

## Chapter 6: Conservation and Natural Resources

### 6.0 Accomplishments Since 2007

New Castle County continues to be the leader in the State in the preservation of and enhancements to natural resources. The County has partnered with DNREC on numerous issues including the Water Service Council and review of stormwater management regulations. New Castle County continues to update the water management code to further enhance the impact of green technologies for management of stormwater runoff. A “green building” working group has been established to produce an action plan for adopting a green building program based upon the LEED rating system. The County has also entered into partnerships with other organizations, such as the Delaware Nature Society, for the preservation of scenic areas.

Furthering the goals of preserving vital natural resources as well as advancing public safety, New Castle County sought and received a FEMA grant (pass-through State of Delaware) to update the floodplain maps for the Red Clay, White Clay and Mill Creeks. The FEMA floodplain maps for the entire County were updated on January 17, 2007.

Encouraging the reuse of natural materials and utilizing the State’s directive banning yard waste at the landfill, New Castle County explored alternative disposal methods and adopted legislation encouraging on-site mulch and compost efforts. This means greater storage capacity at the landfill for garbage and greater reuse of wood and plant materials.

The adoption of redevelopment incentives furthers the goals of the comprehensive plan in steering growth where there is existing infrastructure, thereby placing less demand on natural areas. The density bonuses adopted further improve air quality by reducing the need to expand to greenfield areas and by reducing travel demands. County Council has continued to express support for the identification of criteria for determining parcels of land which may be suitable for higher density development.

Many tools are already in practice to preserve open space throughout the County. As a result of various public and private open space programs:

- 5,827 acres (2.1%) acquired by the Federal Government as preserved land.
- 20,324 acres (7.4%) acquired by the State of Delaware for Parks and Public Use.
- 1,624 acres (0.6%) acquired by local Municipal Governments for parks and recreation.
- 4,045 acres (1.5%) protected lands through private and semi-private groups.

This is roughly 11.6% (31,820 acres) of the unincorporated land area in New Castle County that is currently protected as parkland, public open space, private open space or restricted under conservation easements.

## 6.1 Environment

### 6.1.1 Overview

The environment is a vital component for ensuring public health and safety, as well as contributing to the aesthetics that help to define “quality of life.” Respecting and sustaining unique resources are critical in the comprehensive planning process.

The Delaware Department of Natural Resources and Environmental Control (DNREC) promotes the saying “A strong economy depends upon a healthy environment; and a smart environmental policy can help drive economic growth.” Delaware promotes an environment that is:

- Breathable.
- Drinkable.
- Safe.
- Livable.
- Sustainable.

#### *Breathable*

Clean air is essential to New Castle County’s environment. Ensuring clean air can occur by reducing pollution from stationary sources and transportation. Stationary sources, such as power generation plants and heavy industrial facilities also have a tremendous impact on air. The State has worked with the County to help clean up the air, but more needs to be done. In 2005, Delaware ranked one of the highest states in the mid-Atlantic region for vehicle miles driven per person. DNREC believes that driving patterns are more harmful to health than smokestack industries. In an effort to help clean up the air, starting in 2014, all cars sold in Delaware must meet new low emissions standards for smog-forming compounds and CO<sub>2</sub>. Smarter development will also be essential to air quality. DNREC’s Division of Air Quality has stated that the traffic generated by a typical 100 unit residential development can emit as much air pollution as a power plant for a small Delaware city. Smart Growth and more sustainable development guidelines are necessary to encourage development which promotes a more environmentally friendly lifestyle.

#### *Drinkable*

New Castle County’s waterways are a vital part of the environment. Impaired waterways, wastewater, and stormwater must be better addressed. All watersheds within New Castle County are considered at least 50% impaired as a result of excess nutrients (nitrogen and phosphorous) and bacteria. New Total Maximum Daily Load (TMDL) standards are being planned for in an effort to help clean up these watersheds.

A program with a goal for improving water quality is the *Surface Water Discharges Section* (SWDS). The SWDS regulates point sources of pollution including municipal and industrial wastewater treatment

systems and their construction, biosolids applications, and stormwater discharges associated with industrial activities. The SWDS is responsible for issuing regulatory permits under the NDPEs. With respect to stormwater, there are several options in NPDES permitting, the general permit program for industrial stormwater sites, individual NPDES permits for sites, and individual Municipal Separate Stormwater Sewer Systems (MS4s) permits issued to towns or municipalities over a certain population, or issued to other agencies where stormwater runoff has been identified to be of concern.

