathway for walking and biking, docks for fishing, and dredged lake for canoeing or kayaking. With improvements, Lake Worth Park, as well as the other newly acquired properties, can become new outdoor destinations in

which county residents may exercise, relax, and commune with nature. Such places greatly improve a community's quality of life and its ability to maintain and attract residents and employers.

The Camden County Parks Department website has an informative list of park facilities, and the website could include maps from this report, as well, to help residents understand the Open Space Plan. These efforts are necessary to inform residents about how to access their park system and to garner continued support for the Open Space Tax and possible referendums to increase it.

Preservation Strategies: *There are four tiers of preservation*, ordered from most permanent, costly, and likelihood of providing public access to least permanent,



Patinos Lake

costly, and likelihood of providing public access:

- ❖ Acquisition
- ❖ Conservation easements
- ❖ Stronger land use regulations
- ❖ Good stewardship

Acquisition: Acquisition by a public agency or non-profit is typically the most costly, but the most permanent means to protect open space from development. The acquisition of open space can be accomplished in a number of ways. These include donation by property owner, fee simple purchase, and, purchase by private conservation organization. Camden County evaluates recommended acquisitions on a case-by-case basis to determine the most financially beneficial method to pursue in negotiations with the property owner(s). In many instances, partnerships with municipalities and private conservation organizations are formed to facilitate acquisition and subsequent administration and maintenance of the property.

Donation by Property Owner: A property owner elects to donate his or her property to a local government or private conservation organization. Public access to the property may or may not be granted.

Variations include a reserved life estate, where land is transferred immediately, but the owner reserves the use of the property for his or her lifetime, and a bequest, where the landowner conveys the deed of the property at the time of his or her death.

Fee Simple Purchase: Under a fee simple purchase, the transfer of full title to a property is made to the purchaser. The purchase price is negotiated based on an appraisal and the establishment of fair market value. Variations on this method of acquisition include installment purchases whereby a set number of acres are purchased periodically until full title is obtained, and bargain sales where purchase is at less than market value because the owner donates a portion of the purchase price. Fee simple purchase is typically the most costly method of acquisition. Public access to the property is typically granted under a fee simple purchase.

Purchase by Private Conservation Organization: Private conservation organizations can play a significant role in the acquisition of open space. By forming informal public-private partnerships with such organizations, significant amounts of open space can be preserved. Public access may or may not be granted by the organization.

THE SUCCESS OF ANY OPEN SPACE PLAN REQUIRES COOPERATION AMONG COUNTY AND MUNICIPAL GOVERNMENTS AND LOCAL DEVELOPERS IN ORDER TO SATISFY THE INTERESTS OF BOTH THE PUBLIC AND PRIVATE SECTORS.




A picturesque view of Lake Worth

Conservation Easements or Purchase of Development Rights -- Purchase of Conservation Easement: A conservation easement identifies certain rights or restrictions on the use and development of a property. Easements may be donated by a property owner or purchased by a local government, charitable organization, or conservation organization/land trust. The holder of the easement agrees to perform periodic inspections of the property to ensure that the provisions of the easement are being met. Public access to the property may or may not be granted under a conservation easement.

Purchase of Development Rights: The purchase of development rights is a form of

conservation easement whereby the difference in the highest and best use of undeveloped land before and after the creation of the easement is paid to the owner. In return, the owner agrees to abide by specific rights and restrictions on the use and development of the property. This is the primary method used in the acquisition of farmland. Public access to the property may or may not be granted by the purchase of development rights.

Land Use Regulations and Using the Development Process to Preserve Open Space: The success of any open space plan requires cooperation among county and municipal governments and



local developers in order to satisfy the interests of both the public and private sectors. While these interests may at times appear to be at odds with respect to open space preservation, much can be accomplished if all parties are willing to work together.

Opportunities exist for neighboring municipal governments to work cooperatively in the development of intermunicipal greenways along rivers, streams, out of service rail beds, etc. for the common use and enjoyment of their residents. Camden County should be a facilitator for such projects.

As municipalities govern development within their respective jurisdictions, Camden County must work with local planning and environmental commissions and zoning officials to encourage their support for land use planning strategies which encourage development along with open space preservation.

Another partner in preservation is the Pinelands Commission, which provides another level of environmental protection and land development review. Five municipalities in the county (Berlin Borough, Berlin Township, Chesilhurst Borough, Waterford Township and Winslow Township) are wholly or partially

within the Pinelands Area, under the jurisdiction of the Pinelands Commission. (See Map 2 - Pinelands) The Pinelands Protection Act of 1979 requires municipal plans and ordinances to be consistent with the Pinelands Comprehensive Management Plan (PCMP). A municipality is able to exercise more flexibility in applying the PCMP to local conditions by participating in the conformance process. Once a locality revises its plans and ordinances to conform to the PCMP, the Pinelands Commission Executive Director certifies the plans and ordinances as being in conformance with the PCMP. The five municipalities within the Pinelands in Camden County have received this certification.

In addition, all development applications within the Pinelands Area are reviewed by the Pinelands Commission to ensure that the resources of the Pinelands are not adversely affected by construction. When the Pinelands Commission completes its review and determines that the proposed development meets environmental standards, the applicant is issued a "Certificate of Filing", which enables the applicant to apply for other state and local permits needed.

To determine the role that local land use planning and regulations could play in creating the proposed greenways and focus

areas, an "audit" of the county's municipalities' use of open space and natural resource protection tools was undertaken. The following 11 techniques were reviewed, and the results of the audit are shown in Table 9.

Environmental Resource Inventory (ERI): is a compilation of text and mapped information about the natural resource characteristics and environmental features of a municipality. An ERI identifies critical natural resources and provides a policy basis for the development of resource protection ordinances.

Open Space Plan: is a comprehensive document that serves as a guide for open space protection and preservation in a municipality. An open space plan examines a community's needs and goals, analyzes preserved and unreserved open spaces, and lays out a set of priorities and strategies for preservation.

Floodplain Management Ordinance: regulates development activities in the 100-year floodplain. They typically limit nearly all new forms of residential, commercial, and industrial construction in the floodplain, and require flood-proofing where development does occur.

Stream Corridor Protection Ordinance: ensures that vegetated riparian buffers are maintained by requiring development to be set back from stream banks, floodplains, and wetland areas and by limiting the use

and intensity of activities within the corridor. Buffer widths typically range from 25 to 300 feet, depending on the community's goals.

Wetlands Mapping: by requiring wetlands mapping as part of the site plan submission requirements, municipalities can determine where wetlands may be threatened by inappropriate development, and can request site plan changes as appropriate. Although the NJDEP regulates development on wetlands, locally reviewing impacts on wetlands can result in more thorough and comprehensive protection.

Steep Slope Ordinance: regulates development on areas of steep slope, with 8% typically the minimum gradient classified as steep.

Transfer of Development Rights (TDR) Ordinance: allows municipalities to preserve rural and natural features while protecting property rights and allowing some growth. A TDR program takes development that would normally occur in rural areas (sending areas) and transfers it to other parts of a municipality where growth is more acceptable (receiving areas). Previous state legislation only permitted TDR programs in Burlington County, but new legislation that enables TDR programs in the rest of the state was approved by the Assembly and Senate and signed into law by Governor McGreevey on March 29, 2004.



Stafford Farm, photo by: Ken Sherman, courtesy of Trust for Public Land

Open Space/Cluster Development/Conservation Design Ordinance: enables developers to increase densities on one portion of a tract in return for preserving open space on another portion of a tract. This audit considered ordinances that require the preservation of at least 50% of a given tract as open space. Conservation Design Ordinances go one step further by facilitating the creation of an interconnected network of open space throughout the municipality, via the development process.

Agricultural Zoning: is a technique that allows municipalities to protect their rural and agricultural areas by establishing large minimum lot sizes. This audit considered municipalities with agricultural zoning

districts with 10 to 20-acre minimum lot sizes and those with 20 acre or larger minimum lot sizes.

Environmental Impact Statement: is a requirement usually found in the Land Development and Subdivision Ordinance that is intended to highlight the impacts of a development proposal on air, water, soil and on aquatic and terrestrial life. Each municipality has its own standards for determining the types of development proposals that will require an EIS.

Local Open Space Funding Program: provides dedicated funds, through special taxes or bonds, for local open space initiatives. Combined with county and state funding programs, locally funded open

space programs promote preservation by leveraging limited available funding .

Assessment: The county's municipalities are not taking advantage of the variety of local regulatory techniques available to preserve the significant environmental features within their boundaries. The five Camden County communities in the Pinelands benefit from the added environmental protection provided by the municipal certification and certificate of filing system for lands within the Pinelands areas. Of the county's 32 municipalities outside the Pinelands, 9 communities employ floodplain management ordinances

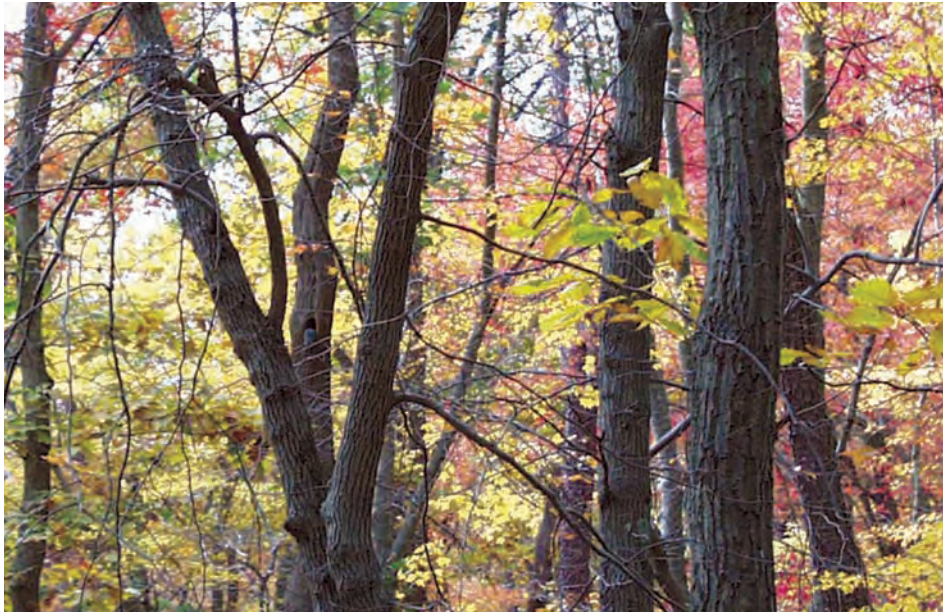
and 13 require wetlands mapping as a site plan submission requirement. Two municipalities (Cherry Hill and Voorhees townships) have an environmental resources inventory (ERI), four have an open space plan (Cherry Hill, Voorhees, Gibbsboro and the City of Camden), five have an open space trust fund (Cherry Hill, Clementon, Gibbsboro, Gloucester Township, Voorhees, and Berlin Township, which is partially within the Pinelands,) one (Gibbsboro) has a stream corridor protection ordinance, and none have open space ordinances requiring preservation of at least 50% of the tract. Fifteen municipalities require an Environmental Impact Statement (EIS) for certain developments, but, so few have an ERI or

open space plan, there may not be adequate information on which to judge the EIS.

Voorhees Township has ordinance language resembling a stream corridor protection ordinance - Section 131-11 of their code states "Unless otherwise specified and indicated on the Zoning Map, no structure shall be erected on land which is less than 4 feet above the normal or average level of any adjacent running stream, lake or body of water, including tidewaters, nor closer than 50 feet to such stream, lake or body of water, whichever conditions shall impose the greater requirements." This zoning language appears to have the effect of a stream corridor protection ordinance requiring a minimum setback of 50 feet. However, because it is a small section somewhat buried in the code, it may not be well understood or even known. A separate chapter that refers to the ERI is recommended.

Gibbsboro, alone, is the only community in the county with a steep slope ordinance. However, there are places in the county outside Gibbsboro that have severely steep slopes in excess of 25%, such as the slopes recently preserved along the North Branch of the Big Timber in Slims Ranch and the Hill Property.

ANOTHER TOOL THAT CAN ASSIST MUNICIPALITIES IN PROTECTING SIGNIFICANT LANDS THROUGH THE LAND DEVELOPMENT APPROVAL PROCESS IS AN OFFICIAL GREENWAY MAP.



