Chapter 7
ENVIRONMENTAL QUALITY AND NATURAL RESOURCES
(03/14/16)

Because the City of Newark's environment is the sum of all external conditions and influences affecting life, preserving and protecting environmental quality is essential for the continued well-being of the community. Therefore, of paramount concern in planning for the City's future growth must be a refusal to permit such growth to negatively impact the local and regional environment.

The City of Newark's past efforts and current practice underscore its environmental plan for the future—to protect and conserve Newark's land, water, and air in both Newark and the surrounding region, and to encourage local energy conservation while preserving natural resources. With continued monitoring and management of development by the City and with the assistance of the responsible state and federal authorities, the City's natural heritage can be preserved for current and future generations of Newarkers.

Environmental quality is a key element in achieving the City's vision of being a "Healthy and Sustainable" community. While this chapter focuses on the City's efforts, goals, and objectives for protecting water, air, and land, as well as encouraging green energy and conservation, other sections of Newark's *Comprehensive Development Plan V* address environmental quality policies and goals for public utilities (Chapter 4), transportation (Chapter 6), parks and open space (Chapter 8), and land use (Chapter 10) that are not necessarily referenced in this chapter.

Water

Wetlands

The City's *Subdivision and Development Regulations* include specific wetlands delineations and wetlands reporting requirements for subdivision and development review by the City. In addition, regulatory protection of wetlands is mandated under Section 404 provisions of the federal Clean Water Act. Certain other wetlands, such as those associated with streams and ditches, are accorded additional regulatory protection under Title 7, Chapter 66 and Title 7, Chapter 72 provisions of the *Delaware Code*, respectively. Compliance with these statutes may require a U.S. Army Corps of Engineers–approved field-wetlands delineation and/or an official DNREC wetlands jurisdictional determination.

Total Maximum Daily Loads (TMDL) and Water Quality

Under Section 303(d) of the 1972 federal Clean Water Act, states are required to identify all impaired waters and establish total maximum daily loads (TMDL) to restore the waters' beneficial uses (e.g., swimming, fishing, drinking water, shellfish harvesting). A TMDL defines the amount of a given pollutant (or the pollutant-loading-rate reduction for a given pollutant) that may be discharged to a water body from all point, nonpoint, and natural background sources, thus enabling the water body to meet or attain all applicable narrative and numerical water-quality criteria (i.e., nutrient/bacteria concentrations, dissolved oxygen, and temperature) specified in the State of Delaware's *Water Quality*

Standards. A TMDL may include a reasonable margin of safety (MOS) to account for uncertainties regarding the relationship between mass loading and resulting water quality.

In simple terms, a TMDL matches the strength, location, and timing of pollution sources within a watershed with the inherent ability of the receiving water to assimilate the pollutant without adverse impact. The realization of these TMDL pollutant-load reductions will be through a Pollution Control Strategy (PCS). A PCS identifies the specifies strategies and actions necessary for reducing pollutants in a given water body (or watershed), thus realizing the water-quality criteria or standards set forth in the State of Delaware's *Water Quality Standards*, ultimately leading to the restoration of a given water body's designated beneficial use(s). Currently, the PCS for the Christina River Basin contains only nonregulatory recommendations.

The City of Newark is located within the Piedmont drainage, specifically within the greater Christina River Basin. The Christina River Basin includes the Christina River Sub-basin and the White Clay Creek Sub-basin. Within this basin, there are specific-designated nutrient (nitrogen and phosphorus) and bacterial TMDL load-reduction requirements, displayed in Table 7-1.