Delaware and New Castle County have continued efforts to promote strategic infrastructure investments, public-private partnerships designed to clean up water sources, and reduced pollution from point and non-point sources.

### *Safe*

Residents and businesses average tens of millions of dollars in flood damage annually. Minimizing impacts of flooding is essential to New Castle County. Various studies are currently evaluating the potential effects of a rise in sea level, which could have significant impact on coastal areas, such as New Castle County. Three-hundred year old dykes along the Christina and lower Delaware rivers are the only structures preventing the potential flooding of thousands of homes and businesses.

Related ways to minimize flooding potential include:

- Focusing on outcomes at the watershed-level instead of individual sites.
- Placing more emphasis on green technology.
- Allowing more flexibility to address stormwater management based on impact and location.
- Protecting wetlands, which safely hold up to one million gallons of water per acre.
- Razing/removing structures in flood prone areas.

DNREC and the Clean Water Advisory Council contributed \$600,000 to New Castle County for development of a stormwater utility. These funds can be used to fund retrofits, water quality buffers, maintain stormwater ponds, discourage excessive paved and manmade surfaces, and encourage green technology. Land use decisions should consider flooding risks and avoid permitting new infrastructure during the review process.

In addition to flooding concerns, the remediation and appropriate redevelopment of contaminated areas is also essential to New Castle County. Hundreds of sites within the County are in need of environmental remediation prior to any reuse. To date, approximately 75 parcels in the County have been cleaned up and now have environmental covenants to limit new uses. Industrially zoned parcels in the County must be protected to allow for safe and responsible economic development. Brownfield remediation is a priority within the County, both for environmental and economic reasons. DNREC estimates that the return on investment for Brownfield remediation is \$17.50 for each dollar invested.

### *Livable*

Creating and maintaining a livable community is essential to ensure economic and environmental sustainability. Providing access to recreation and open space and conserving and creating habitats for wildlife are two such ways to help create a livable community. A few ongoing successes include:

1. White Clay Creek Preserve and Middle Run Valley adjoining natural areas;
2. Land along the Canal being developed into a public park/walking trail feature in coordination with State and Federal agencies; and
3. Converting land within the floodplain into wetlands in Glenville.

### *Sustainable*

According to the United States Environmental Protection Agency (EPA), “Sustainability” means that “everything we need for survival and well-being depends, either directly or indirectly, on the natural environment. Sustainability creates and maintains the conditions under which humans and nature can exist in productive harmony, that permits fulfilling the social, economic, and other requirements of present and future generations.”

New Castle County is committed to creating a sustainable future for its residents, businesses, and visitors. In cooperation with the State of Delaware, the County encourages adopting cleaner sources of energy, encourages green building practices, and prepares for emerging challenges. Cleaner sources of energy might include additional natural gas generation, the use of solar and photovoltaic power, offshore wind power, and fuel cells. Upgrades to power infrastructure and transmission may also increase efficiency, resulting in increased sustainability. New building codes requiring energy efficiency, Delaware’s *Green to Green* program, laws to protect homeowner’s rights to solar and wind energy, and other programs designed to encourage and protect sustainable practices are necessary to continue New Castle County’s move towards a sustainable future.

## **6.1.2 Goals, Objectives, and Strategies**

### *Goals:*

1. **Continue to preserve and enhance the quality and variety of the County’s natural and environmental resources (water, land, flora, fauna and habitats).**

Biodiversity is necessary to ensure an environment that supports and enhances human life. Each individual component of an eco-system is strengthened by the interconnections with the other components. Equally important is to protect the quality of the environment. Air and water quality directly impact all living things. Land that is rich in vegetation will help to maintain the diversity of trees, shrubs and grasses and will sustain the insects, birds and animals that pollinate plants, enrich the soil and provide sustenance to one another as well as the human population.

**2. Continue to provide a coordinated open space network that links natural, historic and agricultural resources, public and private open spaces, and parkland.**

Protecting natural resources and preserving open space contribute significant benefits to New Castle County residents and the environment. Open space not only has environmental benefits such as filtration of stormwater, it helps to retain attractive views, provides a living environment for a variety of plants and animals, and offers recreational opportunities.

In recent years, the focus for open space has been to create a strategically planned and managed network of forest, parks, natural resources, and greenways. These areas of open space make up the “green infrastructure” of the County.

