

## 4. Natural and Agricultural Resources

### 4.1 Overview

Natural and agricultural resources have played an important role in shaping human settlement in Union County. Today, woodlands represent the predominant land use, with 60 percent of the County's land in public or privately owned forest, including approximately 100 square miles of state forest. With nearly 60,000 acres, farmland represents about 30 percent of the County's total land area, of which over 80 percent is cropland. Agriculture and forestry contribute \$122 million of economic output to the County each year.

In addition to woodlands, a wide range of natural resources, including stream and river corridors, wetlands, wildlife habitat, public and private conservation lands, and public and private working lands (forests and farms) together form the County's natural life support system or **green infrastructure** network. Union County has a strong legacy of planning to maintain and strengthen its green infrastructure resources. In 1997, it became the first county in the nation to be designated by the U.S. EPA as a "Green Community" based on the efforts of its public-private partnerships and involved citizenry.

#### Natural Resources

An essential component of a healthy natural resource system is the protection and conservation of water quality and supply. High-quality water resources are vital to ensuring a healthy community, sustainable economy, and the continued existence of native plant and animal species. There are approximately 50 small watersheds within Union County, each an integral part of a system of larger watersheds in the County. These smaller watersheds drain to either the West Branch or the Lower Susquehanna Subbasin and ultimately to the Chesapeake Bay watershed, which encompasses 64,000 square miles in portions of six states and the District of Columbia.

Greenways or open space corridors through the landscape are critical to sustaining the integrity of natural systems. Union County is fortunate to have substantial woodland and open space areas already preserved as state forestland, state gamelands, state parks, and Merrill Linn Conservancy sites. With the exception of the smaller Merrill Linn sites, these conservation areas generally form a "greenbelt" around the perimeter of the County. In addition, some privately owned woodland and open space corridors extend from the state forest into the central areas of the county. To provide a

#### SUSTAINABILITY KEY = SYSTEM INTEGRITY

**System integrity** is the sustainability key for the natural and agricultural resource element of the Comprehensive Plan. Maintaining the integrity of natural and agricultural systems (woodlands, greenways, waterways, wetlands, animal and plant habitats, open space, soils, and agricultural land) provides essential environmental, community health, and economic benefits.

Examples of these benefits include natural resource protection, energy conservation, improved water and air quality, recreation, food production, increased property values, and reduced costs of public utilities and services. In this context natural and agricultural resource systems include all living organisms (e.g., plants, animals, microorganisms), soils, mineral, water, and atmosphere in a physical environment functioning together as a unit. Ensuring system integrity reinforces the interconnectedness between the elements (land use, transportation, etc.) of the Comprehensive Plan and depends upon all of the other sustainability keys, including mixed-use development, energy conservation, and multi-modal transportation.

### Green Infrastructure

Green infrastructure has been defined as: the Nation's natural life support system - a strategically planned and managed network of wilderness, parks, greenways, conservation easements, and working lands with conservation value that supports native species, maintains natural ecological processes, sustains air and water resources, and contributes to the health and quality of life for America's communities and people.

The network encompasses a wide range of landscape elements, including natural areas – such as wetlands, woodlands, waterways, and wildlife habitat, nature preserves, wildlife corridors, greenways, parks, forests, farms, and ranches.

*(greeninfrastructure.net, sponsored by the Conservation Fund and USDA Forest Service)*

basis for preserving natural system integrity, a number of statewide and regionally significant sites were identified for conservation in the County's Natural Heritage Inventory (last updated in 2000). This report prioritizes important sites and provides recommendations for preservation and resource management. The priority sites include Mohn Mill Ponds, Shikellamy Bluffs, Halfway Run, Penns Creek at White Mountain, The Gooseneck, and Seebold Quarry.

The greenways or riparian buffers that border streams, lakes, rivers, and other watercourses offer a number of important benefits, such as filtering urban and agricultural runoff, limiting erosion, improving air quality, and providing opportunities for outdoor recreation. The County supports a number of high quality streams, including Penns Creek, White Deer Creek, and Class A wild Trout waters (portions of Rapid Run, Buffalo Creek, and Weikert Run). Segments of Beaver Run, Buffalo Creek, Penns Creek, Turkey Run, Limestone Run, and the West Branch of the Susquehanna River are classified as impaired by the Pennsylvania Department of Environmental Protection (PA DEP). Sources of water degradation are often unknown, but include nutrient and silt runoff from agricultural land use and leaking of mercury or PCB into the water and then aquatic life. Imple-

mentation of the Susquehanna Greenway and other potential recreational trails is underway (see Section 2.6 and 2.7 for a more complete description of existing conservation and recreation areas in the County).