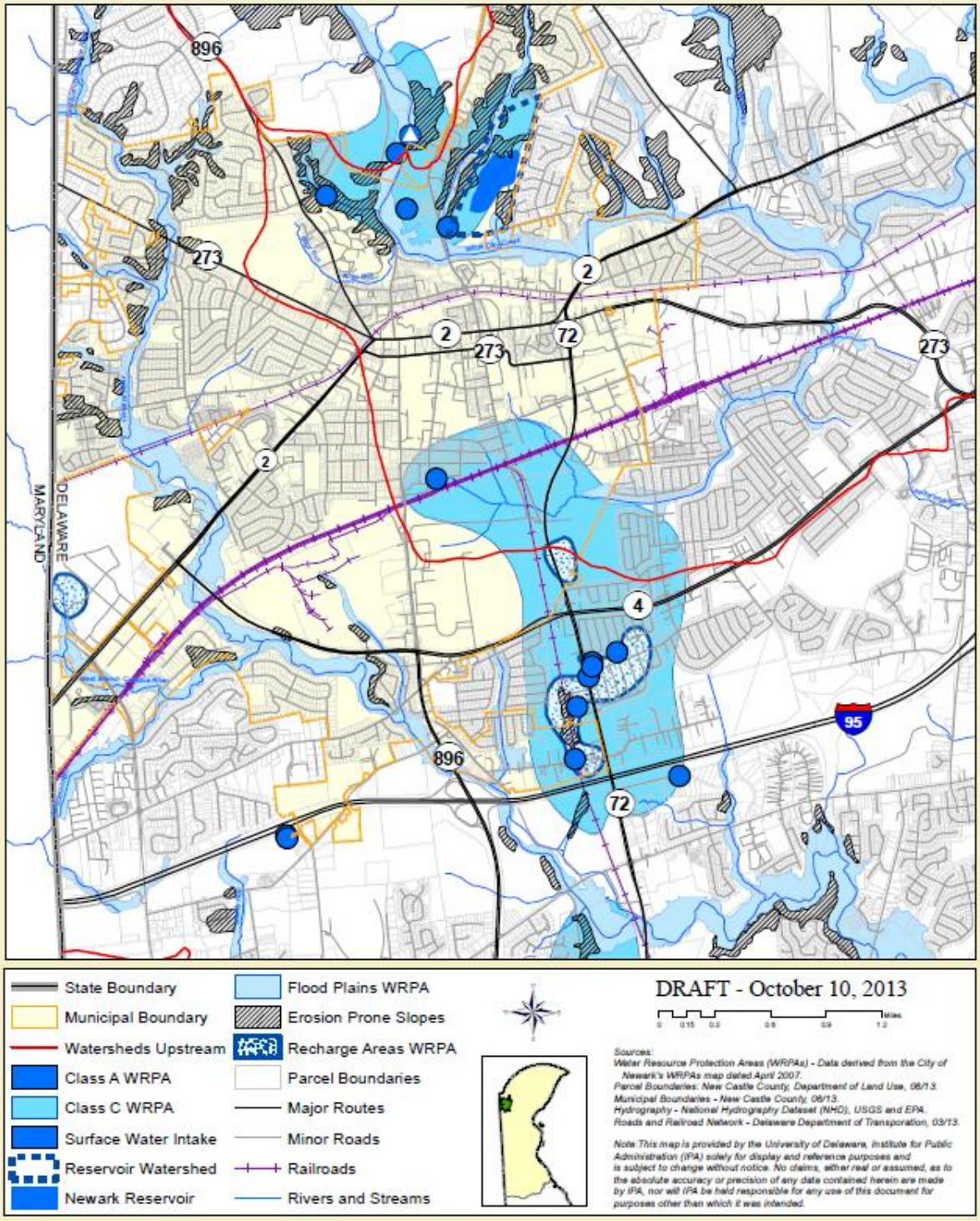
Table 7-1: TMDL Reduction Requirements for the Christina River Basin

Piedmont Drainage	Nitrogen	Phosphorus	Bacteria
Christina River Basin	Capped at pre-development baseline (0% increase allowed)	Capped at pre-development baseline (0% increase allowed)	29-95% high flow

Source: Delaware Department of Natural Resources and Environmental Control

Map 7-1 shows the Water Resource Protection Areas (WRPAs) in the City of Newark, which includes the Special Flood Hazard Areas (SFHA), the watersheds, and the WRPA Recharge Areas. These areas are delineated by the Water Resources Agency for New Castle County, in conjunction with the City of Newark Public Works and Water Resources Department. Additional restrictions apply to these areas in order to protect drinking water supply from pollution that may be associated with inappropriate land uses.