Lake Avenue



Lafferty/Connolly Park, courtesy of Trust for Public Land

Since it is cost prohibitive to protect all the greenway and focus areas identified for preservation through fee simple acquisitions or even conservation easements, municipalities should consider using land use tools such as the aforementioned ordinances to help protect environmentally sensitive lands. Good examples of these ordinances from within the Delaware Valley can be viewed on DVRPC's website at www.dvrpc.org.

Another tool that can assist municipalities in protecting significant lands through the land development approval process is an Official Greenway Map. Official maps for open space and greenways are largely misunderstood and therefore quite underutilized, even though they are expressly authorized by the New Jersey Municipal Land Use Law in Article 5 - The Official Map, and Article 6, Section 40:55D-44 - Reservation of Public Areas.

An official greenway map is essentially an ordinance, in map form, adopted by the municipality, that designates existing and proposed areas for open space protection. By identifying these areas on an official map, the municipality is announcing its intentions to preserve these areas for flood control, streambank stabilization, provision of wildlife habitat, and/or recreational facilities. Once adopted, the official greenway map gives notice to property owners and developers of the municipality's intentions, but does not in and of itself serve to acquire the land for public purposes.

The official map usually comes into play at the time a land development or subdivision is proposed. The municipality then has the option, for up to one year after final plan approval, to negotiate various ways to keep the land open. Types of preservation agreements that may be pursued include fee simple acquisition, purchase of easement, bargain sale, and property donation. However, unless otherwise agreed upon, the law specifically states that the property owner is entitled to full market compensation. One municipality that has taken advantage of the tool is Washington Township in Gloucester County, which adopted an Official Greenway Map that facilitated the dedication of several hundred acres of streamside land throughout the township. ♦



Park Drive

Table 9 - Camden County Municipalities' Use of Natural Resource Protection Tools

MUNICIPALITY	ERI	OPEN SPACE PLAN	FLOODPLAIN MANAGEMENT ORDINANCE	STREAM CORRIDOR PROTECTION ORDINANCE	WETLANDS MAPPING	STEEP SLOPE ORDINANCE	TDR	CLUSTER DEVELOPMENT ORDINANCE	AG ZONING (ACRES)	EIS	LOCAL OPEN SPACE FUNDING PROGRAM
AUDUBON BOROUGH	NO	NO	YES	NO	YES	NO	NO	NO	NO	YES	NO
AUDUBON PARK BORO.	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
BARRINGTON	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO
BELLMAWR	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
BERLIN BOROUGH*	YES	NO	YES	NO	YES	NO	YES**	NO	NO	YES	NO
BERLIN TOWNSHIP*	YES	NO	YES	NO	YES	NO	YES**	NO	NO	YES	YES
BROOKLAWN	NO	NO	NO	NO	YES	NO	NO	NO	NO	YES	NO
CAMDEN	YES	YES	YES	NO***	NO	NO	NO	NO	NO	NO	NO
CHERRY HILL	YES	YES	YES	NO	YES	NO	NO	NO	NO	YES	YES
CHESILHURST*	YES	NO	NO	NO	NO	NO	YES**	NO	NO	YES	NO
CLEMENTON	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES
COLLINGSWOOD	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	NO
GIBBSBORO	NO	YES	YES	YES	YES	YES	NO	NO	NO	YES	YES
GLOUCESTER CITY	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
GLOUCESTER TOWNSHIP	NO	NO	YES	NO	YES	NO	NO	NO	NO	YES	YES
HADDON HEIGHTS	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO
HADDON TOWNSHIP	NO	NO	YES	NO	YES	NO	NO	NO	NO	YES	NO
HADDONFIELD	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	NO
HI-NELLA	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
LAUREL SPRINGS	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	NO

Table 9 - Camden County Municipalities' Use of Natural Resource Protection Tools (cont.)

MUNICIPALITY	ERI	OPEN SPACE PLAN	FLOODPLAIN MANAGEMENT ORDINANCE	STREAM CORRIDOR PROTECTION ORDINANCE	WETLANDS MAPPING	STEEP SLOPE ORDINANCE	TDR	CLUSTER DEVELOPMENT ORDINANCE	AG ZONING (ACRES)	EIS	LOCAL OPEN SPACE FUNDING PROGRAM
LAWNSIDE	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
LINDENWOLD	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
MAGNOLIA	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
MERCHANTVILLE	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	NO
MOUNT EPHRAIM	NO	NO	NO	NO	YES	NO	NO	NO	NO	YES	NO
OAKLYN	NO	NO	NO	NO	YES	NO	NO	NO	NO	YES	NO
PENNSAUKEN	NO	NO	YES	NO	NO	NO	NO	NO	NO	YES	NO
PINE HILL	NO	NO	YES	NO	YES	NO	NO	NO	NO	YES	NO
PINE VALLEY	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO
RUNNEMEDE	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
SOMERDALE	NO	NO	YES	NO	YES	NO	NO	NO	NO	NO	NO
STRATFORD	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
TAVISTOCK	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
VOORHEES	YES	YES	NO	NO	NO	NO	NO	NO	NO	YES	YES
WATERFORD*	YES	NO	YES	NO	YES	NO	YES**	YES	40	YES	NO
WINSLOW*	YES	NO	YES	NO	YES	NO	YES**	YES	40	YES	NO
WOODLYNNE	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO

* Municipalities wholly or partially within Pinelands Area, subject to conformity with the Pinelands Comprehensive Master Plan and Certificate of Filing procedure, which applies strict environmental standards to ensure protection of environmental resources. See Map 2 for Pinelands Management Areas

** Pinelands Development Credits

*** A Stream and River Corridor Protection and Management Overlay Zone is under consideration in the City of Camden

Source: DVRPC 2003

APPENDIX A: CRITERIA RANKING FOR SITE PRIORITIZATION

OPEN SPACE PRESERVATION RANKING PROCEDURE

A scale of -4 to +5 is used for purposes of evaluating the factors set forth below for each site for which an application has been submitted. Points assigned for each factor are then tabulated to determine an aggregate point total for that site. This number provides guidance in assessing the viability of the site for funding from the Camden County Open Space Recreation, Farmland and Historic Preservation Trust Fund. Note that while the point system plays a significant role in evaluating a site, it is not dispositive for purposes of an application. Rather, the ranking procedure is part of an overall assessment of each application. The overall assessment includes consideration of all reasonable and relevant facts that are known to, or brought to the attention of, the Open Space Trust Fund Advisory Committee.

Also note that to be ranked, municipal applications must be accompanied by documentation indicating the municipality's commitment to funds not less than 25% of the cost of preservation through acquisition or easement. Such funding shall be exclusive of any state funding (i.e. Green Acres). The above requirement may be waived by Camden County in the event of a municipality's demonstration of financial hardship resulting in an inability to provide funding.

CRITERIA RANKING

I. Land Use

a) Present Land Use : (circle predominant use only)

- 1) Open Space4
- 2) Farmland3
- 3) Recreation2

b) Proposed Use: (circle predominant use only)

- 1) Conservation/Passive Recreation ...2
- 2) Active Recreation1

- 1) 80 + acres5
- 2) 60 - 79 acres4
- 3) 40 - 59 acres3
- 4) 20 - 39 acres2
- 5) 0 - 19 acres1

II. Development Pressure

a) Ownership:

- 1) Estate Sale/Foreclosure4
- 2) Corporation or Partnership3
- 3) Resident Ownership2
- 4) Other (i.e. municipality, tax-exempt non-profit organization)1

b) Market Availability:

- 1) Property listed for sale w/knowledge of offer4
- 2) Property under market investigation ...3
- 3) Property not for sale2
- 4) Other1

c) Suitability for Development:

- 1) Subdivision approved/previously subdivided4
- 2) Subdivision application filed: minor impediments3
- 3) Subdivision application filed: minor impediments2
- 4) Subdivision application pending ...1
- 5) No subdivision application pending or approved0

d) Infrastructure Availability

- 1) Available roads, public water and sewer4
- 2) 2 of the above3
- 3) 1 of the above2
- 4) None of the above0

III. Environmental Factors

a) Proximity to Wetlands:

- 1) Wetlands present4

- 2) Wetlands buffer area present3
- 3) Adjacent to wetlands buffer2
- 4) Neither wetlands buffer, nor adjacent to wetlands buffer0

b) Riparian Corridor/Water Frontage:

- 1) Exceptional water frontage4
- 2) Some water frontage3
- 3) Protects water frontage2
- 4) No water frontage or protection of water frontage0

c) Presence of Woodlands:

- 1) Mature woodlands over major area 4
- 2) Mature woodlands over minor area 3
- 3) Less mature woodlands present over major area2
- 4) Less mature woodlands present over minor area1

d) Contamination:

- 1) Environmental assessment/initial investigation conducted:
 - a) Extensive hazardous waste contamination confirmed-4
 - b) Limited hazardous waste contamination confirmed-3
 - c) Municipal waste/non-hazardous debris confirmed-2

- 2) No detailed initial investigation conducted, contamination suspected/possible1

- 3) No detailed initial investigation conducted no known or suspected contamination0

e) Endangered or Threatened Species Habitats:

- 1) Known endangered/threatened species habitat4
- 2) Suspected endangered/threatened species habitat2
- 3) No known endangered/threatened species habitat0

IV. Greenway/Open Space Characteristics

a) Proximity to Greenway/Protected Open Space:

- 1) Contiguous to existing protected greenway or existing protected open space4
- 2) Contiguous to unprotected greenway or open space3
- 3) Significant potential to connect to existing greenway or protected open space2

b) Proximity to Farmland:

- 1) Contiguous to protected farmland .4
- 2) Within ½ mile radius of protected farmland3
- 3) Contiguous to unprotected farmland2
- 4) Within ½ mile radius of unprotected farmland1

c) Proximity to Scenic Views:

- 1) Contains scenic views3
- 2) Compliments scenic views2
- 3) No significant contribution0

V. Ease of Acquisition/Conservation

a) Other Funding Applied For: (circle all that apply)

- 1) Green acres2
- 2) Farmland preservation2
- 3) Historic preservation2
- 4) Community Development Block Grant .2
- 5) Rails-to-Trails2
- 6) Matching municipal funds or services 2
- 7) Other2

b) Public Support:*

- 1) Application is endorsed by municipality 5

*Strongly suggest you ask your municipality for a Letter of Endorsement or Resolution supporting the sale of your property to the County Open Space Preservation Program.

APPENDIX B: RECREATIONAL OPEN SPACE NEEDS ANALYSIS

PARK REQUIREMENTS TO 2025 (POPULATION-BASED METHOD - 2003)

	POPULATION BY DENSITY CATEGORY								
COUNTY	0 to 499	500 to 4,999	5,000 to 9,999	> 10,000	TOTAL POPULATION 2025	SUB-REGIONAL PARK REQUIREMENT (ACRES)	SUB-REGIONAL DEFICIT/ SURPLUS	REGIONAL PARK REQUIREMENT (ACRES)	REGIONAL DEFICIT/ SURPLUS
BUCKS	70,560	651,890	25,670	0	748,120	6,075	2,247		
CHESTER	116,370	394,970	20,290	18,530	550,160	4,519	888		
DELAWARE	4,100	305,580	223,994	14,110	547,784	3,886	-3,042		
MONTGOMERY	15,280	742,650	99,100	0	857,030	6,689	-769		
PHILADELPHIA	0	0	529,270	970,730	1,500,000	7,059	1,027		
PA TOTAL					4,203,094	28,228	-3,811	105,077	-73,234
BURLINGTON	107,830	19,970	19,970	0	513,450	4,283	-2,254		
CAMDEN	12,490	103,110	103,110	0	513,530	3,927	-1,327		
GLOUCESTER	48,470	0	0	0	322,520	2,677	-978		
MERCER	23,050	14,100	14,100	86,500	404,850	2,911	5,071		
NJ TOTAL					1,754,350	13,798	-4,559	43,859	117,441
REGION TOTAL					5,957,444	42,026	-8,370	148,936	-73,234

STANDARDS FOR PARKS AND RECREATIONAL AREAS (acres/1000 population)

	DENSITY (persons/square mile)				
CATEGORY	> 10,000	5,000-9,999	500-4,999	0-499	REGION
REGIONAL	-	-	-	-	25
SUB-REGIONAL	4.0	6.0	8.0	10.0	-
LOCAL	3.08	6.17	8.0	6.0	-