### Agricultural Resources

Generations of farmers have sustained a diverse agricultural economy that helps define Union County's rural character. Though agriculture has impacted native plant and animal communities, it should be considered an important resource that adds value to the green infrastructure system. Given the preponderance of livestock agriculture and the County's location in the Chesapeake Bay watershed, there is growing public concern about nutrient management of these operations.

Agriculture is a significant industry in the County representing nearly 60,000 acres and approximately 30 percent of the County's total land area. About 72 percent of agricultural land is enrolled in Agricultural Security Areas (ASAs), and the County Purchase of Agricultural Conservation Easement (PACE) program has protected 52 farms or more than 6,000 acres of its 2010 goal of 10,000 acres. The County's ultimate goal is to protect 40,000 acres by 2020. The program has a

strategy to protect large blocks of farmland and applies ranking criteria that emphasize protection of the best soils and best farms.

The majority of the County's farmers (about 70 percent) are from Plain Sect communities, predominantly Old Order Mennonites, who provide the County with a distinctive cultural perspective and uphold its agrarian traditions. In addition to the business of farming, commercial opportunities related to the natural environment, such as milling, mineral extraction and food processing, support the economies of the County's historic towns and villages.

Contract farming and confined livestock operations are growing sectors of Union County's agricultural economy. Contract arrangements separate livestock and/or poultry production from ownership. Contractors — including processors and packers — own the livestock or poultry and essentially hire the farmer to raise and care for them in his facilities. Contractors typically furnish production inputs, provide technical assistance, and pick up and deliver for slaughter, final processing and marketing. Confinement operations are known to concentrate nutrients on specific sites creating the potential for water pollution. Although federal cost-share

funds are available to improve nutrient management, Plain Sect farmers who manage many of these operations often do not participate in federal programs.

The future of these important agricultural and natural resources depends on the land use decisions being made today. It is important to plan for an integrated system that balances agriculture and resource conservation with sustainable growth. This element (or section of the plan) establishes goals and strategies designed to preserve farms and forest lands, maintain valuable agriculture and forestry economic enterprises, and protect natural resources and systems. More information on the state of the County's resources is available in Appendix C - the Agricultural and Natural Resources Technical Report prepared for Union County by American Farmland Trust (AFT)



## 4.2 Strengths and Issues

### Natural Resources

#### Strengths

- Located within the Ridge and Valley geologic province, Union County has a four-season climate, including cold winters and generally warm summers with an average of about 40 inches of rainfall annually. Natural disasters, such as extreme storms or drought are not common in this region.
- About 60 percent of the County's land area is publicly or privately owned woodlands. Nearly 35 percent of the County's woodlands are publicly owned or permanently conserved as state forest, state parks, state gamelands, or Merrill W. Linn Conservancy lands. Over 40 percent of the County's land is zoned for either forestry or woodland preservation.
- Forests are important economically. The County's sawmills generated \$13 million of economic output and \$1.7 million in employment compensation in 2006.
- Forestlands provide multiple environmental benefits, such as wildlife habitat, clean air and water, erosion control, and fire suppression. Multiple research studies have shown that open space and forest preservation increase net property tax revenue.
- Forests also offer a wide range of recreation opportunities that add to the quality of life for residents and attract tourists interested in camping, hiking, fishing, and hunting.
- Woodlands offer presently untapped economic benefits, such as the potential to provide renewable sources of energy by combusting biomass (wood). While underutilized today, Union County's forested land could provide renewable and energy-efficient building products in the future.
- Many streams and river corridors, including streams classified as high quality and Class A Wild Trout waters, traverse woodlands, agricultural lands, towns, and villages throughout Union County.
- The Merrill Linn Conservancy works with non-profit, governmental and private groups to identify, evaluate, and protect land for conservation.
- Another non-profit group, the Buffalo Creek Watershed Alliance, monitors water quality and organizes stream restoration and habitat improvement projects, such as buffer plantings, within the Buffalo Creek Watershed. Similarly, the Lower Penns Creek Watershed Association's mission is to protect, conserve, and improve the Penns Creek watershed. This group was formed by residents with assistance from Union and Snyder County Conservation Districts.
- Greenways and open space corridors throughout the County perform essential environmental functions, including floodplain management, water quality protection, erosion control, and wildlife habitat. They further provide recreational and aesthetic benefits that improve the quality of life of nearby residents and attract investment in local economies.
- The Union County Natural Areas Inventory (last updated in 2000) includes a list of priority sites recommended for preservation due to their statewide significance for the protection of biological diversity in plant and animal species.
- Mifflinburg and Lewisburg have mature street tree canopies that are not only attractive, but also provide environmental benefits such as shade, energy savings, stormwater reduction, and attenuation of air pollutants.