Map 7-1


City of Newark
Water Resource Protection Areas (WRPAs)
NEWARK DELAWARE
896
273
2
72
4
95
MARYLAND
DELAWARE
State Boundary
Municipal Boundary
Watersheds Upstream
Class A WRPA
Class C WRPA
Surface Water Intake
Reservoir Watershed
Newark Reservoir
Flood Plains WRPA
Erosion Prone Slopes
Recharge Areas WRPA
Parcel Boundaries
Major Routes
Minor Roads
Railroads
Rivers and Streams
DRAFT - October 10, 2013
Sources:
Water Resource Protection Areas (WRPAs) - Data derived from the City of Newark's WRPAs map dated April 2007.
Parcel Boundaries: New Castle County, Department of Land Use, 06/13.
Municipal Boundaries - New Castle County, 06/13.
Hydrography - National Hydrography Dataset (NHD), USGS and EPA.
Roads and Railroad Network - Delaware Department of Transporation, 03/13.
Note: This map is provided by the University of Delaware, Institute for Public Administration (IPA) solely for display and reference purposes and is subject to change without notice. No claims, either real or assumed, as to the absolute accuracy or precision of any data contained herein are made by IPA, nor will IPA be held responsible for any use of this document for purposes other than which it was intended.

Air

The monitoring of air quality in Delaware is the responsibility of DNREC and the U.S. EPA. WILMAPCO, our region's metropolitan planning organization, also plays a role in air-quality planning through the review and adoption of short-run transportation-improvement projects and long-range regional-transportation planning, which include measures designed to limit deterioration in our region's air quality associated with auto emissions. *Delaware Code* Title 7, Part VII, Chapter 60, Environmental Control, gives DNREC the responsibility for protecting the "air resources" of the state through programs designed to control air pollution and the responsibility to cooperate with federal, interstate, and local agencies in the appropriate utilization of Newark's air resources.

Permits for emissions into the atmosphere are reviewed for compliance with state and federal regulations through DNREC. The *Delaware Code* also includes provisions for penalties for excessive atmospheric emissions, establishes a review board for appeals of the Department's permit denials, and establishes rules and regulations for the purposes of controlling air pollution and for developing statewide air resources–management plans. *Delaware Code* Title 7, Chapter 67 provides standards and procedures for control of one of the most significant sources of air pollution—motor-vehicle emissions. This chapter provides for emissions testing at the state Division of Motor Vehicles' facilities, sets emissions standards, and includes penalties for violations of these standards. Our state standards are consistent with the federal Clean Air Act Amendments of 1990.

In addition, the City of Newark reserves the ability to review current and future sources of air pollution. For example, in 2009, the City of Newark passed an Anti-Idling Ordinance that restricted idling of personal motor vehicles within city limits. The ordinance was part of the City's effort to reduce its carbon footprint and make a positive impact on air quality. The Newark Conservation Advisory Commission (CAC) designed and coordinated Newark's Anti-Idling Campaign with a $15,000 grant through DNREC's Greenhouse Gas Reduction Projects Fund. The Campaign included signage posted at locations throughout the City, public service announcements, brochures, flyers, mailers, and videos explaining and promoting the law.

Land

Protection of Floodplains and Lands Adjoining Floodplains

The City *Zoning Code* Floodplains and Lands Adjoining Floodplains ordinance, as well as Newark's newly adopted *Chapter 14A: Floodplains*, provides Newark's first line of defense for protecting the fragile beauty and environmental resource of the White Clay and Christina Creeks. This ordinance specifies that all land within the Special Flood Hazard Area (SFHA)—areas defined by the United States Army Corps of Engineers as being subject to inundation by floods having an average occurrence frequency of once every 100 years—are limited to agriculture, recreational, and open-space uses and, with a Council-granted Special Use Permit, are available for municipal utilities, bridges, and roads and parking areas with permeable surfaces. These Special Use Permit–required uses are further regulated, however, by a series of factors that must be considered before City Council can grant such approvals. Most importantly, since the 1972 adoption of these

regulations, no above-ground development has occurred in the floodplains of the White Clay and Christina Creeks. This has prevented the building of any homes or commercial development in potentially hazardous areas (i.e., areas susceptible to flooding) and has contributed to significant public land donation through the approval of subdivisions adjacent to (but not in) the SFHA.