Source: DVRPC 2003

NEW JERSEY BALANCED LAND USE GUIDELINES 2002							
COUNTY	AREA	FEDERAL	STATE	WETLANDS	DEVELOPABLE	7% COUNTY GOAL	COUNTY DEFICIT/SURPLUS
	A	-F	-S	-W	= D		
BUCKS	389,056	0	12,156	18,250	358,650	25,106	-16,784
CHESTER	483,776	1,182	6,791	7,825	467,978	32,758	-27,804
DELAWARE	118,080	701	3,145	5,274	108,960	7,627	-6,904
MONTGOMERY	308,992	2,199	4,287	5,625	296,881	20,782	-15,012
PHILADELPHIA	86,464	319	255	5,534	80,356	5,625	3,061
PA TOTAL	1,386,368	4,401	26,634	42,508	1,312,825	91,898	
TOTAL							-66,504
BURLINGTON	514,880	4,001	128,856	10,432	371,591	26,011	-24,045
CAMDEN	142,272	0	18,642	14,798	108,832	7,618	-5,307
GLOUCESTER	208,064	0	5,108	13,164	189,792	13,285	-11,598
MERCER	144,516	0	3,464	16,045	125,007	8,750	-987
NJ TOTAL	1,009,732	4,001	156,070	54,439	795,222	55,666	
TOTAL							-41,939

STATE	AREA	10% STATE GOAL	STATE DEFICIT/SURPLUS	4% FEDERAL GOAL	FEDERAL DEFICIT/SURPLUS
PA	1,386,368	138,637	-112,003	55,455	-51,054
NJ	1,009,732	100,973	55,097	40,389	-36,388
Source: DVRPC 2003					

ADJUSTED LAND USE GUIDELINES (2002)					
COUNTY	AREA	EXISTING PARKS, PRESERVATION AREAS AND DEVELOPED LANDS	REMAINING DEVELOPABLE	COUNTY GOAL OF 7% OF REMAINING DEVELOPABLE	COUNTY PARKS AS % OF EXISTING DEVELOPED AND PRESERVED
BUCKS	389,056	174,360	214,696	15,029	4.77%
CHESTER	483,776	159,959	323,817	22,667	3.10%
DELAWARE	118,080	86,024	32,056	2,244	0.84%
MONTGOMERY	308,992	177,514	131,478	9,203	3.25%
PHILADELPHIA	86,464	79,850	6,614	0	10.88%
PA TOTAL	1,386,368	677,707	708,661		
TOTAL				49,143	
BURLINGTON	514,880	364,568	150,312	10,522	0.54%
CAMDEN	142,272	91,472	50,800	3,556	2.53%
GLOUCESTER	208,064	83,813	124,251	8,698	2.01%
MERCER	144,516	82,636	61,880	2,353	9.39%
NJ TOTAL	1,009,732	622,489	387,243		
TOTAL				25,128	

STATE	TOTAL PARKS, DEVELOPED AND PRESERVED LANDS	REMAINING DEVELOPABLE	10% STATE GOAL	STATE PARKS AS % OF EXISTING PARKS, DEVELOPED, AND PRES. LANDS	4% FEDERAL GOAL	FEDERAL PARKS AS % OF EXISTING PARKS, DEVELOPED, AND PRES. LANDS
PA	677,707	708,661	70,866	3.99%	28,346	0.65%
NJ	622,489	387,243	0	25.07%	15,490	0.64%
Source: DVRPC 2003						

APPENDIX C INVENTORY OF CAMDEN COUNTY WATER BODIES AND WATERSHEDS

Camden County is bordered by the Delaware River, is home to approximately 450 lakes and ponds, and contains six major waterways: the Cooper, Great Egg Harbor, and Mullica Rivers, and the Big Timber, Newton and Pennsauken Creeks. Together, these waterways and their many tributaries travel through 36 of Camden County's 37 municipalities. The county is drained by seven watersheds: Big Timber Creek, Cooper River, Great Egg Harbor, Mullica River, Newton Creek, Pennsauken Creek and Rancocas Creek. The Great Egg Harbor and the Mullica River watersheds flow easterly into the Atlantic Ocean. The other five watersheds drain westerly to the Delaware River Basin.

The following pages identify the number and where available, the names of the various lakes, ponds, rivers, streams and tributaries found in each municipality. Also listed are the watershed(s) within each.

Audubon Borough

Lakes/Ponds (2)

Audubon Lake;
Haddon Lake

Rivers/Streams, etc. (2)

Newton Creek (S.B.)
Peter Creek

Watershed

Newton Creek

Audubon Park Borough

Lakes/Ponds (0)

None

Rivers/Streams, etc. (1)

Peter Creek

Watershed

Newton Creek

Barrington Borough

Lakes/Ponds (5)

All Unnamed

Rivers/Streams, etc. (1)

Beaver Branch

Watershed

Big Timber Creek
Cooper River (minor)

Bellmawr Borough

Lakes/Ponds (2)

All Unnamed

Rivers/Streams, etc. (3)

Beaver Branch
Big Timber Creek
Little Timber Creek

Watershed

Big Timber Creek

Berlin Borough

Lakes/Ponds (5)

All Unnamed

Rivers/Streams, etc. (2)

Longacoming Branch of the Great
Egg Harbor River

Watershed

Great Egg Harbor River
Big Timber Creek
Mullica River

Berlin Township

Lakes/Ponds (4)

All Unnamed

Rivers/Streams, etc

Kettle Run
Mullica River

Watershed

Big Timber Creek
Great Egg Harbor River;
Mullica River
Rancocas Creek

Brooklawn Borough

Lakes/Ponds (4)

All Unnamed

Rivers/Streams, etc. (2)

Big Timber Creek
Little Timber Creek

Watershed

Big Timber Creek

Camden City

Lakes/Ponds (0)

None

Rivers/Streams, etc. (3)

Cooper River
Delaware River
Newton Creek

Watershed

Cooper River
Newton Creek

Cherry Hill Township

Lakes/Ponds (19)

Evans Pond
Wallworth Lake
(17) Unnamed

Rivers/Streams, etc. (9)

Cooper River;
Cooper River (N.B.)
Cooper River (S.B.)
Cuffys Run
Holly Swamp Branch
Long Branch
Mill Creek
Pennsauken Creek (S. B.)
Tindall Run

Watershed

Cooper River
Pennsauken Creek

Chesilhurst Borough

Lakes/Ponds (1)

Unnamed

Rivers/Streams, etc. (1)

Wildcat Branch

Watershed

Mullica River

Clementon Borough

Lakes/Ponds (7)

Bottom Lake
Clementon Lake
Pillings Lake
Silver Lake
Watson Lake
2 Unnamed Lakes

Rivers/Streams, etc.

Big Timber Creek (N.B.)
Trout Run

Watershed

Big Timber Creek

Collingswood Borough

Lakes/Ponds (4)

Newton Lake
3 unnamed lakes

Rivers/Streams, etc. (2)

Cooper River
Newton Creek

Watershed

Cooper River
Newton Creek

Gibbsboro Borough

Lakes/Ponds (12)

Bridgewood Lake
Clement Lake
Edgewood Lake
Linden Lake
Silver Lake
Woodland Lake
6 Unnamed Lakes

Rivers/Streams, etc. (5)

Cooper River (S.B.)
Haney Run
Hillard Creek
Nicholson Branch
1 Unnamed Stream

Watershed

Cooper River

Gloucester City

Lakes/Ponds (7)

All Unnamed

Rivers/Streams, etc. (4)

Delaware River
Little Timber Creek
Newton Creek
Newton Creek (S.B.)

Watershed

Newton Creek
Big Timber Creek

Gloucester Township

Lakes/Ponds (76)

Blackwood Lake
Lake Clementona
George Lake
Grenloch Lake
Hidden Lake
Jones Lake
Nashes Lake
69 unnamed Lakes
(8 within Log Valleybrook Golf Course
1 within Freeway Golf Course)

Rivers/Streams, etc. (16)

Big Timber Creek (N.B.)
Big Timber Creek (S.B.)
Bridge Branch
Chestnut Branch
Farrows Run
Gardners Run
Gravelly Run
Holly Run
Jeremys Branch
LogBridge Branch
Mingus Run
Otter Branch
Pines Run
Signeys Run
Smallwoods Branch
Toms Branch

Watershed

Great Egg Harbor River
Big Timber Creek

Haddonfield Borough

Lakes/Ponds (5)

Evans Pond
Hopkins Pond
Wallworth Lake
2 unnamed lakes

Rivers/Streams, etc. (5)

Cooper River
Cooper River (S.B.)
Lamkins Run
2 Unnamed Tributaries

Watershed

Big Timber Creek (Minor)
Cooper River
Newton Creek

Haddon Heights Borough

Lakes/Ponds (0)

None

Rivers/Streams, etc.

Newton Creek (S.B.)

Watershed

Big Timber Creek
Newton Creek

Haddon Township

Lakes/Ponds (4)

Crystal Lake
Newton Lake
2 Unnamed Lakes

Rivers/Streams, etc. (4)

Cooper River
Newton Creek
Newton Creek (S.B.)

Watershed

Cooper River
Newton Creek

Hi-Nella Borough

Lakes/Ponds (0)

None

Rivers/Streams, etc. (1)

Signeys Run

Watershed

Big Timber Creek

Laurel Springs Borough

Lakes/Ponds (1)

Laurel Lake

Rivers/Streams, etc. (2)

Big Timber Creek (N.B.)
Quaker Run

Watershed

Big Timber Creek

Lawnside Borough

Lakes/Ponds (1)

Unnamed

Rivers/Streams, etc. (1)

Cooper River (S.B.)

Watershed

Big Timber Creek (Minor)
Cooper River; Newton Creek

Lindenwold Borough

Lakes/Ponds (7)

Kirkwood Lake
Laurel Lake
Linden Lake
Pine Lake
Lake Worth
2 Unnamed Lakes

Rivers/Streams, etc. (4)

Big Timber Creek (N.B.)
Cooper River (S.B.)
Mason Run
Trout Run

Watershed

Big Timber Creek
Cooper River

Magnolia Borough

Lakes/Ponds (0)

None

Rivers/Streams, etc. (2)

Cooper River (S.B.)
Lamkins Run

Watershed

Big Timber Creek
Cooper River

Merchantville Borough

Lakes/Ponds (0)

None

Rivers/Streams, etc. (0)

None

Watershed

Cooper River

Mt. Ephraim Borough

Lakes/Ponds (2)

Audubon Lake
Haddon Lake

Rivers/Streams, etc. (2)

Little Timber Creek
Newton Creek (S.B.)

Watershed

Big Timber Creek
Newton Creek

Oaklyn Borough

Lakes/Ponds (3)

Newton Lake
Peter Creek
1 Unnamed

Rivers/Streams, etc. (2)

Newton Creek
Peter Creek

Watershed

Newton Creek

Pennsauken Township

Lakes/Ponds (2)

Tippins Pond
Fish House Cove
(cove in Delaware River)

Rivers/Streams, etc. (6)

Delaware River
Hell Run
Pennsauken Creek
Pennsauken Creek (S.B.)
Pochack Creek
Rattlesnake Run

Watershed

Pennsauken Creek
Cooper River

Pine Hill Borough

Lakes/Ponds (10)

All Unnamed

Rivers/Streams, etc. (3)

Big Timber Creek (N.B.)

Mason Run

Sharps Branch

Watershed

Great Egg Harbor River

Big Timber Creek

Pine Valley Borough

Lakes/Ponds (5)

All Unnamed

Rivers/Streams, etc. (1)

Big Timber Creek (N.B.)

Watershed

Great Egg Harbor River

Big Timber Creek

Runnemede Borough

Lakes/Ponds (4)

Runnemede Lake

3 Unnamed

Rivers/Streams, etc. (2)

Beaver Branch

Big Timber Creek

Watershed

Big Timber Creek

Somerdale Borough

Lakes/Ponds (0)

None

Rivers/Streams, etc. (3)

Cooper River (S.B.)

Gravelly Run

1 unnamed

Watershed

Cooper River

Big Timber Creek

Stratford Borough

Lakes/Ponds (0)

None

Rivers/Streams, etc. (2)

Big Timber Creek (N.B.)

Signeys Run

Quaker Run

Watershed

Cooper River

Big Timber Creek

Tavistock Borough

Lakes/Ponds (3)

All Unnamed

Rivers/Streams, etc. (1)

Lamkins Run

Watershed

Big Timber Creek (Minor)

Cooper River

Voorhees Township

Lakes/Ponds (46)

Cedar Lake

Kirkwood Lake

Kresson Lake

Lion Lake

Oles Lake

Sunshine Park Lake

40 unnamed

Rivers/Streams, etc. (7)

Back Run

Bortons Run

Cooper River (N.B.)

Cooper River (S.B.)