#### Issues

- Scattered development within and at the edges of forest resources has divided the County's larger woodlands into smaller parcels, fragmenting and impacting natural systems.
- Population growth and shifting development patterns, in which new housing and businesses are



located farther away from town and village centers, generally increases reliance on automobiles and non-renewable energy sources, such as fossil fuels.

- Many small towns and villages of the County developed around stream and river corridors. Inappropriate development in these areas near floodplain and flood-prone areas may threaten water quality and lead to increased flooding and property damage.
- Some state forest access roads traverse private lands that are being developed for residential uses, leading to demand for maintenance and services to residential rather than rural standards.
- Managing competing public interests in recreational activities is a challenge. For example, conflicts can arise between those who enjoy hiking or mountain biking and those who enjoy dirt bikes and ATVs.
- Forest health is declining for several reasons, including unsustainable management practices such as high-grading, diseases (especially hemlocks), deer browsing, invasive species, and effects on soil chemistry of acid precipitation. These various factors inhibit the growth of native forest communities.
- Runoff from urban development and agricultural land use poses a continuing threat to the water quality of streams and rivers throughout the County.

## Agricultural Resources

### Strengths

- Union County's farmland provides multiple scenic, economic and environmental benefits and was identified during public meetings as one of the County's most valuable assets.
- About 72 percent of agricultural land is enrolled in Agricultural Security Areas (ASAs), and the County Purchase of Agricultural Conservation Easement (PACE) program has protected more than 6,000 acres.
- The majority of farmland in the County is classified as either Prime Farmland (land that has the best combination of physical and chemical characteristics for producing food and other agricultural crops as determined by the Secretary of Agriculture) or Farmland of Statewide Importance (designated by the State Rural Development Committee for the production of food, feed, fiber, and forage).
- The County has an active Conservation District with ample staff capacity to administer the County's PACE program and help farmers protect agricultural resources.





- The farm economy is healthy: overall net farm income grew 115 percent in 10 years from \$11.4 million to \$24.5 million in 2005.
- Over 50% of farms use “no-till” farming leading to less erosion, less fertilizer use, and less use of gasoline for farm equipment.
- Union County is a rural county with access to major metropolitan markets along the Northeast corridor and to Cooperative Extension at Penn State University.
- Given Plain Sect family structure and social order, young people stay on the farm, supplying labor and helping provide stability for agriculture in the future.

livestock operations is changing agricultural practices in the County and creating tensions between farmers and nonfarm residents.

- Costs of production inputs are increasing rapidly, especially grain and energy, putting a strain on farm operations.
- Given these pressures, some farmers would like to pursue secondary commercial activities on their land, such as feed mills, dog kennels, repair shops, welding, woodworking and other “cottage industries” (home-based businesses) that may or may not be related to the primary farming operations.

### Issues

- Scattered development has fragmented the farmland base and caused conflicts between new neighbors and established farmers. These trends threaten the viability of farming in the future.
- The County has preserved less than 10 percent of its farmland but could preserve more with greater funding. The PACE program currently has a backlog of 40 applications representing 4,363 acres of farmland.
- The growth of contract arrangements and confined

## 4.3 Natural and Agricultural Resource Goals

### Natural Resource Goals

- Valued private woodland resources are protected from scattered development and fragmentation.
- The County's forests and woodland resources are managed for long-term sustainability and environmental health.
- The quality of the region's water resources, including rivers, streams and groundwater, is improved and protected.
- Greenway corridors protect stream and rivers, provide ecological habitat for native plant and animal species, and connect major conservation areas, such as the Bald Eagle State Forest with other areas of the County.
- Important natural areas are monitored on a regular basis and protected from threats to their environmental health and biological diversity.
- Quality-of-life for residents in Union County is enhanced through diverse and accessible opportunities for outdoor recreation in natural settings.
- Development patterns allow opportunities for use of alternative energy sources (e.g., solar, wind, geothermal), conservation of natural resources, and decreased reliance on automobiles for transportation.