Beyond that, the City Floodplain ordinance also includes provisions for the protection of the lands immediately adjoining the SFHA, defined as that area determined by the United States Army Corps of Engineers as being subject to flooding under the most severe combination of meteorological and hydrological conditions (the 500-year event, or 0.2% chance of occurrence in any one year). The ordinance stipulates that development in the 500-year floodplain cannot begin without the Director of Planning and Development and the Director of Public Works and Water Resources determining that such development will not have a negative impact on the adjoining floodplain. In these circumstances, the City requires that the lowest floor elevation of the building involved must be 1.5 feet above the elevation of the adjoining SFHA.

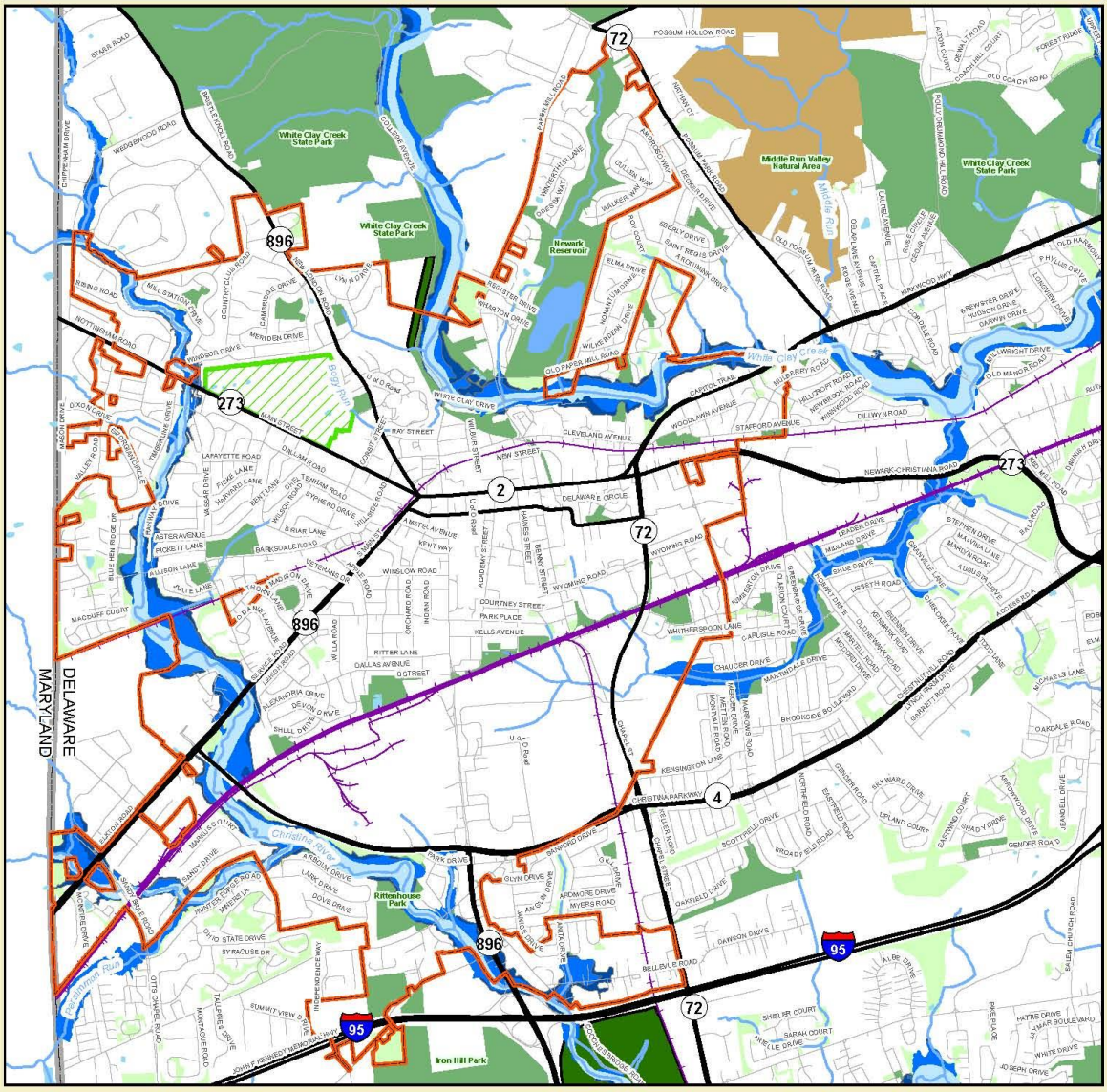
The City's aggressive pursuit of stream-valley land donations has been a major factor in its floodplain-protection program. Requiring developers to dedicate their stream-valley property in exchange for development approval has helped ensure the preservation of these scenic and environmentally sensitive lands for public enjoyment in perpetuity. Moreover, the City has also acquired and preserved portions of the White Clay and Christina Creek floodplains through direct purchase. Thus, through land donation and purchase and strict 100-year-floodplain regulation, the City continues to meet its long-term goal of protecting our major streams and, at the same time, provide natural greenways running through the heart of our community.