Cuffys Run

Holly Swamp Branch

Nicholson Branch

Watershed

Cooper River

Rancocas Creek

Waterford Township

Lakes/Ponds (47)

Atco Lake

Burnt Mill Pond

47 unnamed

Rivers/Streams, etc. (13)

Albertsons Branch

Clark Branch

Coopers Branch

Gum Branch

Hays Mill Creek

Marshall's Mill Stream

Mechescatuxen Branch/Sleeper Branch

Mullica River

Blue Anchor Branch

Prices Branch

Pump Branch

Tusco Musco Branch

Wildcat Branch

Watershed

Mullica River

Winslow Township

Lakes/Ponds (172)

Anchor Lake

Hobb Lake

New Brooklyn Lake

Virginia Lake

168 unnamed

Rivers/Streams, etc. (21)

Albertson Branch

Big Bridge Branch

Blue Anchor Branch

Cedar Branch

Clark Branch

Four Mile Branch

Great Egg Harbor River

Great Swamp Branch

Kays Branch

Longacoming Branch

Marshall's Mill Stream

Murrell's Branch

Penns Branch

Penny Pot Stream

Prossers Pond Branch

Sharps Branch

Spring Branch

Tinkers Branch

Town Branch

Wildcat Branch

Woas Branch

Watershed

Great Egg Harbor River

Mullica River

Woodlyn Borough

Lakes/Ponds (0)

None

Rivers/Streams, etc. (1)

Newton Creek (N.B.)

Watershed

Newton Creek

Sources: 1999 Camden County Open Space and Recreation Plan; Waterways of Camden County - A Historical Gazetteer by William R. Farr, 2002; and mapped stream and lake names provided by Ed Fox, Camden County Improvement Authority

APPENDIX D: INVENTORY OF CAMDEN COUNTY RARE SPECIES AND ECOSYSTEMS

This inventory of Camden County's rare species and habitats is taken from the Camden County Open Space and Recreation Plan of 1999, which derived its data from the New Jersey Department of Environmental Protection Division of Parks and Forestry's Natural Heritage Database. The list includes 23 animal species, 89 plant species and 3 ecosystems.

NATURAL LANDS MANAGEMENT: CAUTIONS AND RESTRICTIONS ON NATURAL HERITAGE DATA

The quantity and quality of data collected by the Natural Heritage Program is dependent on the research and observations of many individuals and organizations. Not all of this information is the result of comprehensive or site-specific field surveys. Some natural areas in New Jersey have never been thoroughly surveyed. As a result, new locations for plant and animal species are continually added to the database. Since data acquisition is a dynamic, ongoing process, the Natural Heritage Program cannot provide a definitive statement on the presence, absence, or condition of biological elements in any part of New Jersey. Information supplied by the Natural Heritage Program summarizes existing data known to the program at the time of the request regarding the biological elements or locations in question. They should never be regarded as final statements on the elements or areas being considered, nor should they be substituted for on-site surveys required for environmental assessments. The attached data is provided as one source of information to assist others in the preservation of natural diversity.

This office cannot provide a letter of interpretation or a statement addressing the classification of wetlands as defined by the Freshwater Wetlands Act. Requests for such determination should be sent to the DEP Land Use Regulation Program, Post Office Box 401, Trenton, New Jersey 08625-0401.

This cautions and restrictions notice must be included whenever information provided by the Natural Heritage Database is published.

New Jersey Department of Environmental Protection Division of Parks and Forestry

APPENDIX D: INVENTORY OF CAMDEN COUNTY RARE SPECIES AND ECOSYSTEMS

RARE SPECIES AND NATURAL COMMUNITIES IN CAMDEN COUNTY				
NAME	COMMON NAME	FEDERAL STATUS	STATE STATUS	REGIONAL STATUS
VERTEBRATES				
<i>Clemmys Muhlenbergii</i>	Bog Turtle	Threatened	Endangered	
<i>Falco Peregrinus</i>	Peregrine Falcon	Endangered	Endangered	
<i>Hyla Andersonii</i>	Pine Barrens Treefrog		Endangered	
<i>Melanerpes Erythrocephalus</i>	Red -Headed Woodpecker		Threatened	
<i>Pituophis Melanoleucus</i>	Northern Pine Snake		Threatened	
INVERTEBRATES				
<i>Anax Longipes</i>	Comet Darner			
<i>Celithemis Martha</i>	Martha's Pennant			
<i>Enallagma Pictum</i>	Scarlet Bluet			
<i>Enallagma Recurvatum</i>	Pine Barrens Bluet			
<i>Epitheca Spinosa</i>	Robust Baskettail			
<i>Erynnis Martialis</i>	Mottled Dusky Wing			
<i>Gomphus Apomyius</i>	Banner Clubtail			
<i>Helicodiscus Singleyanus</i>	Smooth Coil			
<i>Hesperia Attalus Slossonae</i>	Dotted Skipper			
<i>Incisalia Irus</i>	Frosted Elfin			
<i>Lampsilis Radiata</i>	Eastern Lampmussel			
<i>Leptodea Ochracea</i>	Tidewater Mucket			
<i>Libellula Axilena</i> Bar -	Winged Skimmer			
<i>Ligumia Nasuta</i>	Eastern Pondmussel			
<i>Nicrophorus Americanus</i>	American Burying Beetle	Endangered	Endangered	
<i>Pieris Virginiensis</i>	West Virginia White			
<i>Polygonia Progne</i>	Gray Comma			
<i>Spartiniphaga Carterae</i>	Carter's Noctuid Moth			
VASCULAR PLANTS				
<i>Aeschynomene Virginica</i>	Sensitive Joint-Vetch	Threatened	Endangered	LP *
<i>Agastache Scrophulariifolia</i>	Purple Giant Hyssop			
<i>Amianthium Muscitoxicum</i>	Fly Poison			
<i>Aristida Basiramea</i> Var <i>Curtissii</i>	Curtis' Three-Awned Grass			
<i>Aristida Lanosa</i>	Woolly Three-Awned Grass		Endangered	
<i>Aristida Virgata</i> Wand-Like Three-Awned Grass				
<i>Asclepias Rubra</i>	Red Milkweed			LP *
<i>Asclepias Variegata</i>	White Milkweed			
<i>Asclepias Verticillata</i>	Whorled Milkweed			
<i>Aster Infirmus</i>	Cornel-Leaved Aster			
<i>Aster Radula</i>	Low Rough Aster		Endangered	
<i>Bidens Bidentoides</i>	Bur-Marigold		Endangered	
<i>Botrychium Oneidense</i>	Blunt-Lobed Grape-Fern			
<i>Cacalia Atriplicifolia</i>	Pale Indian Plantain		Endangered	
<i>Cacalia Muehlenbergii</i>	Great Indian Plantain			
<i>Calamovilfa Brevipilis</i>	Pine Barren Reedgrass			LP *
<i>Calystegia Spithamea</i>	Erect Bindweed		Endangered	
<i>Carex Aquatilis</i>	Water Sedge		Endangered	
<i>Carex Barrattii</i>	Barratt's Sedge			LP *
<i>Carex Cumulata</i>	Clustered Sedge		Endangered	
<i>Carex Mitchelliana</i>	Mitchell's Sedge			
* LP Indicates taxa listed by the Pinelands Commission as endangered or threatened within their legal jurisdiction				

APPENDIX D: INVENTORY OF CAMDEN COUNTY RARE SPECIES AND ECOSYSTEMS CONT.

RARE SPECIES AND NATURAL COMMUNITIES IN CAMDEN COUNTY (CONT)				
NAME	COMMON NAME	FEDERAL STATUS	STATE STATUS	REGIONAL STATUS
VASCULAR PLANTS (CONT)				
Carex Rostrata	Beaked Sedge			
Castilleja Coccinea	Scarlet Indian Paintbrush			
Cercis Canadensis	Redbud		Endangered	
Chenopodium Rubrum	Red Goosefoot		Endangered	
Coeloglossum Viride	Long-Bracted Green Orchid			
Commelina Erecta	Slender Dayflower		Endangered	
Coreopsis Rosea	Pink Tickseed			LP *
Crotonopsis Elliptica	Elliptical Rushfoil			LP *
Cuscuta Polygonorum	Smartweed Dodder			
Cyperus Engelmannii	Engelmann's Flatsedge			
Cyperus Lancastris	Lancaster Flatsedge			
Cyperus Retrofractus	Rough Flatsedge		Endangered	
Desmodium Strictum	Pineland Tick-Trefoil			LP *
Desmodium Viridiflorum	Velvety Tick-Trefoil			
Diodia Virginiana	Larger Buttonweed		Endangered	
Draba Reptans	Carolina Whitlow-Grass		Endangered	
Epilobium Strictum	Downy Willow-Herb			
Eriocaulon Parkeri	Parker's Pipewort			
Eriophorum Tenellum	Rough Cottongrass		Endangered	
Eryngium Yuccifolium	Rattlesnake Master			
Eupatorium Capillifolium	Dog-Fennel Thoroughwort		Endangered	
Eupatorium Resinosum	Pine Barren Boneset		Endangered	LP *
Gentiana Autumnalis	Pine Barren Gentian			LP *
Glyceria Grandis	American Mannagrass		Endangered	
Gnaphalium Helleri	Heller's Everlasting		Endangered	
Helonias Bullata	Swamp-Pink	Threatened	Endangered	LP *
Hemicarpha Micrantha	Hemicarpha		Endangered	
Heteranthera Multiflora	Mud Plantain			
Hydrastis Canadensis	Golden Seal			
Juncus Caesariensis	New Jersey Rush		Endangered	LP *
Juncus Torreyi	Torrey's Rush			
Kuhnia Eupatorioides	False Boneset		Endangered	
Lemna Perpusilla	Minute Duckweed		Endangered	
Limnolobos Subulata	Mudweed		Endangered	
Linum Intercusum	Sandplain Flax		Endangered	
Listera Australis	Southern Twayblade			LP *
Lythrum Hyssopifolia	Hyssop Loosestrife			
Melanthium Virginicum	Virginia Bunchflower		Endangered	
Micranthemum				
Micranthemoides	Nuttall's Mudwort		Endangered	
Muhlenbergia Torreyana	Pine Barren Smoke Grass			LP *
Myriophyllum Tenellum	Slender Water-Milfoil		Endangered	
Nelumbo Lutea	American Lotus		Endangered	
Nuphar Microphyllum	Small Yellow Pond Lily		Endangered	
Onosmodium Virginianum	Virginia False-Gromwell		Endangered	
Plantago Pusilla	Slender Plantain		Endangered	
* LP Indicates taxa listed by the Pinelands Commission as endangered or threatened within their legal jurisdiction				

RARE SPECIES AND NATURAL COMMUNITIES IN CAMDEN COUNTY (CONT.)				
NAME	COMMON NAME	FEDERAL STATUS	STATE STATUS	REGIONAL STATUS
VASCULAR PLANTS (CONT.)				
Plantanthera Flava Var Flava	Southern Rein Orchid		Endangered	
Pluchea Foetida	Stinking Fleabane		Endangered	
Polygala Incarnata	Pink Milkwort		Endangered	
Polygonum Glaucum	Sea-Beach Knotweed		Endangered	
Prunus Angustifolia	Chichasaw Plum		Endangered	
Puccinellia Fasciculata	Torrey's Meadow Grass			
Pycnanthemum Clinopodioides	Basil Mountain Mint		Endangered	
Rhynchospora Globularis	Grass-Like Beaked Rush		Endangered	
Rhynchospora Inundata	Horned Beaked Rush			LP *
Rhynchospora Knieskernii	Knieskern's Beaked Rush	Threatened	Endangered	LP *
Rhynchospora Pallida	Pale Beak Rush			
Sagittaria Teres	Slender Arrow Head		Endangered	
Scheuchzeria Palustris	Arrow-Grass		Endangered	
Schizaea Pusilla	Curly Grass Fern			LP *
Schwalbea Americana	Chaffseed	Endangered	Endangered	LP *
Scirpus Longii	Long's Bulrush		Endangered	LP *
Scirpus Maritimus	Salt Marsh Bulrush		Endangered	
Spiranthes Odorata	Fragrant Ladies' Tresses			
Stellaria Pubera	Star Chickweed		Endangered	
Thaspium Barbinode	Hairy-Jointed Meadow Parsnip			
Verbena Simplex	Narrow-Leaved Vervain		Endangered	
Vulpia Elliothea	Squirrel Fescue		Endangered	
Xyris Fimbriata	Fringed Yellow-Eyed Grass		Endangered	
ECOSYSTEMS				
Coastal Plain Internittent Pond	Vernal Pond			
Freshwater Tidal Marsh Complex	Freshwater Tidal Marsh Complex			
Pitch Pine Lowland Forest	Pitch Pine Lowland Forest			
* LP Indicates taxa listed by the Pinelands Commission as endangered or threatened within their legal jurisdiction				

I. INTRODUCTION

The Threat Assessment component is designed to consider growth trends and other conditions that reveal the likelihood of development in any location within Camden County. Although the entire county is said to be under development threat, the task of the Threat Assessment is to incorporate the most important indicators of likelihood of development into a useful index that quantifies relative threat across the county. Trends from places outside the county, but within the Philadelphia / South Jersey region, are also used where relevant in determining growth and development patterns for Camden County. The methodology of this Threat Assessment component is based on a Southeastern Pennsylvania Threat Assessment performed by the Delaware Valley Regional Planning Commission in conjunction with The Natural Lands Trust in January, 2003.