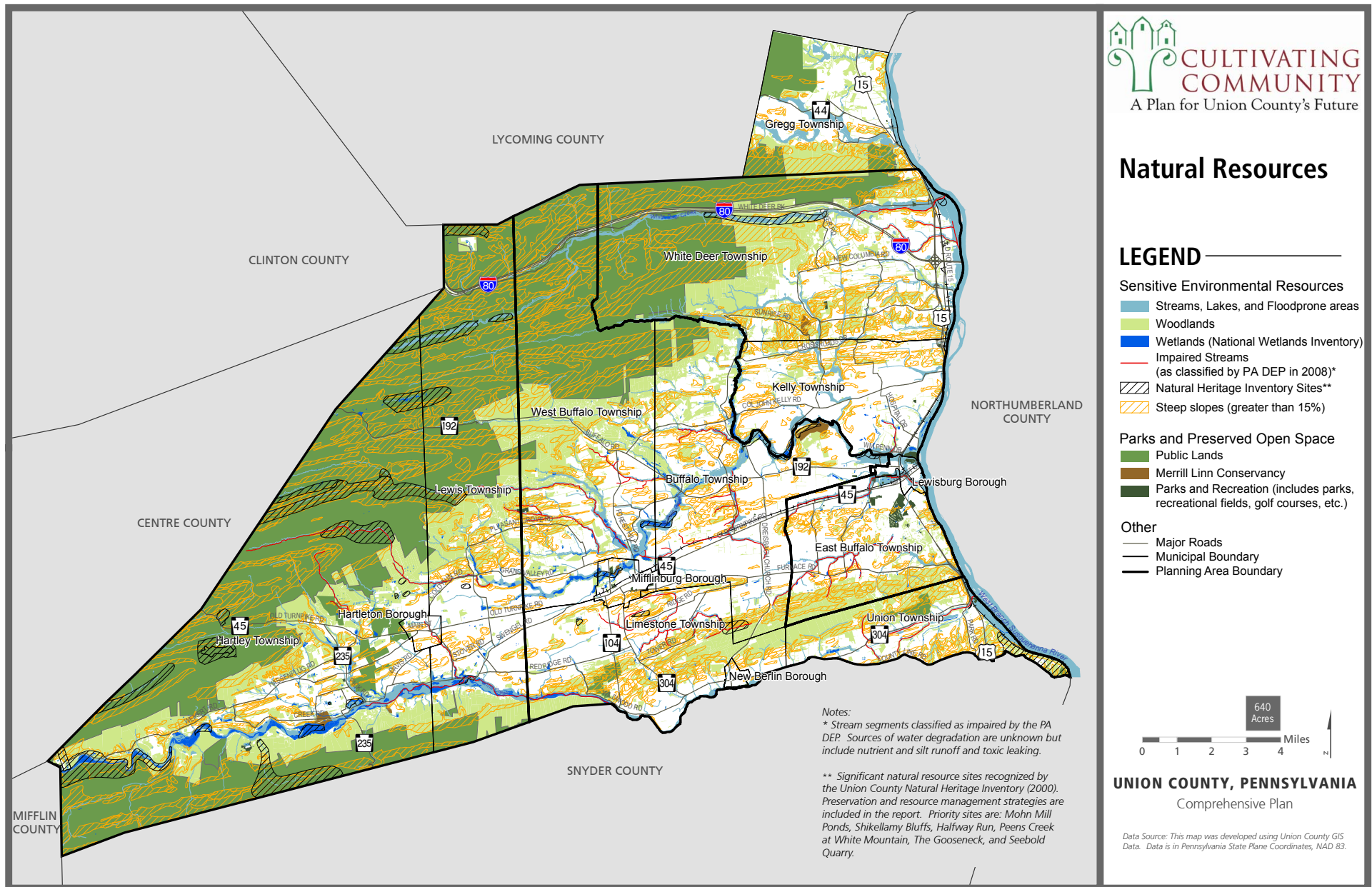
### Agricultural Resource Goals

- A minimum of 40,000 acres of productive farmland are permanently protected to support the agricultural economy, and prime and statewide important soils are preserved.
- Scattered development and conflicts between new neighbors and existing farms are minimized to sustain the agricultural economy, a rural quality of life, and landscape character.
- The farm economy is strong, there is adequate agricultural infrastructure, and farmers have sufficient support to adapt to changing markets and socio-economic forces.
- Farmers practice sustainable agricultural production and conservation practices to protect and enhance environmental quality.