**3. Work with federal and state agencies to achieve air quality standards and utilize current air quality standards to minimize airborne contaminants.**

New Castle County does not meet the EPA standards (non-attainment) for ground level 8-hr ozone (O<sub>3</sub>) and particulate matter (PM<sub>2.5</sub>) both of which are considered public health hazards. There are many sources of pollutants that create ozone and particulate matter including industrial facilities, vehicle exhaust, chemical solvents as well as compounds from the surrounding region transported through the air. While pollution control programs targeting these sources are the responsibility of state and federal agencies, the County shall assist with these efforts to decrease airborne contaminants within the region.

**4. Minimize flooding impacts through best management practices for stormwater management.**

New Castle County enforces the State’s *Sediment and Stormwater Regulations*. The Delaware Sediment & Stormwater Regulations (DSSR) require erosion and sediment control during construction and post-construction stormwater quantity and stormwater quality control. The DSSR effectively cover the entire development process, from the time construction begins, through project completion, and permanent maintenance of stormwater management facilities. Unless specifically exempted, any proposed land development project that disturbs more than 5,000 square feet must comply with the DSSR. The DSSR are effective statewide, and are applicable for new development, redevelopment, MS4s and non-MS4s. The program’s initial emphasis is to prevent existing flooding or water quality from worsening and limit further degradation.

**5. Work with federal and state agencies to adopt cleaner sources of energy.**

Cleaner energy sources are important to the health, safety and welfare of the citizens. New Castle County will continue to work with Federal and State agencies to promote cleaner sources of energy.

**Objectives:**

**1. Continue to enhance, preserve, protect, and restore biodiversity and habitat linkages.**

The *New Castle County Code* provides mandatory protection levels for a variety of resource classes including wetlands, floodplains, riparian buffers, water resource protection areas, steep slopes, rare species, and forests utilizing data from Delaware's Geographic Information Systems (GIS). By utilizing resources such as watershed plans, green infrastructure plans, wildlife habitat studies and other regionally focused efforts, this process will work more effectively to provide valuable linkages between publicly and privately protected land areas.

The pressure to accommodate growth by developing green fields, or undeveloped sites, is eased when redevelopment of existing sites is encouraged. Making the best use of land that is already disturbed not only makes better use of existing infrastructure, it places less demand on natural areas. Because open land may be less onerous to develop than pre-developed sites since it is easier and less expensive to design and build on a "clean slate" as opposed to designing around existing features or performing demolitions, New Castle County continues to take an active role in promoting infill and redevelopment.

**2. Preserve, protect, and enhance water quality and promote efficient and responsible water quantity measures.**

The *Sediment and Stormwater Program's* initial emphasis is to prevent existing flooding or water quality from worsening and limit further degradation. The DSSR requires practices collectively referred to as Green Technology Best Management Practices (BMP) to be given first consideration in the management of stormwater quality on a site. Green Technology BMPs include bioretention, buffers, conservation site design, filter strips, source area disconnection, biofiltration swales, and infiltration trenches. These BMPs use filtering in vegetative areas as well as infiltration and recharge in order to mimic natural hydrology. This approach extracts a relatively high concentration of pollutants from the water, depending on the practice chosen. The resulting cleaner water can then enter into a waterway or soak into the ground to recharge underground water sources. Current regulations require stormwater management practices to achieve an 80% reduction in total suspended solids loads after a site has been developed.

**3. Work with the appropriate agencies on methods to improve air quality by increasing average development densities and redevelopment of existing properties.**

New Castle County does not meet EPA standards for ground level ozone and particulate matter, both of which are considered public health hazards. While pollution control programs targeting these sources are the responsibility of state and federal government, the County can assist these efforts by promoting more compact patterns of development and mixed-use development to reduce travel demand and encourage the expansion of the public transit system. Redevelopment of property can reduce the need to expand into greenfield areas, thereby preserving more natural areas. Promoting construction practices that incorporate green technology and energy efficiency will also help to improve air quality.

**4. Develop a coordinated open space system for the County with DNREC, incorporated municipalities, conservation groups, and other entities to ensure a “green infrastructure” for the future.**

A coordinated system of open space creates and maintains wildlife habitat, provides for the protection of stream corridors and improves air and water quality. Directing development and planning for open space benefits the watersheds by providing adequate areas for water recharge and flood control. The County will continue to look for creative ways to maintain open space.