II. OVERALL PROJECT APPROACH

Based on available data and previous research for the Regional Threat Assessment, the following five (5) analyses, or components, were chosen to combine into a composite threat assessment map. The five components vary from municipal-based scores to geographically specific spatial analysis, but all five components can still be combined to create one analytical score-based map. The five analyses are:

- ❖ Trend Friction Map
- ❖ Employment Center Travel Times
- ❖ Building Activity - Permitted Housing Units Relative to Municipal Size and Available Land
- ❖ Vulnerability Index
- ❖ Sewer Service Areas

These five analyses account for multiple variables including: Population and employment forecasts; designated growth, rural, and open space areas; land use consumption trends; employment center growth, location and actual travel times to; permitted housing units over a seven (7) year period, total municipal size, and developable land by municipality; municipal use of natural resource protection tools; and existing and proposed sewer service areas. The compilation of data for each component is followed by translating results into workable indices that lend themselves to a composite map created by GIS spatial analyst software. Three of the components (Trend Friction Map, Building Activity, and Vulnerability Index) result in municipal raw scores, which are ultimately categorized into a 10-point scale.

The Travel Time and Sewer Service components are also on a 10-point scale, but scores are assigned specific polygons created by GIS layers rather than municipalities. The sewer scoring system differs by using a qualitative category (the existence of public sewers or not).

Each component is then weighted as a whole based upon its significance to the overall threat assessment. A composite map is formed when the individual scores of a municipality or polygon are adjusted depending on the relative importance of the factor. The following table lists relative weights of the components.

COMPARATIVE WEIGHTS	
COMPONENT	WEIGHT
TREND FRICTION MAP	25%
EMPLOYMENT CENTER TRAVEL TIME	25%
BUILDING ACTIVITY	25%
VULNERABILITY INDEX	10%
SEWER SERVICE AREAS	15%

The details of each component are reported in a separate report titled *Threat Assessment for Camden County, NJ*, available through DVRPC.

APPENDIX F - BROWNFIELDS TABLE

The following pages were excerpted from metadata on brownfields that was previously downloaded from a NJDEP website. The information provided here was obtained in 2002, and is not currently available on the DEP website. The database is presently being updated by the NJ Office of Smart Growth. For additional information on Brownfields, consult the NJDEP website at: www.nj.gov/dep/srp/brownsfields/ or contact the Office of Smart Growth, Brownsfields Inventory Coordinator Mark Schulz at 609-341-3141 or mschulz@dca.state.nj.us

Originator: New Jersey Office of State Planning
(Note: this office is currently called the Office of Smart Growth)

Publication_Date: 20010703

Title: Brownfield sites identified by the NJDEP-Site Remediation Program (SRP) for which quality control and marketing-related information is being added by the NJBrownfields Redevelopment Task Force.

Geospatial_Data_Presentation_Form: vector digital data

Abstract: This dataset is a GIS data layer of points representing the location of brownfield sites as identified by the NJDEP-SRP (file date: 12/2000). The Brownfields Redevelopment Task Force has been verifying the status of these sites and collecting additional marketing-relevant data.

Purpose: This is a working file used by the Brownfields Redevelopment Task Force to verify the status of the brownfield sites listed by NJDEP and to collect additional marketing-related data.

Use_Constraints: Please contact, JoAnn Petrizzo, the Brownfields Program Manager, at (609)633-7536 for further information about these sites.

Completeness_Report: These points are a subset of sites submitted by NJDEP as brownfields in 12/2000. Additional attribute data for these sites are contained in a separate Microsoft Access database maintained by the NJOSP. This additional information is currently being collected from the municipalities.

APPENDIX F - BROWNFIELDS TABLE

CSL_ID	SITE_NAME	SITE_ADDRESS	CITY	STATUS
NJL800127227	LINDENWOLD INDUSTRIAL PARK	ARLINGTON AVE	LINDENWOLD BOROUGH	CLOSED
NJL800166290	FIRE INSURANCE BUILDING	430 FEDERAL ST	CAMDEN CITY	CLOSED
NJL800166308	GREYHOUND BUS TERMINAL	1311 TO 1317 ADMIRAL WILSON BLVD	CAMDEN CITY	CLOSED
NJL800170839	ABC BARREL COMPANY	314 TO 322 N FRONT ST	CAMDEN CITY	CLOSED
NJL800184129	GRACE HOUSING PROJECT	YORK & 4TH & LARCH & 3RD STS	CAMDEN CITY	CLOSED
NJL800187320	RIVER ROAD & EAST STATE STREET	RIVER RD & E STATE ST	CAMDEN CITY	CLOSED
NJL800249674	BLACKWOOD SHOPPING CENTER	1001 BLACKHORSE PK	GLOUCESTER TOWNSHIP	CLOSED
NJL800291874	147 PINE STREET	147 PINE ST	GLOUCESTER TOWNSHIP	CLOSED
NJL800297202	C&S ASSOCIATES	380 & 400 HICKSTOWN RD	GLOUCESTER TOWNSHIP	CLOSED
NJL800302820	EMPIRE VENDING INCORPORATED	610 CHERRY ST	GLOUCESTER CITY	CLOSED
NJL800307217	7400 MAPLE AVENUE	7400 MAPLE AVE	PENNSAUKEN TOWNSHIP	CLOSED
NJL800315293	NICKS AUTO PARTS INCORPORATED	1501 EAST STATE ST & HARRISON AVE	CAMDEN CITY	CLOSED
NJL800363319	1800 FERRY AVENUE	1800 FERRY AVE	CAMDEN CITY	CLOSED
NJL800365033	ABARRY STEEL COMPANY	450 COVE RD	PENNSAUKEN TOWNSHIP	CLOSED
NJL800262933	FAIRWAY CORPORATION CENTER	4350 HADDONFIELD RD	PENNSAUKEN TOWNSHIP	CLOSED
NJL800183451	EVERGREEN PRODUCTS	948 N FRONT ST	CAMDEN CITY	CLOSED
NJL800197196	1311 TO 1325 ADMIRAL WILSON BLVD.	1311 TO 1325 ADMIRAL WILSON BLVD	CAMDEN CITY	CLOSED
NJ0000048983	CAMDEN AMPHITHEATER	FOOT OF CLINTON ST	CAMDEN CITY	ASSIGNED
NJD000310417	DEVOE MARINE COATING COMPANY	9155 RIVER RD	PENNSAUKEN TOWNSHIP	ASSIGNED
NJD000573469	PRESSWELL RECORDS MANUFACTURING CO.	EHRKE RD & WHITE HORSE PK (RTE 30)	WINSLOW TOWNSHIP	CASE MANAGEMENT STRATEGY
NJD000692194	JOHNSON MATTHEY INCORPORATED	PINEY HOLLOW RD	WINSLOW TOWNSHIP	ASSIGNED
NJD002334084	MAGNETIC METALS CORPORATION	21ST ST & HAYES AVE	CAMDEN CITY	ACTIVE
NJD002347664	GULF & WESTERN NATURAL RESOURCES GROUP	851 WATER ST	GLOUCESTER CITY	ASSIGNED
NJD002352060	CHAMPION AUTO GENERATOR SERVICES	GRAND AVE & HIGH ST	GLOUCESTER TOWNSHIP	CASE MANAGEMENT STRATEGY
NJD002355105	CLEMENT COVERALL COMPANY	619 VAN HOOK ST	CAMDEN CITY	ACTIVE
NJL000031872	UNIVERSITY & MEMORIAL AVENUES	UNIVERSITY & MEMORIAL AVES	GLOUCESTER CITY	ACTIVE
NJD065702847	HOLMAN ENTERPRISES	9040 BURROUGHS DOVER RD	PENNSAUKEN TOWNSHIP	ACTIVE
NJD136929163	PURATEX COMPANY INCORPORATED	6714 WAYNE AVE	PENNSAUKEN TOWNSHIP	ACTIVE
NJD980532972	OWENS CORNING FIBERGLAS CORP.	300 SOMERDALE RD	GLOUCESTER TOWNSHIP	AWAITNG
NJD981134836	NJ TRANSIT BUS OPERATIONS INC.	350 NEWTON AVE	CAMDEN CITY	ACTIVE
NJD981560725	ADAMS OIL INCORPORATED	1435 RIVER AVE	CAMDEN CITY	ASSIGNED
NJL000037564	CHAMPION AUTO GENERATOR SERVICES	201 LAKELAND RD	GLOUCESTER TOWNSHIP	CASE MANAGEMENT STRATEGY
NJL000051367	PENN JERSEY RUBBER & WASTE COMPANY	1112 CHESTNUT ST	CAMDEN CITY	AWAITNG
NJL000065680	SCRITT ENTERPRISES	101 WHITE HORSE PK S	WINSLOW TOWNSHIP	ACTIVE
NJL600155782	LIFE SUPPORT AMBULANCE	5050 CENTRAL HWY	PENNSAUKEN TOWNSHIP	ACTIVE
NJL600156731	INDCO INCORPORATED	RAILROAD AVE N & ESSEX ST	GLOUCESTER CITY	ACTIVE
NJL800121915	CONNER TIRE & SERVICE CENTER	425 RTE 73 S	WINSLOW TOWNSHIP	ACTIVE
NJL800153389	RUG FACTORY	POWELL & SIXTH & HUNTER STS	GLOUCESTER CITY	ASSIGNED
NJL800153397	POPCORN FACTORY	HUNTER & 6TH STS	GLOUCESTER CITY	ASSIGNED
NJL800153405	GLOUCESTER CITY SEWAGE TREATMENT PLANT	BRICK ST	GLOUCESTER CITY	ACTIVE
NJL800157307	COOPER WATER FRONT HOMES	9TH & STATE STS	CAMDEN CITY	ACTIVE
NJL900000613	KNOX GELATIN INCORPORATED	4TH & ERIE STS	CAMDEN CITY	ASSIGNED
NJL800167546	MOFFA FARMS	500 ALMONESSON RD	GLOUCESTER TOWNSHIP	ASSIGNED
NJL800180523	JONESIES WELDING SERVICE	446 WILLIAM ST	CAMDEN CITY	ACTIVE
NJL800184210	STEED SCRAP PAPER & METAL	1115 NORTH 16TH ST	CAMDEN CITY	AWAITNG
NJL800212409	10TH STREET SOUTH EAST & STATE STREET E	10TH SE & STATE ST E	CAMDEN CITY	ACTIVE
NJL800224941	BONTEVEGLIO & SONS PAPER COMPANY	259 DIVISION ST	CAMDEN CITY	ACTIVE
NJL800224966	WILLIAM BRYEN COMPANY	2ND ST	CAMDEN CITY	ACTIVE
NJL800224982	HARRY PAPE & SONS	1427 HADDON AVE	CAMDEN CITY	ACTIVE
NJL800235889	EXPORT MACHINE SALES	NEWTON & DIVISION ST	CAMDEN CITY	ACTIVE
NJL600240071	SPORTSMANS OUTPOST	FRIES MILL RD	WINSLOW TOWNSHIP	ACTIVE

APPENDIX G: LIST OF GRANT OPPORTUNITIES FOR FUNDING OPEN SPACE PLANNING AND ACQUISITION

COUNTY

1. Camden County Open Space Trust Fund Tax

Funds raised through the collection of a maximum tax of one cent per \$100 of assessed valuation in any given year will be used for open space and farmland preservation land acquisition or easements, recreational facility development, and historic preservation projects. This funding, estimated at about \$2 million per year, will supplement the county's participation in the State's Farmland Preservation Program and Green Acres land acquisition program.