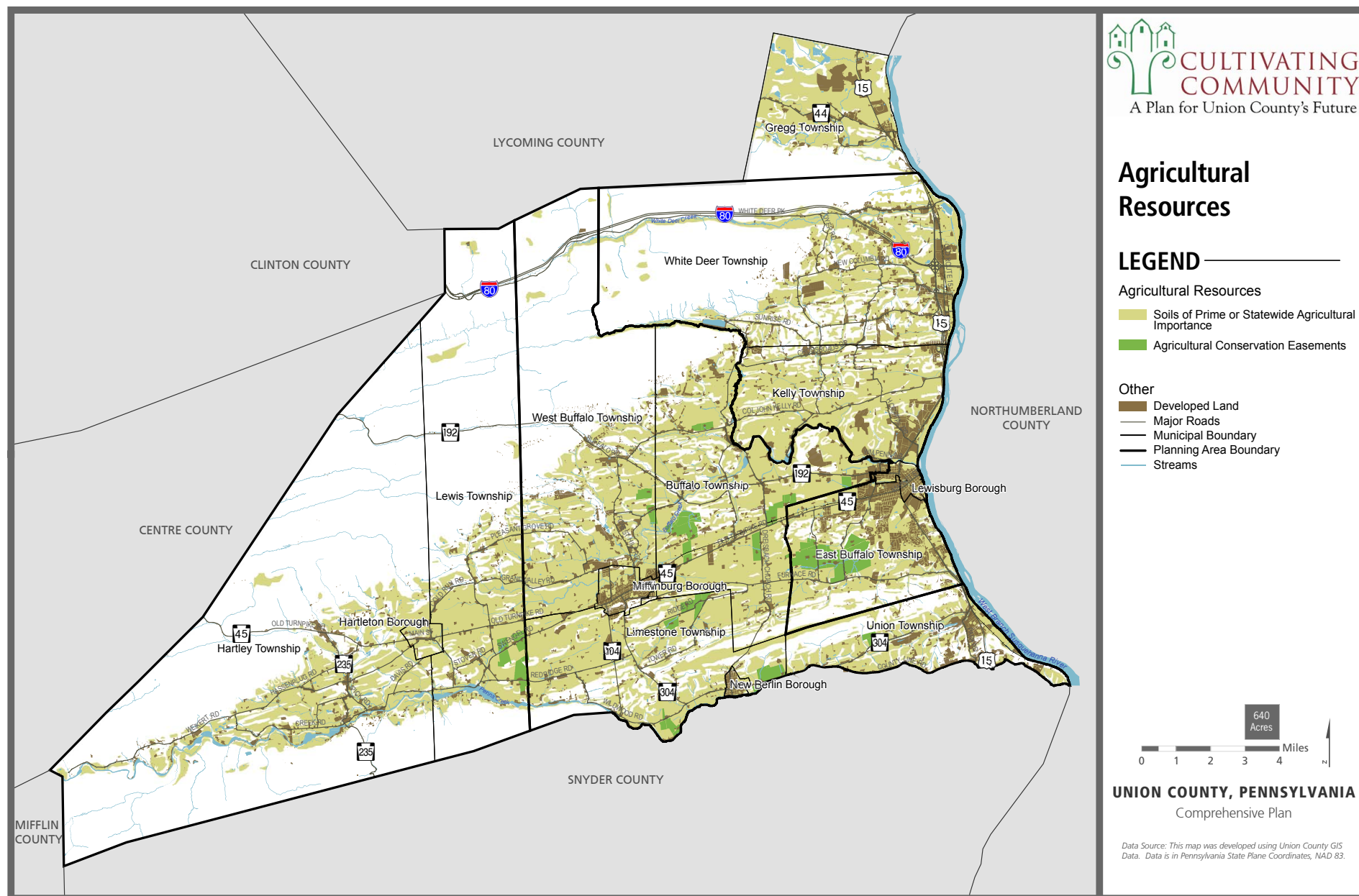




**Figure 4-1**  
Natural Resources



**Figure 4-2**  
Cultural Resources





## 4.4 Natural and Agricultural Resource Strategies

### TRANSFER OF DEVELOPMENT RIGHTS (TDR)

A TDR ordinance allows property owners in designated sending areas (e.g., valuable agricultural or woodlands resource lands) to transfer development potential to parcels in designated receiving areas (e.g., Growth Areas). Typically, owners purchasing the development rights are allowed to develop at a higher residential density in receiving areas than otherwise would be permitted under existing zoning. The highest quality natural resources lands are often designated as sending areas. TDR programs can be established at the municipal, county or state level. Pennsylvania requires a multi-municipal plan for the transfer of development rights across municipalities.

The use of TDR programs to preserve agricultural land and open space has been successful in many places across the Country such as the Pinelands in New Jersey, Warwick Township in Lancaster County, Montgomery County, Maryland and Boulder County, Colorado.

### Natural Resource Strategies

#### 4-1. Enact regulatory provisions and incentives to preserve natural resources.

*Natural resource preservation is essential for long-term environmental health in the County and larger region. Preservation of rural resources such as sensitive natural features and scenic views is also a sustainability principle of this Plan (see Chapter 3). Municipalities can adopt regulations and incentives to support preservation of natural resources. Conservation zoning, which establishes larger minimum lot sizes based on the carrying capacity of the land, and conservation subdivision design, which allows development on smaller lots while maintaining large tracts of open space, and Transfer of Development Rights (TDR) are examples of available tools (see Section 5.4 for more information on conservation design).*