Based on the nature and success of the City's program of floodplain protection and land acquisition, coupled with the City's stormwater-management and floodplain public-information programs, Newark has qualified for participation in the Federal Emergency Management Agency's (FEMA) Community Rating System (CRS) program. The City's CRS rating of Class 7 is the highest in Delaware and, as a result, owners of property in the floodplain receive substantial discounts on their flood insurance premiums. The City's CRS program participation is recertified by FEMA on an annual basis. As part of the City's CRS program requirements and its general participation in FEMA-sponsored floodplain regulations, the City periodically updates its floodplain regulations to insure it meets the latest national standards and specifications.

In 2014, FEMA revised the Flood Insurance Rate Map (FIRM) and Flood Insurance Study (FIS) report for New Castle County and its incorporated areas. The FIRM and FIS became effective on February 4, 2015, and replaced the FIRM panels that were in effect prior to that date. Along with the revised FIRM and FIS report, FEMA required all communities in Delaware that participate in the National Flood Insurance Program (NFIP) to adopt updated floodplain regulatory language to comply with NFIP requirements prior to the updated FIRM and FIS becoming effective. The standards were the minimum requirements and did not supersede any state or local requirements that exceeded these NFIP standards.

Map 7-2

City of Newark - Environmental Features



State Boundary
City of Newark
FEMA floodplains
floodway
1% annual chance floodplain areas
0.2% annual chance floodplain areas
Outdoor Resource Inventory
Conservation Easement
Parks
Natural Area
Open Space
Newark Country Club Golf Course
City of Newark Reservoir
Major Routes
Railroads
Minor Roads
Rivers and Streams
Bodies of Water

DRAFT - October 2013

0 1,150 2,300 4,600 6,900 9,200 Feet

Sources:
Municipal Boundaries - Delaware Office of State Planning Coordination, 04/13.
Road and Rail Network - Delaware Department of Transportation, 03/13.
Outdoor Resource Inventory - DNREC, Division of Parks & Recreation, 05/13.
Floodplains - FEMA, 2010.
Hydrography - National Hydrography Dataset (NHD), USGS and EPA.

Note: This map is provided by the University of Delaware, Institute for Public Administration (IPA) solely for display and reference purposes and is subject to change without notice. No claims, either real or assumed, as to the absolute accuracy or precision of any data contained herein are made by IPA, nor will IPA be held responsible for any use of this document for purposes other than which it was intended.

The City of Newark cooperated with DNREC to adopt a "model" floodplain ordinance, reviewed and approved by FEMA. City staff incorporated the DNREC model and preserved the City's more stringent standards on floodplain management in Section 32-96, *Use Regulations for Floodplain*, of the City of Newark *Zoning Code*. The revised ordinance, known as *Chapter 14A: Floodplains*, was approved by City Council on January 12, 2015. The ordinance formally adopted the updated FIRMs, designated a Floodplain Administrator, and established administrative procedures that coordinate with the City of Newark *Building Code*.

In the future, as discussed from time to time by the City's CAC and City Staff, Newark may consider adding a riparian buffer and/or reforestation requirement for stream corridors, coupled with incentives to encourage landowners to restore vegetation where clearing has previously occurred.