Contact: Jack Sworaski, Camden County Division of Open Space and Farmland Preservation, 856-858-5211

REGIONAL

1. Delaware Valley Regional Planning Commission Open Space and Natural Resource Planning Services for New Jersey Municipalities

Eligible applicants: New Jersey municipalities in the DVRPC region
Eligible projects: DVRPC offers the following services: Natural Resource Inventory, Open Space and Recreation Plan, Master Plan Conservation Element, Natural Resource Protection Ordinance Assistance, Municipal Assessment, Community Vision.

Application round: open year round

Grant amount: DVRPC subsidies range from about \$1,000 to \$5,000, depending on the project type. The grants are non-competitive – all DVRPC region municipalities in NJ are eligible

Contact: Patty Elkis, Manager of Environmental Planning, 215-238-2838

Website: www.dvrpc.org

STATE

Voters overwhelmingly approved a referendum in November 1998 to dedicate \$98 million annually in dedicated state taxes toward land preservation over the next 10 years. A bill authorizing the spending, the Garden State Preservation Trust Act, was passed June 30, 1999, annually allocating \$55.2 million for Green Acres acquisitions of open space, parks and greenways, \$36.8 million for farmland purchases, and \$6 million for historic preservation projects. The bill guarantees the distribution of \$98 million each year for the next 10 years, eliminating the previous year-to-year uncertainty that used to bring land

acquisitions to a halt when funding expired, until voters authorized additional bond acts. The legislation establishes the Garden State Preservation Trust, a nine-member board that will receive applications and approve projects submitted by Green Acres and the State Agriculture Development Committee twice a year.

Website: www.state.nj.us/dep/grantandloanprograms/

1. New Jersey Green Acres Program

Eligible applicants: Municipalities and counties

Eligible projects: Open space acquisition and outdoor recreational facility development

Application round: Year-round

Project categories:

- a. Standard Program - Offers 2% loans over 20 years and grants (typically 75% loan, 25% grant), to finance eligible costs associated with the acquisition and development of recreation lands.
- b. Planning Incentive Program - Offers 50% loan, 50% grant to those local governments that have enacted an open space tax and have adopted an open space and recreation plan.
- c. Urban Aid Program - Offers 50% loan, 50% grant. This category is limited to acquisition and development projects sponsored by local units eligible to receive state aid pursuant to P.L. 1978, c. 14 (C.52:27D-178 et seq.) Camden City, Gloucester City, Gloucester Township, Lindenwold Borough, Pennsauken Township and Winslow Township are listed as Urban Aid Eligible Municipalities.
- d. Nonprofit Organization Program -The Green Acres Program also runs Green Trust Funding Rounds for nonprofit charitable conservancies. The program offers 50% grants, with the match being made with cash or a donation of land. Maximum grants are \$500,000.
- e. Tax Exempt Program - Program provides exemption from local property taxes to eligible nonprofit organizations which own recreation or conservation lands and open their private lands to the public.

Contact: Fawn McGee 609-984-0570

Website: www.state.nj.us/dep/greenacres/

2. New Jersey Environmental Infrastructure Trust (Clean Water Financing)

Eligible applicants: Municipalities, counties, sewerage or utility authorities, improvement authorities or local government units constructing new or improving existing wastewater, stormwater or nonpoint source management facilities.

Eligible projects: Included in the universe of projects that are currently eligible for the EIFP are: wastewater collection and conveyance facilities, combined sewer overflow abatement facilities, rehabilitation of existing sewer systems, pump stations, stormwater basins, sewer maintenance equipment, lake restoration activities, landfill closure facilities (such as capping systems or leachate collection and treatment systems), new landfill facilities (such as double-composite liner systems and leachate collection and treatment systems), salt domes and others. The Financing Program also includes activities such as land purchase and conservation, remedial action activities (including brownfields) and well sealing. Although the EIFP does not directly finance planning and design costs, an allowance (calculated as a percentage of the allowable building costs) to assist in defraying these costs is provided by the EIFP as part of the loan package

Maximum grant: Financing is provided by two sources, the New Jersey Department of Environmental Protection and the New Jersey Environmental Infrastructure Trust (the Trust). The Department provides loans at 0% interest for approximately 20 years for up to one half the allowable project costs. The Trust offers loans at about the market rate or less for the remaining allowable project costs, also for a 20-year term. Between these two funding sources, the rate on the loans is essentially half the market rate. Approximately \$100 million-\$200 million is available per year.

Application round: Deadline: on or about March 1st, Notification: early September of same year

Contact: Nicholas G. Binder, Assistant Director 609-292-8961

Website: www.njeit.org

3. New Jersey Department of Environmental Protection Non-Point Source Pollution Control 319 (h) Grants

Eligible applicants: *Entities that may be eligible for funding include but are not limited to:*

1. Municipal and County planning and health departments or boards
2. Designated water quality management planning agencies
3. State and regional entities entirely within New Jersey
4. State and Federal government agencies

5. Universities and colleges
6. Interstate agencies of which New Jersey is a member
7. Watershed and Water Resource Associations and other local Non-Profit 501(c)(3) organizations

In order to be eligible for these funds, the applicant must have:

1. Staff and resources with the capability, expertise and environmental experience to perform the proposed work
2. Ability and authority to implement the proposed project
3. Ability to establish and maintain partnerships to ensure project implementation as well as long term maintenance/management.

Eligible projects: *Specifically, funds are available for projects that:* 1) identify and address nonpoint source pollution in a defined project area with priority given to those projects addressing 303(d) listed impairments, and 2) implement measures to protect currently unimpaired waters that are threatened by reasonably foreseeable degradation. The focus of the projects should be on specific measures that will mitigate or prevent adverse impact to lakes, bathing areas, drinking water intakes, shellfish beds, special aquatic habitats, and stream corridor integrity. Examples of eligible projects include urban retrofit, stream bank restoration, nonstructural and structural stormwater management and/or water quality measures, development and implementation of regional stormwater management plans, source assessment leading to remediation, and projects to effect the nonpoint source load allocation implementation plans for established Total Maximum Daily Loads (TMDLs). *(Please note the EPA 319 guidelines (Federal FY 2002/ State FY 2003) regarding the current shift in emphasis on funding TMDL and watershed based projects.)* Eligible activities include construction activities, design, monitoring (to assess the success of specific nonpoint source implementation projects), and resource restoration to prevent the need for future remediation.

Priority will be given to those projects which propose implementation of a nonpoint source or stormwater management measure to improve an existing impairment on the 303(d) list, prevent future impairment at an Ambient Biological Monitoring Station currently assessed as "non-impaired" or implement a stormwater management and/or water quality measure that has been identified under previous assessment projects, such as TMDLs and regional stormwater management plans.

Interested parties should submit projects that target the priority impairments in each region and involve some activity related to assessment and/or implementation of NPS pollution issues, whether through prevention or reduction.

Section 319 funds may not be used for the following purposes:

1. Funding the purchase of land, major capital improvements, or computer hardware.
2. Implementation of permit application requirements of Federal, State, or local storm water regulations.

APPENDIX G: LIST OF GRANT OPPORTUNITIES FOR FUNDING OPEN SPACE PLANNING AND ACQUISITION CONT.

3. Implementation of activities required by the NJPDES regulations.
4. Implementation of lake dredging, weed harvesting, or dam maintenance without addressing the sources of the NPS pollutants causing the impairment.
5. Funding may not be used on private lands with the exception of demonstration projects, or if maintenance, access, and conservation easements have been obtained for the area by an eligible entity. Demonstration projects reflect innovative methods in addressing nonpoint source pollution.
6. Education and Outreach. For projects involving implementation, education and outreach may be funded as a de minimus component of the project and no greater than 3% of the grant amount requested.
7. Funding food or promotional items.
8. Other ineligible activities based on current EPA guidelines for Section 319(h) grants.

Application round: Varies yearly. 2004 intent to apply forms were due April 30, 2004.

Contact: Helen Rancan, statewide NPS coordinator, NJDEP, 609-292-2723
or helen.rancan@dep.state.nj.us

Website: www.state.nj.us/dep/watershedmgt/319grant.htm

4. New Jersey Office of Environmental Services Matching Grants Program

Eligible applicants: Local environmental agencies

Eligible projects: Projects that promote the protection of natural resources by documenting those resources, preparing policy recommendations to protect those resources, and by preparing and disseminating information about the ways in which the public can participate in protecting the environment. Examples of previously funded projects include: natural resource inventories, water quality studies, master plan and zoning ordinance amendments, open space plans, greenway planning, environmental trail designs GIS mapping projects and public education programs.

Maximum grant: \$2,500

Required match: At least 50%

Application round: Typically, deadline is December 1, with notification on March 15 of following year

Contact: John Rogers, Program Manager (609) 984-0828 or: jrogers@dep.state.nj.us

Website: www.state.nj.us/depgrantandloanprograms/beamglea.htm

5. NJDEP Clean Lakes Program (may not be currently funded)

Eligible applicants: Municipal, county and regional government agencies

Eligible projects: Projects that improve the recreational water quality at public lakes

Maximum grant: Up to 70% USEPA funding for Phase I Diagnostic Feasibility Projects; up to 50% state funding for Phase I Diagnostic Feasibility Projects. Up to 50% USEPA funding for Phase II Implementation Projects; up to 75% state funding for Phase II Implementation Projects.

Application round: Typically September 1 each year.

Contact: Bud Cann, Supervising Environmental Specialist, Water Monitoring Management, 609-292-0427

Website: www.state.nj.us/dep/grantandloanprograms/clp.htm

6. National Recreational Trails Act Projects - Administered through NJDEP, Division of Parks and Forestry, Office of Natural Lands Management

Eligible applicants: Public agencies and nonprofit organizations

Eligible projects: Trail proposal must be located on land that is publicly owned or privately owned with a government agency holding an easement or lease for public access. Projects must be completed within 3 years.

Maximum grant: \$25,000

Match required: 20% of total project, may be cash or fair market value of labor or materials.

Application round: Varies yearly.

Contact: Office of Natural Lands Management, 609-984-1339.

7. New Jersey Local Coastal Planning Grant Program (may not be currently funded)

Funds projects that promote sustainability and environmental protection in the coastal zone. The program is dependent on the availability of funds. For updated status of the grant program, call Dorrina Frizzera of the Coastal Planning Unit, Office of Environmental Planning, NJDEP, at 609-292-2662.

APPENDIX G: LIST OF GRANT OPPORTUNITIES FOR FUNDING OPEN SPACE PLANNING AND ACQUISITION CONT.

FEDERAL

1. National Parks Service Rivers, Trails and Conservation Assistance Program

Eligible applicants: Community groups, municipalities, partnerships.

Eligible projects: Greenway plans, stream restoration, trail design, conservation workshops, inventories of natural, cultural and recreational resources.

Maximum grant: Staff involvement (technical assistance) rather than financial assistance.

Required match: Projects are undertaken as partnerships, and costs are shared with other organizations. Cost-sharing arrangements may involve money and/or in-kind services.
Application round: On-going assistance offered to applicants developing proposals, July deadline for formal application for assistance

Contact: Robert Potter, Program Manager, 215-597-1787

Website: www.nps.gov/chal/rtca/intro1.htm

2. Natural Resources Conservation Service (NRCS) Programs

Eligible applicants: Landowners (NRCS determines final eligibility)

Eligible projects: curbing water erosion, wind damage, conserving soil and water resources, stabilizing streams, managing manure, managing grasslands, establishing wildlife habitat, managing forest lands

Maximum grant: up to 100% for certain programs, depends on program. Rental payments to landowners for reserving land depend on length of agreement

Program Categories:

- a. Conservation Reserve Program (CRP): Develop and follow a plan for the conversion of cropland to a less intensive use.
- b. Wetlands Reserve Program (WRP): Develop and follow a plan for the restoration and maintenance of the wetland
- c. Grassland Reserve Program (GRP): Develop and comply with a plan for the easement or restoration agreement of the grasslands
- d. Wildlife Habitat Incentives Program (WHIP): Prepare and follow a wildlife habitat development plan
- e. Environmental Quality Incentives Program (EQIP): Develop and follow an EQIP plan that describes the conservation and environmental purposes to be achieved

- f. Conservation Security Program (CSP): A conservation security plan is required to install and/or maintain conservation practices on working lands.
- g. Forest Land Enhancement Program (FLEP): Develop and implement a management plan
- h. Farm and Ranch Lands Protection Program (FRPP): A one-time payment for a permanent easement on the land, which continues to be used for agricultural purposes.