#### 4-2. Work with private landowners to protect and restore natural resource lands.

*There are a number of effective conservation tools available to private landowners. In Union County, the Merrill W. Linn Land and Waterways Conservancy works with private landowners to protect land through conservation easements, land gifts, and purchases.*

*Additional approaches include land management plans (to guide native habitat preservation and restoration) and the promotion of sustainable forestry practices. Private woodland owners can join together to form a marketing cooperative that adds value to locally grown forest products by tapping into niche markets and promotes sustainable forestry practices. In addition, owners can improve the market value of harvests by having their operation certified. Certified forests are managed in an environmentally responsible manner for long-term sustainability. Certification uses an independent scientific review process that determines if an operation maintains a healthy forest ecosystem. Pennsylvania has over 2 million acres of certified forestland, the largest amount of any state in the nation.*

#### 4-3. Develop and implement a comprehensive strategy to improve the quality of the County's waterways.

Many high-quality streams and river corridors traverse the County's woodlands, agricultural lands, towns, and villages. A comprehensive waterways strategy can help improve the County's watersheds and should include techniques to monitor and improve streams impaired by urban and agricultural runoff and maintain high-quality waterways.

Potential components of the waterways strategy include:

- Watershed management plans / partnerships with watershed organizations
- Riparian buffer protection through measures such as planting native vegetation along waterways
- Ordinances to protect streams and improve water quality
- Stormwater best management practices
- Partnerships with farmers through the Union County conservation district to reduce impacts of agricultural operations on waterways

#### 4-4. Initiate a "green infrastructure" approach to preserving, restoring, and managing natural resources as part of an integrated system.