Private conservation organizations play an important role in protecting the County’s open space. These organizations are directly involved in all aspects of resource protection, including acquisition of property and property easements. They are strong allies in State and County efforts to protect and enhance sustainability. Working with private conservation groups presents opportunities for developing preservation partnerships that encourage donations, as well as creative development plans. New Castle County will continue to work with private conservation organizations and include them in planning for resource protection.

Many mechanisms exist within current County, State and private conservation organizations to protect natural resources and maintain open space. However, the goal of achieving a network of open space relies on the coordination of these agencies and organizations. The County and other agencies need to work closely together, and be supportive of existing programs to identify important linkages and establish the County’s green infrastructure.

New Castle County requires major residential subdivisions to include a portion of the development for active and passive open space and stormwater management. Through the land development review, County and State agencies can coordinate and identify desirable areas of open space for interconnection with existing open areas or greenways on abutting parcels.

**5. Work with federal, state, and regional agencies to reduce water pollution (TMDL's).**

To meet TMDL standards for water quality, Delaware follows strict stormwater mandates requiring Best Management Practices (BMPs) to be used that will minimize the impact of stormwater runoff rates and volumes, prevent erosion, and capture pollutants. Green Technology BMPs, developed in the late-1990s, have proven to be extremely effective in maintaining high water quality, while also addressing water quantity.

Impaired waters, including watersheds having established TMDLs, are subject to heightened requirements under the DSSR. Permanent stormwater management BMPs, again with preference given to Green Technology BMPs, are designed for individual sites to meet the TMDL pollutant reduction target. A treatment train approach, multiple BMPs in series, is often required to meet the target.

**6. Ensure equal and fair access to recreation and open space.**

Title III of the Americans with Disabilities Act (ADA) requires no individual to be discriminated against on the basis of disability with regards to the full and equal enjoyment of the goods, services, facilities, or accommodations of any place of public accommodation by any person who owns, leases or operates a place of public accommodation. "Public accommodations" includes lodging, recreation, transportation, education, dining, stores, care providers and places of public displays among other things.

**7. Set conservation priorities and work with appropriate agencies and groups to encourage suitable habitats for wildlife.**

Wildlife is an important element of the County's environment. As development growth has occurred, many wildlife habitats have been disrupted or destroyed. As the County moves forward, suitable habitats must be located and protected.

**8. Promote green building practices.**

The County shall support green building efforts which use building materials and processes that are environmentally responsible and resource-efficient for the entire life-cycle of the project: design, construction, operation, maintenance, renovation and demolition. Goals of green building include siting and structure design efficiency, energy efficiency, water efficiency, materials efficiency, indoor environmental quality enhancement, operations and maintenance optimization and waste reduction.

**9. Work with federal and state agencies to remediate and appropriately redevelop contaminated sites.**

Contaminated sites are a drain on the environment and economy of the County as well as the entire state. The expense necessary for remediation is extremely high, usually beyond the financial means of private property owners, developers, or the County. The return on



investment for returning brownfields back to useable land often makes such projects well worth the investment.

**10. Continue to prepare for emerging challenges through education and public outreach.**

Education and public outreach are effective ways to address many environmental issues. As challenges arise, the public is often unaware and unable to assist in resolving the challenge before it becomes a major problem for the County.

*Strategies:*

1. Increase permanently preserved land through a modified Transfer of Development Rights (TDR) program which would direct development to areas which are appropriate for additional development.
2. Promote infill and redevelopment to optimize existing infrastructure, focusing on transit corridors with a mix of housing, to relieve the pressure of greenfield development.
3. Adopt amendments to County Code to encourage green buildings, LEED programs, and energy conservation.
4. Establish standards for measuring and monitoring stormwater to ensure the utilization of best management practices.
5. Continue to assist DNREC in its pollution control strategies for waters not meeting water quality standards (TMDL) and Tributary Action Teams (TAT) including consideration of such actions as a) limiting impervious cover; b) promoting low-impact development approaches in new development and redevelopment; and c) identifying areas where stormwater retrofits would effectively reduce sediment and nutrients and d) requiring management of open space for nutrient reduction.
6. Consider expansion of the WRPA regulations to include other levels of source water protection areas.
7. Create a Green Infrastructure Map for New Castle County, comprised of linked public parks, natural areas, lands under conservation easement, private community open spaces and protected resources.
8. Work with the appropriate agencies in New Castle County to provide environmental benefits, and develop a combined strategy for urban reforestation.
9. Use the County's Long-Range Park Acquisition and Development Plan to proactively acquire open lands for passive and active recreation.
10. Promote County recreational and cultural resources through improved marketing and programming in order to maximize the public benefit and increase use.
11. Investigate the feasibility of developing floodplain maps based on projected build out.
12. Continue to work with the identified parties to implement the Southern New Castle County Master Plan.
13. Continue to work with DNREC to revise and implement a Water Management Code

14. Complete the evaluation of stormwater management techniques and continue to investigate the feasibility of a stormwater utility.
15. Create a planned integrated network of greenways by coordinating the acquisition and preservation of open space.
16. Continue to work with all conservation and non-profit groups to pursue natural resource and heritage goals.