Application round: On-going

Contact: USDA NRCS at 609-561-3223

Website: <http://www.whmi.nrcs.usda.gov>

3. Environmental Protection Agency Environmental Education Grants Program

Eligible applicants: Government agencies, school districts, colleges or universities, nonprofit organizations, and noncommercial educational broadcasting entities

Eligible activities: Include, but are not limited to: Training educators; designing and demonstrating field methods, educational practices and techniques, including assessing environmental and ecological conditions or specific environmental issues or problems; designing, demonstrating or disseminating environmental curricula; and fostering international cooperation in addressing environmental issues and problems in the U.S., Canada and/or Mexico.

Maximum grant: Approximately \$3 million was available in past years; 25% of available funds must go to small grants of \$5,000 or less, maximum limit of \$250,000 for any single grant.

Required match: A minimum of 25% of total cost of project required.

Application round: Varies yearly.

Contact: Terry Ippolito and Josephine Lagenda, USEPA Region 2, ippolito.teresa@epa.gov or lagenda.josephine@epa.gov, or Customer Service hotline: 1-800-438-2474.

Website: www.epa.gov/enviroed/grants.html

FOUNDATIONS

1. Conservation Fund Kodak American Greenways Award

Eligible applicants: Primarily nonprofit organizations, although individuals and local governments may apply.

Eligible projects: Mapping, assessments, surveying, conferences and design activities, printed and audio-visual interpretative materials, building paths or bridges and other creative projects.

Maximum grant: \$2,500

Required match: None

Application round: Typically in June with notification in fall.

Contact: 703-525-6300

Website: www.conservationfund.org/pagespinner.asp?article=2106

2. Geraldine R. Dodge Foundation

Eligible applicants: Non-profit organizations with 501 (c)(3) status

Eligible projects: Projects that fit under the foundation's "Public Issues" category that focus on issues of sustainability, ecosystem preservation, energy conservation, pollution prevention and reduction, and environmental education and outreach that lead to enlightened environmental policy.

Maximum grant: Grants generally range from \$10,000 to \$100,000.

Required match: None

Application round: A one-page letter of inquiry by the applicant is encouraged to determine if a project falls within the foundation's guidelines. Applications for Public Issues Grants must be post-marked by September 15 of each year.

Contact: 973-540-8440

Website: www.grdodge.org/environment.html

3. Environmental Endowment for New Jersey

Eligible applicants: Preference for nonprofits with 501(c)(3) designation, but other nonprofits also eligible.

Eligible projects: Research, litigation, public education and other activities that will promote the conservation, preservation and improvement of the air, land, water and other natural resources.

Maximum grant available: \$20,000

Required match: None

Application round: Typically announced in November with applications due in January.

Contact: Richard Sullivan, President, 609-737-9698

4. New Jersey Conservation Foundation Grants-In-Aid Program

Eligible applicants: Nonprofit organizations such as emerging land trust, citizen groups and greenway planning groups (organizations do not need nonprofit status).

Eligible projects: Land planning, land acquisition, conservation easements.

Maximum grant available: \$10,000

Required match: 50%

Application round: Varies

Contact: Stephanie Monaham 908-234-1225 x 111 or stephanie@njconservation.org

Website: www.njconservation.org/html/frame_news.html

5. Pew Charitable Trust

Eligible applicants: Organizations classified as non-profit under section 501(c)(3) of the IRS Code, and as charitable under 509(a) of that Code.

Eligible projects: Projects whose goals are to reduce the use and production of highly persistent toxic substances that adversely affect the environment and public health, and projects that halt the destruction and further degradation of forest and marine ecosystems in North America.

APPENDIX G: LIST OF GRANT OPPORTUNITIES FOR FUNDING OPEN SPACE PLANNING AND ACQUISITION CONT.

Maximum grant: Majority of grants range from \$50,000 to \$250,000.

Required match: None

Application Round: Proposals accepted year-round and reviewed on rolling basis.

Contact: Joshua S. Reichert, 215-575-4740

Website: www.pewtrusts.com/grants/index.cfm?image=img3

6. Schumann Fund for New Jersey

Eligible applicants: Non-profit organizations with 501(c)(3) status.

Eligible projects: Projects that support protection of natural resources, environmental quality and wildlife.

Maximum grant: No maximum was stated in the foundation's annual report, but previous environmental protection grants ranged from \$10,000 to \$80,000.

Required match: No, but preference given to proposals indicating a high level of time and/or money contributed from the group to be served.

Application round: No yearly deadline; proposals are reviewed quarterly.

Contact: 201-509-9883

Website: www.fdncenter.org/grantmaker/schumann/env.html

7. Victoria Foundation

Eligible applicants: Non-profit organizations with 501 (c)(3) status.

Eligible projects: For land acquisition - projects must be eligible for consideration by the State Green Acres Program, must have passed their initial screening process and must be in active consideration by Green Acres. Special consideration is given to projects that will protect wetlands and transition areas, farmland, critical wildlife habitats, headwaters, exceptional ecosystems, watershed lands, and aquifer recharge areas. Other eligible projects involve environmental education and leadership training, environmental research, public education and advocacy, and resource conservation in New Jersey.

Maximum grant: Land Acquisition - grants may be used toward all or part of the 50% match for Green Acres grants, usually up to \$500,000. Other projects generally range from \$8,000 to \$50,000.

Required match: Land acquisition - Green Acres grant; Other grants - No.

Application Round: Ongoing

Contact: 973-748-5300

Website: www.victoriafoundation.org/application.htm

8. William Penn Foundation

Eligible applicants: Non-profit organizations with 501(c)(3) status.

Eligible projects: Projects that support the goals of promoting open space preservation, promoting development, maintenance and use of natural areas within the Philadelphia region, and that support environmental education.

Maximum grant: Grants range from a few thousand to several million, depending on the size of the organization and the scope of the project.

Required match: None, but the Foundation prefers to make grants for projects that receive support from several sources and that do not depend upon the Foundation for total funding.

Application round: Accepts grant requests throughout the year.

Contact: Geraldine Wang, 215-988-1830

Website: www.wpenndn.org/what_we_fund/natural.asp

Other sources of information on grants:

Environmental Grant Making Foundations, published by Resources for Global Sustainability, Post Office Box 22770, Rochester, NY 14692-2770. Telephone: 1-800-724-1857; Fax: 716-473-0968; E-mail: rgs@eznet.net; Website: www.home.eznet.net/ Costs about \$90.

The Mitchell Guide to New Jersey Foundations, published by Janet Mitchell, 430 Federal City Road, Pennington, NJ 08534-4209, 609-737-7224. The guide profiles 412 private foundations which donated more than \$200 million to 18,000 charitable agencies.

APPENDIX H: EXAMPLES OF STEWARDSHIP BROCHURES

Much has been written about good land stewardship. The following materials have been included as examples of stewardship information designed for easy reproduction and dissemination. These flyers and pamphlets were developed, respectively, by:

1. Community Forest Network (CFN), authored by Don Zimar of The Care of Trees in Manassas, Virginia, and Brain LeCouteur of the Metropolitan Washington Council of Governments. Call 202-962-3393 for more information.
2. The New Jersey Coalition for Alternatives to Pesticides and the New Jersey Environmental Federation, with printing costs funded by Whole Earth Center
3. Jennifer Robinson, compiled from a 1994 newsletter of the Wildlands Conservancy, Emmaus, Pennsylvania
4. The Media Area League of Women Voters in cooperation with the Darby Creek Valley Association and the Chester/Ridley/Crum Watersheds Associations

Another excellent source of information too lengthy to include here is "The Clean Water Book - Lifestyle Choices for Water Resource Protection" produced by the New Jersey Department of Environmental Protection, Office of Environmental Planning. Copies of this booklet can be obtained by calling Kyra Hoffman at 609-633-1179.



REDUCE TURF AREA

"Americans love their lawns with a passion rarely seen in other countries; fifty-eight million Americans enthusiastically plant, weed, water, spray and mow an estimated twenty million acres of lawn." The passion for lawns has many impacts on our urban/suburban environments. Some of these impacts are:

- ▲ Loss of Forest Cover and Wildlife Habitat
- ▲ Air Pollution from Gasoline Powered Engines
- ▲ Pollution from Lawn Maintenance Chemicals
- ▲ Stress on the Municipal Water Supply

As land development carves up the landscape, fragments of the former landscape remain. Frequently, these fragments which consist of trees, shrubs and plants, are transformed into a grove of trees meeting a manicured lawn.

It is the goal of this Urban Forestry Information Bulletin to discuss how to best preserve these forest fragments in developed areas and present some environmentally sound and low cost/maintenance alternatives to grass or turf.

Impacts of Turf

Turf and other ground covers require maintenance which is generally incompatible with the needs of a forest ecosystem. Turf offers little or no wildlife habitat compared to the diversity of plants found in an existing forest.

Growing grass or turf management contributes to nonpoint source pollution by the residues of lawn fertilizer insecticides and herbicides applied to the lawn. Maintaining

turf also requires burning fossil fuels to power lawnmowers, and increases the volume of waste (clippings) sent to landfills.

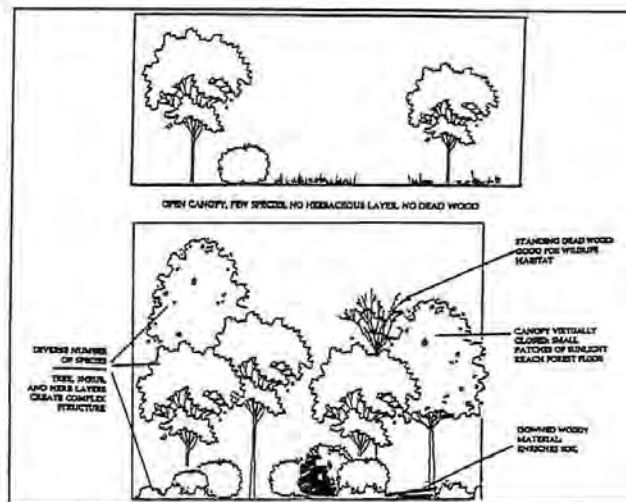
Clearing or grading for the installation of turf and landscape plants destroys the existing plants and damages the remaining trees. Removing leaves and other fallen debris that comprise the forest "duff layer" interrupts the natural cycling of nutrients and water. Digging or tilling under trees (for the removal of understory and installation of turf or other plants,) can damage tree roots and causes a decline in tree health. Soil stockpiled under trees or added to help drainage whether (temporarily or permanently), can interrupt the balance of oxygen, moisture, and nutrient absorption to the tree's root system, and may result in tree decline and/or death. Select areas away from trees being preserved to stockpile soil and use natural or existing drainage contours to direct runoff.

Ground Covers

The ecology of forests is comprised of many integral components, including flora and wildlife habitat. It is important to consider the entire ecosystem for forest management planning. *The best ground cover* around trees and in forests is the type which most closely resembles the naturally occurring conditions. In general, our forests are characterized by a layered canopy structure consisting of large (overstory trees), smaller (understory trees), shrubs, and natural ground covers. The most prominent natural ground cover is leaf mulch. In deciduous forests, it is composed of deciduous leaves, in evergreen forests, it is primarily needles. Rainfall seldom creates runoff beneath a natural forest canopy due in

part to high soil absorption rates, favorable soil conditions, and large amounts of water which are "sponged" or soaked up by the leaf mulch layers.

The best plants to grow under mature trees are species found in the natural leaf-mulch or "duff layer" of the forest floor. The horticultural industry is becoming increasingly successful at commercially producing more of the naturally occurring or native plants for enhancing natural landscapes. Ferns, woodland species wildflowers, understory shrubs, sedges, and mosses are now available through many nursery suppliers.



Unlike grass, very few native ground covers form dense blankets on the forest floor. Under normal circumstances, native ground covers tend to be randomly distributed, loosely arranged, overlapping patches of plant communities. Under moderate cultivation, some of these native plants will flourish and form a dense, uniform patch of vegetation.

Our forests have an understory comprised of mountain laurel, american holly, and other broad-leaved evergreens highly valued for spring blossoms, berries, screening, wildlife food and cover. There are also plants valued for their low to moderate growth habit and spring blossoms, such as wild azaleas, sweet-bay magnolia, flowering dogwood, redbud, and wildflowers. There are species of grasses, sedges, and ferns which also flourish in these undisturbed areas.

It is not necessary to limit ground cover selection to native plants. There are many introduced species which can add color, texture, and form. *However, these introduced species need to be carefully scrutinized* to avoid those with a tendency to take over or become "invasive." Some introduced species may offer the

opportunity to create a blanket effect without requiring excessive maintenance or containing invasive characteristics. Wildlife benefits of non-native species are typically less than native species.