The purpose of this strategy is to establish an interconnected system of green infrastructure **hubs** – forested areas, parks, and other concentrations of "green" resources – connected by **greenways** – open space corridors along linear features such as streams. At present substantial woodland and open space areas are preserved in public ownership, generally forming a "green-belt" around the perimeter of Union County. A green infrastructure approach would extend and connect this greenbelt to the County's towns and villages through a system of greenways and open space linkages through the central valley. A key component of this system, the Susquehanna River Greenway, will provide a connection to the statewide greenway system. To implement this approach, a plan should be developed that updates the Union County Natural Heritage Inventory and integrates it with a broader strategy to preserve, restore, and create a green infrastructure system throughout the County. Elements of the green infrastructure plan should include, among others:



- Definition of a countywide network of greenways and open space
- Protection and restoration of significant natural areas and the ecological functions needed to sustain them
- Green features in existing communities (e.g., the urban tree canopy) and new developments (e.g., street trees and open spaces)
- A network of parks and outdoor recreational facilities, including greenways and trails
- Watershed protection and enhancement (e.g., restoration of riparian vegetation along streams)
- Urban green infrastructure (e.g., green streets, green roofs, pedestrian and bicycle networks, “rain gardens” that absorb stormwater on site, etc.)

## Agricultural Resource Strategies

### 4-5. Strengthen the existing Union County Purchase of Agricultural Conservation Easements (PACE) program.

As noted, the County PACE Program has preserved more than 6,000 acres and has an ultimate goal to protect 40,000 acres by the year 2020. The program has a strategy to protect large blocks of farmland and applies ranking criteria that emphasize protection of the best soils and best farms. As easement acquisition is expensive with increasing costs over time, potential strategies include boosting funding to meet the short-term (2010) program goal of 10,000 acres, pursuing diversified funding (e.g., federal funding<sup>10</sup>, encouraging townships to contribute a larger share) to match the County contributions, and evaluating the use of other tools, such as donated easement, fee-simple acquisition, and Transfer of Development Rights (TDR).

<sup>10</sup> The federal Farmland Protection Program provides matching funds for easement acquisitions and is funded at \$646 million for the next four years.

### 4-6. Enact municipal or multi-municipal policies, regulations, and infrastructure investments to direct new development away from agricultural lands to designated growth areas. (See also Land Use Strategies 5-1 to 5-3.)

Figure 5-1 (Future Land Use) designates Growth Areas and Rural Resource Areas (Conservation/Woodland and Agriculture). Municipalities should evaluate current zoning ordinances and adopt policies and regulations to strictly limit development in Rural Resource Areas. Potential tools include maintaining or establishing effective agricultural zoning, creating a countywide TDR program, limiting infrastructure extensions outside of growth areas, and locating commercial development related to the rural economy in Rural Business Centers.

### 4-7. Reduce conflicts between agriculture and other land uses.

Scattered development in rural areas causes fragmentation of agricultural resources, creates conflicts with neighbors and escalating land prices and real estate taxes, all of which affect profitability for farmers. In Union County, conflicts have been exacerbated with the rise of con-

tract arrangements and the increase in confined animal feeding operations (CAFOs). Potential tools to reduce conflicts include:

- Conservation subdivision ordinances that create buffers between new homes and existing farms
- Other buffer/land use separation requirements
- Notification requirements for prospective buyers of nearby real estate
- Local right-to-farm ordinances
- Mediation program modeled after Maryland's "Farm Sense" Program
- Public education campaigns
- "Cottage industry" or on-farm<sup>11</sup> ordinances to regulate on-farm businesses that do not directly relate to the agricultural use of the land

<sup>11</sup> Cottage industries, sometimes referred to as on-farm businesses, generally refer to part-time, home-based operations. Traditionally, cottage industries were related to home-based manufacturing generally on farms (e.g., spinning, sewing, furniture making, etc.). The definition has expanded to include almost any small home-based businesses (home-based assembly, dog kennels, technology hosting, Internet/eBay Vendors, etc.).

#### **4-8. Institute an on-going, multi-faceted approach to supporting the "business" of farming.**

*Sustaining farm viability is important to agricultural land use and the local economy. Municipalities can help support the agricultural economy in a number of ways. For example, Pennsylvania Cost of Community Services studies have repeatedly shown that agricultural properties contribute a surplus of revenue for public services such as schools. Municipalities can consider reducing or freezing property taxes on preserved farms to create an incentive for preservation.*

*The growing demand for alternative management systems (e.g., organic, pasture-raised, locally grown food, and antibiotic-free meat, etc.) offers potential growth for agriculture in the County. For example, Bucknell University in Lewisburg purchases 25% of its produce locally from growers, suppliers, and dairies within 150 miles of the University. Other potential elements of an economic development strategy for agriculture include:*

- Support and enhance agricultural infrastructure
- Support and enhance traditional livestock agriculture in regional markets

#### **Maryland's FARM SENSE Program**

Farm Sense is a USDA-certified mediation program. It provides a low cost, voluntary, and confidential dispute resolution system in which a neutral party helps disputing parties to reach a mutually agreeable solution. The program is funded through matching grants from the USDA Farm Service Agency's (FSA) Agricultural Mediation Program. Farm Sense provides mediation services for farmers involved in conflicts that could affect the profitability of their enterprises, such as a nuisance dispute with a neighbor. Mediation generally resolves disputes faster than traditional litigation. Farm Sense offers farmers a free initial consultation and can partially or in some cases totally waive program fees based on the parties' income.