## 6.2 Agriculture

### 6.2.1 Overview

Agriculture continues to be a significant sector of the economy, providing food and raw materials to local residents and businesses. Until the latter half of the 20<sup>th</sup> Century, New Castle County was characterized largely by expanses of farmland with intermittent small towns and crossroads. Today, a majority of farmlands are located south of the C & D Canal where contiguous farms form an uninterrupted rural landscape in some areas. A few scattered farms occupy the area around the Route 40 corridor and southward to the C & D Canal. In the northern tier of the County, farmland is limited mainly to small sections of the upper Brandywine River and Red Clay Creek valleys.

The agriculture industry is important to the State of Delaware and New Castle County in terms of natural conservation, economics, and food production. Within the State of Delaware, the agriculture industry contributes \$2.5 billion in value-added activity and \$1.6 billion in labor income with about 30,000 jobs supported by the industry. Within New Castle County, there are approximately 66,981 acres of farm land<sup>8</sup>, which accounts for approximately 24.6% of land within the County. The market value of the County's agriculture products is over \$45 million.

Approximately 35% of the County's farmland is in the state's farmland preservation program (18,000 acres). Approximately 23% of the County's farmland is permanently preserved through the state's farmland preservation program (12,293 acres).

In addition to traditional agriculture, New Castle County also has an extensive equine industry, encompassing over 6,000 acres and valued at about \$130 million. There are several horse tracks in New Castle County and surrounding areas.

### *Farmland and Development Pressure*

Delaware contains the highest percentage of Class I and II soils of any state. Agricultural lands are a significant resource. Unfortunately, Delaware also ranks very high nationally in the rate of farmland lost to development. In 1987, New Castle County had 93,998 acres of land in farms. Ten years later, the number had decreased to 77,302. The 2007 figures show that the number has decreased to 66,981.

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<sup>8</sup> 2007 USDA Census of Agriculture

The next Census of Agriculture is expected in 2012, and a decrease is again anticipated. The most fertile land is in the region known as “The Levels,” located west and south of Middletown; this region is also under strong development pressure as Middletown has become a fast-growing population center.

The loss of agricultural land anywhere in the County is a permanent loss. In addition to loss of acreage, fragmentation of the agricultural landscape is a detriment to farming. When residential subdivisions and other non-farm uses locate next to farmland, conflicts arise that affect the productivity and practice of farming. Crops can be damaged from trespassing and the spread of invasive plants, increased traffic on local roads prevents the transport of farm machinery, and complaints about the noise and odors of farming activity all reduce the ability of farmers to efficiently work their land. These nuisance factors, as well as the value of land, encourage farmers to sell their land.

Given the excellent quality of farmland and the knowledge that growth in New Castle County will continue, the County must focus on preserving the highest quality resources with the greatest potential for the long term viability of farming. Existing farmland protection tools include State and County agricultural easements and preservation districts, County zoning and land development regulations that promote farming, and preferential tax treatment. The vibrant local agricultural industry supports the economy and reduces transportation costs and impacts.

#### ***Delaware Agricultural Lands Preservation Foundation (DALPF)***

A significant preservation tool is the Delaware Agricultural Lands Preservation Foundation (DALPF). Established in 1991, DALPF has two major components: agricultural preservation districts and agricultural conservation easements. Districts are created by a voluntary agreement to keep land in agricultural use for at least ten years. Lands are selected under a review and approval process that includes satisfying a scoring system standard. No payment is made to the landowner, but he/she benefits by exemption from real estate transfer, County, and school taxes, as well as protection against nuisance lawsuits.

To permanently preserve farmland, DALPF purchases development rights, imposing a permanent conservation easement on the land. The land must first be in an agricultural preservation district to be considered for a conservation easement. The purchase price is based on the appraised value of the development rights and selections are based on the highest discounts offered by property owners.