Rare Species and Wildlife Habitat

Much of the land area within the City, outside its protected White Clay and Christina Creek floodplains, is urban and developed. On the other hand, because some parcels in the City and many within the Planning Areas outside Newark that *may* be considered for annexation are forested and may contain important natural or potential habitats for rare or endangered species, the City should, as a policy, require that developers considering such sites contact the Environmental Review Coordinator of DNREC's Natural Heritage and Endangered Species Program. Similarly, any such development projects should take into account the state's designated Natural or Resource Areas. Connectivity among and preservation of such areas is crucial to protect these important wildlife habitats.

Regarding impervious-cover limitations, wetlands, riparian buffers, and rare species and wildlife habitat, the Planning and Development Department has worked and will continue to work with the White Clay Creek National Wild and Scenic River's Watershed Management Committee and DNREC regarding their suggestions and recommendations for revised impervious-cover limitations, protecting wetlands, expanding riparian buffers along the City's rivers and creeks, and safeguarding wildlife habitats. Map 7-2 shows the environmental features of Newark, including parks and open space, conservation easements, and natural areas.

Green Energy

McKees Park Solar Project

McKees Park is a 3.91-acre brownfield site off East Cleveland Avenue that was redeveloped into a 244.8-kilowatt solar farm. This behind-the-meter renewable power source serves all residents by reducing the City's peak power demand, lowering the wholesale cost of power, generating solar renewable energy credits, bringing locally produced green energy to the City's electric users, and reducing the City's carbon footprint. The 900-panel array produces enough electricity to power approximately 26 to 36 homes, depending on the season.

In 2013, City Council voted to enter into a contract with Delaware-based solar-energy contractor Solair, LLC, to construct the solar facility. Funding assistance was also provided by the

Delaware Municipal Electric Corp (DEMEC) to finance the project through purchasing the system's Solar Renewable Energy Certificates (SRECs) for a 20-year term. The *Delaware Renewable Portfolio Standard* requires every retail seller of electricity in Delaware to meet an annually escalating percentage of electricity needs from renewable resources. By 2026, the City of Newark will be required to obtain 25% of its electricity through renewable resources.

Conservation

Energy Conservation

Because conservation is the cleanest and cheapest source of preserving Newark's energy supplies, the City of Newark has an energy conservation program involving municipal operations, administrative policy, and land-use and development regulations. Initiated by the City, these conservation efforts were intended to foster reasonable means of limiting energy demands or usage through operational effectiveness and improved cooperation to encourage the private sector to also adopt energy efficiency measures.

The City launched a Green Energy Program as part of its municipal electric service. Under the program, all Newark customers pay a small surcharge, which is added to their monthly payment. For a typical residential customer using 1,000 kilowatts per month, the surcharge is 36 cents. Funds from this surcharge are collected in a state program and redistributed to applicants to offset up to 33.33% of the cost of the installation of solar panels or other similar qualifying renewable-energy technologies.

Regarding land-use regulation, in 1978, the City adopted a series of amendments to the *Zoning Code* and *Subdivision and Development Regulations* designed to foster energy conservation. These changes were based on the Planning and Development Department's analysis of the *Zoning Code* in terms of potential impediments to energy efficiency and conservation. The Planning and Development Department recommended changes to the *Subdivision Regulations*, which included new standards providing site-design construction guidelines that encouraged development of more energy-efficient buildings. Newark's land-use changes are in response to the national effort to encourage energy conservation and were the first of their kind in Delaware.

Newark's Energy Conservation Program

Beginning in 2003, the City's CAC started compiling information regarding an energy-efficient buildings program for new construction in Newark. In 2005, the Commission hosted a public workshop on energy conservation requirements for new buildings, which focused specifically on the United States Green Building Council's Leadership in Energy and Environment Design (LEED) program. The LEED program calls for a rating system that results in the certification of buildings that have been recognized for their high levels of performance in human and environmental health, sustainable site development, water savings, energy efficiency, materials selection, and indoor environmental quality. In 2010, the Mayor and Council approved the Planning and Development Department and Newark citizens' CAC set of amendments to the City's *Building Code* that required all new major subdivisions to meet mandatory energy conservation standards derived from portions of the LEED program. All new major subdivision constructions –

commercial and industrial projects with buildings 20,000 square feet or larger and residential subdivisions with six or more dwelling units – are required to meet new energy efficiency and related standards above and beyond those called for in the City's *Building Code*.