Benefits of Natural Ground Cover

Maintaining diversity in plant communities is important because it provides balance and reduces the potential for any individual species to dominate the landscape.

Careful selection of alternative ground cover plantings will lead to reduced maintenance. Matching plant requirements to site characteristics to determine the ground cover selection will create a self-sustaining forest ecosystem. Occasional weeding, light fertilization, and supplemental watering may be required until the area has become established. Intensive turf maintenance activities such as mowing, pest treatment, dethatching, overseeding, aerating, and irrigation will also be eliminated.

Retaining the existing natural forest plants maintains the existing environmental character, enhances neighboring areas, and offers considerable environmental and financial advantages over turf and other ground covers. Maintenance requirements will reduce substantially over time for a properly planned and managed forest. More frequent use of turf alternatives will increase as communities discover the maintenance benefits and their importance to the environment.

Communities should focus on preserving as many components of the natural ecosystem as possible and consider the establishment of ground cover in terms of environmental enhancement through stewardship.

Community Forestry Network, CFN 1994
For more information on CFN, call (202) 962-3393.



This bulletin was co-authored by Don Zimar of The Care of Trees in Manassas, Virginia and Brian M. LeCouteur of the Metropolitan Washington Council of Governments and the Community Forestry Network.

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Editing and technical assistance was provided by Lorrie Herson-Jones of the Metropolitan Washington Council of Governments.

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LAWN CARE



Our thanks to Nancy Coleman & Susan Wolf of NJ Coalition for Alternatives to Pesticides and Jane Nogaki and Tom Moritz of the NJ Environmental Federation.

Printing costs funded by Whole Earth Center
A natural food store • 360 Nassau St.,
Princeton, NJ 08540 • (609) 924-7429

MONITOR THE LAWN

Identify problems: Sufficient sunlight and air? Diseases? (eg. dollar spot, leaf spot) Pests? (Chinch bugs, etc.) Treat only the problems that exist and use alternative controls specific to the problem.

MOWING

Set mower 3"- 4." Taller grass chokes out weeds (like crabgrass). To prevent compaction, rotate mowing pattern. Mow lawn as needed, never cutting more than 1/3 of leaf blade at a time, and leave grass clippings on lawn for nutrient recycling.

TEST SOIL FOR FERTILITY AND PH

Have soil tested each year. Adjust pH to the needs of your lawn. Pulverized or pelletized lime should be added according to need determined by pH test results. Fertilize twice a year, once in the fall and once in the spring or fertilize four times a year at half/rate.

Use natural organic fertilizers; they feed the soil, and release slowly throughout the season. They enhance and encourage beneficial organisms which aerate soil and naturally break down thatch. Never fertilize in hot weather. Established lawns may need less frequent fertilization, especially with "cut it and leave it" practices.

PLANT PROPER VARIETIES OF GRASS

Choose appropriate grasses for your soil and light conditions. Reseed bare spots, preferably in the fall. Overseed (rake in) if grass plants are aging. You can contact the Rutgers Cooperative Extension Program for more information.

AERATE SOIL

Aeration helps prevent weeds and reduces compaction. Core aeration is ideal. Aerators can be bought or rented. A good supply of earthworms will aerate the soil adequately as long as there is no compaction problem.

REMOVE THATCH

Thatch is the accumulated dead material at the base of the grass. Rake frequently by hand or rent a thatching machine. Dethatch only if thatch is one inch or more. Organic fertilizers help break down thatch naturally. Worms do too!

REDUCE WEEDS

Use correct mower height. Reseed bare spots preferably in the fall. In the spring, use seed soaked in water for 24 hours to speed up germination and mix with soil and sand in bare spots. Identify weeds and establish tolerance levels. Hand dig weeds until competition by grass plants eliminates most weeds.

WATERING

If less than 1" of rain falls per week, water deeply and infrequently. This encourages deep root growth. Sandy soils and sloped lawns need more frequent watering. Water only in cool of morning. Lawns in full sun need more frequent watering.

ELIMINATE PESTS

Attract birds, "nature's insect control," by planting proper shrubs and by offering housing, water and food. Identify pests, then use biological pesticides specific to that pest. E.G. B.t. for leaf eating caterpillars; milky spore powder for the long-term control of Japanese beetle grubs. Use beneficial nematodes to control high populations of Japanese beetle grubs. Natural pesticides such as pyrethrum, rotenone and sabadilla are broad spectrum and toxic, but are short lived in the environment. They should be used with caution and only as a last resort, in accordance with label directions.

LAWN SERVICE

Avoid chemicals entirely. Get a written contract, specifying what chemicals the service will use. Reserve the right to cancel use of any chemical product. Don't let them treat problems that are not there!



How to Care for Your Stream

by Jennifer Robinson

*This valuable list of do's and don'ts was taken from Wildlands, May/June 1994,
the newsletter of the Wildlands Conservancy of Emmaus, Pennsylvania.*

Don't remove native vegetation growing adjacent to the streams.

Why: Trees and shrubs shade the stream (trout require cool waters for survival) and provide leaf litter which forms the base of the aquatic food web.

Do plant native trees and shrubs along unvegetated areas of the stream bank.

Why: the root systems of woody vegetation stabilize stream banks and prevent erosion.

▼▼

Don't mow your lawn right up to the stream; allow at least a 5 to 10 foot buffer along the stream. (most experts recommend a minimum of 50 feet.)

Why: an unmowed, naturally vegetated streambank buffer helps prevent erosion and filters out lawn chemicals which are damaging to stream life.

Do limit your use of lawn chemicals such as fertilizers, pesticides and herbicides.

Why: these chemicals easily find their way into the stream and can kill stream life including vegetation, insects, fish and birds.

Don't throw your grass clippings (or any other refuse) into the stream.

Why: Grass clippings in the stream will cause water-quality problems and will suffocate fish and other aquatic organisms.

Do restrict livestock from streamside area.

Why: Trampled banks release sediment into the streams and fecal bacteria animal wastes can cause serious water-quality and health problems.

Don't dump used oil, antifreeze, etc. into storm drains.

Why: These dangerous chemicals enter our streams through storm drains.

Don't remove stable, naturally occurring, instream debris, such as fallen logs.

Why: Instream debris holds rock fragments and organic particles for processing by aquatic animal life and provides cover and cooling shade for fish and other stream dwellers.

Do urge your local municipality to manage streamside parks in a more natural way.

Why: Many governing bodies believe that well-manicured parks are the only kind that are acceptable to residents. They need to hear a different opinion. In addition, mowing and manicuring requires large amounts of time, effort and taxpayer money.

HOW TO CARE FOR YOUR STREAM

DO: ...plant trees and shrubs along your stream.

WHY: The roots of woody plants stabilize the banks and reduce erosion. Trees and shrubs also shade and cool the stream, which is better for fish.

DON'T: ...remove native vegetation from stream banks

WHY: Leaf litter from native plants is part of the local food chain.

DO: ...maintain or create buffer zones (the wider the better) along streams and wetlands.

WHY: Buffer zones absorb water and filter out lawn chemicals, fertilizers and sediment.

DON'T: ...mow your lawn right up to the stream bank.

WHY: Turf does not make a good buffer. It sheds water, especially on slopes, and its shallow roots do not hold the soil as well as native grasses, trees, or shrubs.

DO: ...leave naturally occurring debris, such as fallen logs, leaves and rocks in place in your stream.

WHY: In-stream debris provides shelter and food for aquatic life.

DON'T: ...throw grass clippings or yard waste into the stream—compost them.

WHY: Grass clippings and debris reduce oxygen in the stream, killing water animals.

DO: ...limit your use of yard fertilizers and chemicals. Maintain septic tanks in good condition.

WHY: Lawn chemicals and septic tank pollutants easily find their way into streams, and can kill insects, fish, frogs, birds, and plants.

DON'T: ...dump swimming pool water or soapy water directly into streams or storm sewers.

WHY: Storm sewers run directly into streams, where chlorine and detergent harm fish & plants.

CHESTER-RIDLEY-CRUM
WATERSHED ASSOCIATION

NEVER DUMP OIL, ANTIFREEZE OR TOXIC CHEMICALS
DISPOSE OF THESE AT APPROVED DISPOSAL CENTERS.

EVERY LITTLE STREAM COUNTS . . .

The stream on your property may be a spring-fed rivulet, or a real creek. All are part of a single system, feeding into the Delaware River. Even the smallest stream supports aquatic plant and animal life, and is an important part of the water cycle. Every stream deserves to be cared for, and kept free of pollutants, to keep the whole system healthy.

SOME HELPFUL DEFINITIONS:

A STREAM BUFFER or **RIPARIAN BUFFER** is a strip of land along a stream where trees, shrubs, and small plants are encouraged to grow. Recently scientists have learned the importance of buffers in keeping streams healthy.

The U.S. Forest Service now recommends a 50 foot buffer, free of all development, on each bank of a stream. Buffers of 300 feet or more are often used to protect the natural character of streams. On smaller properties, aim for a minimum of ten feet between your lawn and the stream bank. Even a single row of trees or bushes will help protect your stream.

NATIVE VEGETATION refers to plants that have always grown in this area. The animals in our streams use specific tree leaves for food and building material and thrive best when those species are present.

Non-native plants can contribute to a buffer zone by reducing erosion, but they may be invasive, and are less well suited to the existing food chain.



BEAUTIFUL AND HEALTHY:

We may be used to seeing streams edged by neatly mown grass. But running water offers an opportunity for imaginative landscaping. A buffer zone of trees, shrubs and ferns will add interest to your landscape and protect your stream. Here are some of the native species you might try:

Flowers: Purple stemmed aster; rose mallow; blue flag; yellow iris; cardinal flower; turtlehead; swamp milkweed; Joe-Pye weed.

Ferns: Sensitive fern; cinnamon fern; royal fern.

Grasses & Sedges: Soft-stem bulrush; fringed, lurid or tussock sedge; big bluestem; cat tails.

Woody Plants: Buttonbush; red-twig or silky dogwood; spicebush; Virginia sweetspire; shadbush; cranberry bush viburnum; red or black chokeberry; sweet pepperbush; inkberry and winterberry holly; common alder.

Trees: Many kinds of willow; river birch; ash; box elder; red maple; sweet bay magnolia.

Ask your local arboretum or nursery for information about these or other stream side plants



WHO IS RESPONSIBLE FOR OUR STREAMS?

We all are! Most of us live upstream from someone else, and what we do affects others' water as well as our own. We need to work together to keep our streams clean and healthy. We are all stewards of the land.

Your township or borough is responsible for making regulations to protect the streams that run through it. These may cover development on steep slopes or flood plains, storm water management, sewers and septic tank regulations. Most streams run through more than one jurisdiction, and ordinances vary. Encourage local officials in towns along your stream to cooperate to protect it.

Local watershed groups work across municipal boundaries to monitor and enhance the various creeks in our area. You might want to start your own stream protection group, or contact:

Darby Creek Valley Association
P.O. Box 583
Lansdowne, PA 19050

Chester/Ridley/Crum Watersheds Association
P.O. Box 972
Edgmont, PA 19028

Brandywine Valley Association
1760 Unionville-Wawaset Road
West Chester, PA 19382-6751

This pamphlet was developed by the Media Area League of Women Voters, in cooperation with the Darby Creek Valley Association and the Chester/Ridley/Crum Watersheds Association. Layout courtesy of Taylor Memorial Arboretum.

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Abstract: The Camden County Open Space and Farmland Preservation Plan identifies an interconnected network of open space and focus areas to keep open for environmental protection, scenic value, recreation, and farming purposes. The plan presents a prioritization strategy based on development threat and presence of four Key Factors: Delaware River Waterfront Access, Natural Heritage Priority Sites, Urban Aid Status, and Projects of Regional Stature. Preservation techniques include acquisition, conservation easements, land use planning and regulations, and landowner stewardship.

Delaware Valley Regional Planning Commission
8th Floor — The Bourse Building
111 South Independence Mall East
Philadelphia, PA 19106-2582

Phone: 215-592-1800

Fax: 215-592-9125

Internet: www.dvrpc.org

Staff contact: Patty Elkis, PP, AICP, Manager of Environmental Planning

Direct phone: 215-238-2838

E-mail: pelkis@dvrpc.org



CAMDEN COUNTY

OPEN SPACE
and
FARMLAND PRESERVATION PLAN



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The Bourse Building
111 South Independence Mall East
Philadelphia, Pa 19106-2582

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