New Castle County established a volunteer farmland preservation program in 2003 to purchase easements that restrict subdivision of the land, and in 2006 began a partnership with DALPF by donating County funds for farmland preservation on a one-to-one matching basis. All interested land owners apply to the DALPF program, and if not chosen, are then eligible for the County/State match program.

Table 6-1 below displays the number of farms protected in the County. As of September 13, 2011, there are 80 farms, accounting for 12,293 acres of farmland protected by DALPF agricultural easements within

New Castle County. These easements were acquired using \$6,606,141 of federal funds, \$19,361,196 of state funds, and \$4,578,780 of New Castle County funds<sup>9</sup>.

<b>Table 6-1: New Castle County Protected Farmland</b>				
	2002		2011	
	# of Farms	# of Acres	# of Farms	# of Acres
Total New Castle County Farmland	358	71,248	347	66,198
DALPF Permanent Conservation Easements	60	10,281	80	12,293
Total Protected Farmland (including other preservation easements)	80	18,442	114	18,600
Total Unprotected Farmland	278	52,806	267	47,598
*source: New Castle County and USDA				

One of the tools used by DALPF and the County in evaluating the purchase of easements is the LESA scoring system (Land Evaluation Site Assessment), created by the U.S. Department of Agriculture and designed to help state and local officials decide under what conditions agricultural land should or should not be converted to non-agricultural uses. The system evaluates the quality of the soil while also considering non-soil factors such as proximity to urban areas, the impacts of the existing zoning pattern, and the public value of a site. This provides a method to rank properties so that public money and programs are devoted to protecting land with the greatest long-term value for farming. This can work to New Castle County's disadvantage when competing with Sussex and Kent Counties for State funds, as those two counties are less urbanized with development rights that are less expensive to acquire.

In 1997, the County proactively rezoned about 80,000 acres in its southern region to Suburban Reserve (SR) to encourage preservation of this rural area. It is a low density zoning district permitting a minimum lot size of 5 acres for individual residential lots, or "open space" subdivisions requiring 60% open space. Sewer service is not proposed for this area. Development activity within the County's jurisdiction has been very low in this area as a result.

### ***Forest Resources***

Commercial forestry, while not as widespread an activity as farming, is still an important element of the County's agricultural economy. This industry includes harvesters of standing timber, the milling/processing industry that converts logs into a more refined product, and the secondary wood industry with such interests as pallet manufacturing, cabinet and furniture making, and others that create products from wood. Some farms include forestland, which may be protected within an agricultural district or easement. The Delaware Commercial Forestry Plantation Act encourages responsible forestry operations by offering a tax exemption for forests of at least ten contiguous acres that operate under an approved forest management plan.

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<sup>9</sup> Delaware Department of Agriculture, September 13, 2011.

Since 1998, Delaware has been a participant in the Forest Legacy Program, funded through the U.S. Forest Service. The intent of the program is to protect working forestlands that are threatened by development or other land uses so that they continue to yield the products used every day and provide both wildlife habitat and water quality protection. The program funds are used for either fee simple purchase or conservation easements that prohibit non-forest uses and require adoption of a stewardship plan.

Forest Legacy funds may only be used in areas designated in a forest plan, called the Assessment of Need. The plan describes the threats to Delaware's forests and identifies locations containing the most important forests, which are designated as Forest Legacy Areas. There are two such areas in New Castle County: White Clay Creek Forest Legacy Area and Blackbird/Blackiston Forest Legacy Area. The Legacy Areas contain the highest concentrations of forests in Delaware, including significant acreage already protected through public and private ownership. Although no program funds have been spent in New Castle County to date, this program establishes priorities for protecting the most important forestland by encouraging cumulative conservation efforts.

## 6.2.2 Goals, Objectives, and Strategies

### *Goals:*

#### **1. Continue to preserve and offer additional incentives to enhance the County's agricultural and forestry resources.**

The County's agricultural lands and working forests are viewed in two contexts: both are natural resources to be protected as well as important land uses and industries. The success of the industry depends on both the supply of fertile land and the economics of farming and forestry. Farmland and forestland are valued for the natural resources they contain, which are then used (exploited) to harvest produce to feed and house the population and for conversion into other products. Historically and currently, the activities associated with cultivating, harvesting, and transporting this produce have formed an important segment of the local economy. About one quarter of the County's land area is still devoted to agriculture. In addition to economic value, farmland and forestland have ecological and community importance. These lands preserve open space and the rural character of the landscape while providing environmental benefits such as the opportunity for wildlife habitat, air and water cleansing, and weather moderation. Quality of life issues include preservation of a rural lifestyle, scenic vistas, and control of sprawl development. (Note: forestland refers to working forestland where timber is harvested and replenished according to a management plan). Other forests in the County are important for preservation of natural habitats and species and are set aside as conservation areas. Forest conservation is incorporated into the concept of habitat conservation.