The City's Site Plan Approval process, which provides alternatives for new development and redevelopment proposals to encourage variety and energy-efficient land use by permitting reasonable variations from the use and area regulations on the *Zoning Code*, provide for residential density and commercial square footage bonuses based on LEED certification.

The City's adoption of the updated *Building Code* requirements, utilizing aspects of the LEED program, places Newark in the forefront of communities striving for a green future.

Recycling and Reuse

For more than 30 years, the City has been a leader in recycling. In 2009, the City implemented a curbside-recycling program. City Council allocated funding in its *2009–2013 Capital Improvements Program* to implement the curbside-recycling program and provide for the purchase of required carts for recyclables. If they choose to participate in the City's recycling system, program-eligible residents receive collection service twice a week (one day for refuse and one day for recyclables). Those who do not participate will receive collection service once a week. The service has not been made available at this time to apartment owners and others with dwelling units that have inherent logistical difficulties for such a program.

In addition, the City has, on an annual basis for the past 30–40 years, collected and utilized tons of leaves, grass, bulk materials, and holiday-season trees that would have otherwise been transferred to state landfills. Over the past 15 years, the City has been collecting and diverting used tires and construction materials through the Public Works and Water Resources operations so that these materials are also not sent to a landfill. Over the same time period, the City has some of the highest participation rates by local residents at the Delaware Solid Waste Authority's statewide recycling locations. As a result, the City has a "diversion rate" of 26%, meaning that more than a quarter of the total amount of refuse materials collected in the City of Newark is being recycled.

UDon't Need It?

Based on suggestions from the Town and Gown Committee, the City began a diversion and reuse program associated with University of Delaware students' move-out each spring. The "UDon't Need It?" program successfully diverts more than 50 tons of used furnishings and household goods from public landfills each year. Between 1990 and 2014, it is estimated that more than 40,000 tons have been diverted from public landfills as a result of the recycle and reuse program.

Plan Goals and Action Items: Environmental Quality and Natural Resources

Preserve and protect Newark's natural resources and wildlife for current and future generations.

Strategic Issues:

- Balancing environmental protection with economic and physical development.
- Resident cooperation in City initiatives to reduce environmental impact such as conservation, recycling, and reuse.
- Protection of the natural environment, water and air quality, habitats, and stream valleys.
- Clean and sustainable energy.
- Environmentally friendly design.

Community Vision: **Sustainable**

Goal 1	**Protect the natural environment and wildlife.** The City advances its vision as a "Sustainable Community" through conservation of significant ecological systems that naturally work to enhance the quality of life for residents.

Community Vision: **Sustainable**

Goal 2	**Improve watershed quality.** The City advances its vision as a "Sustainable Community" through continuing to work with DNREC to minimize flood risk and improve water quality in the White Clay Creek and Christina Creek.

Action Item 1

Review code and enforcement to improve wetland riparian buffers.

Policy recommendations:

- Within the 50-foot buffer on streams, include a minimum 25-foot forested zone followed by shrub transition and grass zones.
- Require the planting of noninvasive species in riparian buffers.

Participating agencies:
City of Newark Department of Parks and Recreation
City of Newark Department of Public Works and Water Resources
City of Newark Department of Planning and Development
City of Newark Conservation Advisory Commission

Action Item 2

Develop a baseline water-quality database of surface water.

Participating agencies:
City of Newark Department of Public Works and Water Resources
City of Newark Conservation Advisory Commission