**2. Create an Agriculture zoning district to encourage, preserve, and enhance the farming community.**

Any plan to preserve farm and forest acreage must also support the agricultural economy so it may continue to exist without the threat of encroachment by development. When agricultural land becomes valuable for its development potential, it is at high risk of being lost and once lost, it will never be converted back to agricultural use. Grading and earth moving associated with construction irreversibly damages soil structure. Forestland, although renewable, takes decades to reach maturity.

**Objectives:**

**1. Strengthen and continue to preserve the right to farm and help create viable districts and markets for local and regional farms.**

State Code establishes the right to farm. New Castle County supports the practice of farming by permitting agricultural uses in all zoning districts and by establishing a broad definition of agricultural use. The Suburban Reserve (SR) zoning district discourages dense development by establishing a minimum lot size of five acres. This district is located in the areas of the County with the best quality soils and the most intact landscape. The County's primary objective is to ensure there is a supply of high quality land for agriculture and forestry in the future and to avoid fragmenting the landscape with non-agricultural uses.

**2. Work with all appropriate parties to increase the acreage of permanently preserved prime agricultural land and forestland.**

Over 47,000 acres of farmland are currently not protected, as opposed to 18,600 acres which are protected, through temporary or permanent preservation easements. To ensure that agriculture remains a viable industry and that agricultural land continues to form part of the viewscape, a successful systematic approach to farmland preservation must be pursued.

The County continues to partner with DALPF by participating in its agricultural district and conservation easement programs, and by providing matching funds to work jointly for farmland preservation in New Castle County.

**3. Create incentives to promote and encourage the continuation of agriculture and forest based business.**

In addition to preserving tracts of land for agricultural uses, policies are needed to prevent the land from being fragmented by other land uses. In addition to existing programs that offer preferential tax assessment, other ways to support the agricultural economy should be explored.

In some areas of the country, local governments are looking to their forestland for wastewater treatment and this is worth investigation. Forest wastewater systems are similar to spray irrigation of cropland, but the use of forests provides certain advantages over cropland. Forestland provides more efficient cleansing of wastewater and little risk of contaminating human food chains. Wastewater serves as a nutrient that is beneficial to the growth of the forest and periodically, income can be generated from the sale of timber products. While it is not yet known if the location of forests is conducive to efficient use of this technology, research on this topic is warranted. Since the County has already invested funds to preserve forestland, there may be a mutually beneficial opportunity to dispose of wastewater on land that could be enhanced by it.

#### **4. Educate the public about the economic advantages of having a sustainable agricultural industry in the County.**

Many people do not associate agriculture as an important economic industry within the economic makeup of the County. The agriculture industry provides much more than food, it also provides jobs, income, and tourism as with many other industries. As the public is educated about the economic advantages of the agriculture industry, it will be easier for the public to understand the need to maintain and enhance the industry within New Castle County.

#### ***Strategies:***

1. Increase permanently preserved land through a modified Transfer of Development Rights (TDR) program which would direct development to areas which are appropriate for additional development.
2. Create agricultural districts to reduce conflicts between urban and rural uses.
3. Preserve agricultural heritage by providing incentives for rehabilitation of historic farm buildings and coordinating the County historic preservation program with the Delaware Century Farm Program.
4. Work with the Department of Agriculture, the agricultural community and the Delaware Economic Development Office to identify barriers to continued successful agri-business and strategies that may be instituted to reduce or eliminate those barriers.
5. In addition to the existing Farmland Assessment Act, explore potential of temporary property tax relief on agricultural capital investments, such as farm buildings, sheds, animal buildings, etc.
6. Extend protections afforded to farms enrolled in the Agricultural Lands Preservation Program to all farms.