Community Vision: **Sustainable**

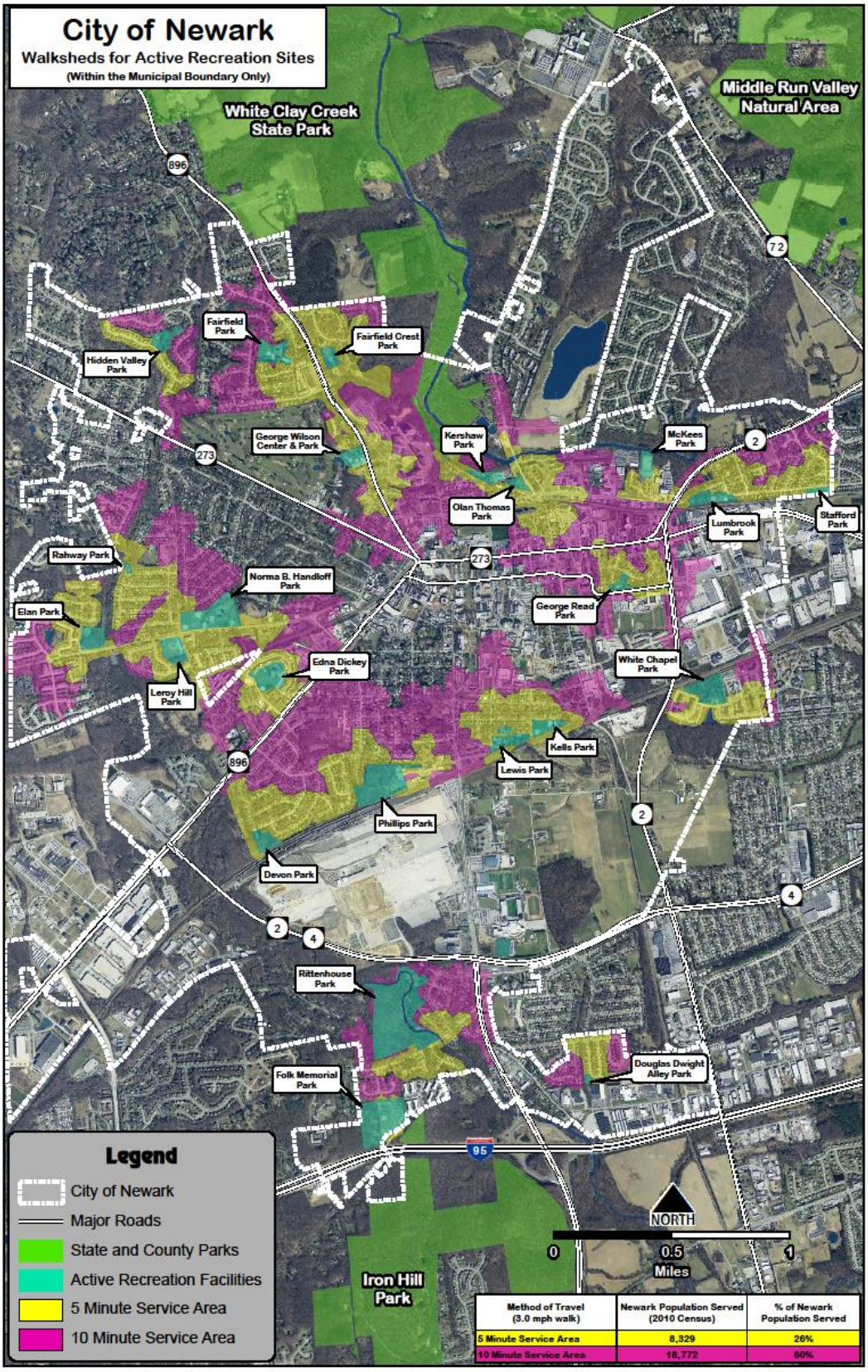
Goal 3	**Encourage green development and conservation practices.** The City advances its vision as a "Sustainable Community" by continuing to evaluate and adjust City codes, policies, and programs such that it can adopt feasible practices and emerging "green" trends to encourage environmentally sensitive development and conservation.

Action Item 3

Provide encouragement, information, technical support, and incentives to Newark households and businesses on sustainable landscaping and conservation practices. Sustainable practices include but are not limited to the use of rain barrels, rain gardens, mulching leaves and yard waste, and use of native canopy. City staff, partnering with the CAC, will provide information through community workshops, brochures, and the City's Web page on sustainable practices, and provide technical support when requested.

Policy recommendations:

- Continue the "UDon't Need It?" program to reuse discarded furniture and household goods from University of Delaware students moving at summer break and graduation.
- Evaluate the City's LEED-like Program and consider recommendations for improvements.
- Provide more information to residents on ways they can help reduce stormwater runoff by using rain gardens and rain barrels.

Participating agencies:
City of Newark Department of Parks and Recreation
City of Newark Department of Public Works and Water Resources
City of Newark Department of Planning and Development
City of Newark Conservation Advisory Commission

Map 8-1: City of Newark "Walksheds" to Active Recreation Sites