## 6.3 Stormwater Management

### 6.3.1 Overview

Land use activities can substantially alter the quality and quantity of stormwater run-off and the run-off rate produced by a parcel of land. As woodlands are cleared and land is converted to impervious surfaces (i.e. roads, buildings, sidewalks), less water is able to recharge into the ground, and the water is directed to surface water systems (i.e. ditches, creeks, rivers, ponds). As the amount of stormwater directed to surface water increases, so does the potential for downstream flooding, erosion/sedimentation of streams, drainage problems, clogged storm sewers, and water pollution.

Stormwater management is the process and technology that is used to engineer land development to safely convey stormwater without detrimental impacts. New Castle County is responsible for ensuring that all land development plans and their associated stormwater management concepts and practices comply with the Environmental Protection Agency's (EPA's) Clean Water Act, the State of Delaware Sediment & Stormwater Regulations, and the *New Castle County Code*. The County also verifies that completed development remains in compliance with these regulations by means of construction and post-construction inspections. In addition, New Castle County performs select maintenance to keep streams open and free flowing.

The State Department of Natural Resources and Environmental Control (DNREC) and the EPA have delegated the New Castle County Departments of Special Services and Land Use with the responsibility to review Sediment and Stormwater Plans, conduct site work inspections to monitor and enforce the implementation of the practices detailed on the plans and to perform routine, long term inspections to ensure those practices continue to function as designed. County personnel and representatives of DNREC meet monthly and review the performance of the County to verify that responsibilities are adequately met. The delegation was granted to New Castle County in 1991 and is reviewed and renewed every three years. The Division of Soil and Water Conservation also serves as a technical resource by disseminating information regarding current "best management practices" that are available to meet the requirements of these regulations.

Most of the statewide and local stormwater management regulations to date have focused on regulating new development. However, many stormwater runoff problems within New Castle County are associated with existing older developments that were built prior to the adoption of stormwater management regulations. In addition, there is a growing awareness that other land use activities such as row crop agriculture can also contribute to both water quality degradation and increased flooding. Awareness of these issues and the requirements of the Clean Water Act, particularly TMDLs, have prompted New Castle County to explore methods for addressing stormwater quality and quantity controls throughout the County. Comprehensive and integrated processes are important components of this effort.



## 6.3.2 Goals, Objectives, and Strategies

### *Goals:*

- 1. Facilitate the provision and maintenance of an efficient and effective stormwater management system.**

An efficient and effective stormwater management system is essential to the County, with respect to safety and the environment. Such management can help control flooding, stream degradation, drainage problems, and water pollution.

### *Objectives:*

- 1. Assess and mitigate stormwater runoff from a watershed perspective.**

Stormwater runoff eventually makes its way into major rivers where contaminants and sediment can create serious environmental problems. In order to properly plan, assess, and mitigate runoff, the County looks at runoff by watershed area.

- 2. Continue to utilize Green Technology Best Management Practices (GTBMPs) to address stormwater management.**

Green Technology Best Management Practices (GTBMPs) allow for the management of stormwater quality in an environmentally friendly manner. They intercept runoff and direct the water into vegetative areas. This allows the water to be “cleaned” through the vegetation prior to entering a waterway and improves the potential for water recharge into the soil. Such examples of Green Technology include bioretention, buffers, rain gardens, conservation site design, filter strips, source area disconnection, biofiltration swales, and infiltration trenches.

- 3. Ensure that regulations and procedures governing drainage and water management are comprehensive and reflect the latest information and technology.**

The regulation of drainage and water management involves Federal, State, and local agencies and is routinely changing as new information is learned through research and studies. New technology is constantly being created to help comply with these changing regulations. Regulations must be flexible enough to allow for new technology, but comprehensive enough to ensure that waterways are protected.

- 4. Provide for economical maintenance of stormwater management facilities.**

The maintenance of stormwater management facilities can often become a burdensome expense resulting in neglected facilities. As new technology is incorporated into regulations, it is imperative that systems and facilities are designed to be sustainable and economically manageable for many years to come.

*Strategies:*

1. Continue to work with DNREC to revise the stormwater management code to reflect the best management practices.
2. Explore implementation of a stormwater utility or another solution to make management of stormwater more effective and efficient.
3. Assist community maintenance associations with understanding their stormwater maintenance obligations.
4. Investigate the feasibility of developing floodplain maps based on the projected build out.
5. Continue to provide limited financial support to, and participate in partnerships with, the New Castle Conservation District for flood mitigation initiatives.
6. Work with DNREC, the Environmental Protection Agency, and other partners to ensure that Total Maximum Daily Loads are adequately addressed in the revisions to the County's Municipal Storm Sewer Systems permit