- Support opportunities for on-farm energy production techniques (e.g., methane power)
- Promote agri-tourism, farmers' markets, community supported agriculture (CSAs), farm-stands, and accessory farm businesses
- Create local distribution chains to reduce barriers to selling Union County milk and farm products

**4-9. Promote agricultural conservation and nutrient management practices that protect Union County's waterways and the larger Chesapeake Bay watershed.**

*Confined livestock operations (CAFOs) are known to concentrate nutrients, creating the potential for water pollution. Nutrient management is heavily regulated in Pennsylvania to prevent water pollution and is an issue of public concern, in particular because of Union County's location in the Chesapeake Bay watershed. Federal cost-share funds are available to improve nutrient management; however Plain Sect farmers who manage many of these operations often do not participate in federal programs. Other potential strategies to protect the County's waterways*

*include conservation technical assistance, conservation planning, best practices, use of regional or on-site manure digesters, education for non-farmers, and nutrient trading.*





## 5. Land Use

### 5.1 Overview

Land use in Union County has been shaped by its natural features – ridges and valleys, rivers and streams, woodlands, and productive agricultural soils – and by its agricultural and small town heritage. The pattern of boroughs, villages, farmland, and forests that have characterized the Union County landscape since the 19th century still define the County's unique identity and sense of place today. However, this pattern is being disturbed, and in some cases destroyed, by trends such as commercial strip development along roadway corridors and scattered, large-lot development in rural areas. An analysis of recent residential development reveals that approximately 40% is occurring outside of established towns and villages.

Despite these trends, Union County's traditional land use pattern is remarkably intact. Almost 90% of the County is classified either as woodlands (60%) or agriculture (29%). Residential, commercial, industrial, and other “developed” uses comprise less than 10% of the County's total land area. These uses are largely concentrated in towns and villages located along the County's watercourses, such as the Susquehanna River, Buffalo Creek, and Penns Creek, as well as along active and inactive rail lines. In addition, smaller villages dot the County's rural landscape (see Section 3.5 for a more

#### SUSTAINABILITY KEY = MIXED-USE

**Mixed-use** is reinforced throughout the Land Use and related elements of the Comprehensive Plan. The intent is to strengthen and adapt Union County's traditional land use pattern of compact, mixed-use development focused on small towns and villages to the growth and environmental changes occurring in the 21st century. The benefits of mixing, rather than separating land uses, include opportunities for:

- Walkable and accessible neighborhoods, centers, parks, and schools;
- Activity in town and village centers during varying hours of the day;
- Diverse housing types to meet the needs of residents (attached, detached, housing above retail, etc.);

- Reduced dependence on vehicle travel and increased transportation options; and
- Reinforced sense of place and community in towns and villages.

Mixed-use can be created at varying scales (building, parcel, neighborhood) and its success depends on its ability to relate to the established development context. As a Sustainability Key, mixed-use has the ability to affect all other plan elements (e.g., by promoting transportation choices, conservation of natural and agricultural resources, and housing diversity).

complete description of existing land use).

Union County's traditional land use pattern of compact, mixed-use development focused on towns surrounded by farmland and natural resources in rural areas embodies contemporary principles of sustainability. The challenge for the County's future is how to perpetuate and adapt this pattern to maintain its viability in the face of growth and accelerating change in the 21st century.

The overall intent of this chapter is to influence the location, pattern, and form of development to achieve the Sustainable Growth and Preservation Framework set forth in Chapter 4. In addition to land use policy and regulation, a variety of factors – transportation, utility systems, economic development, the viability of farming as a business, etc. – will impact future land use in Union County.

## 5.2 Land Use Strengths and Issues

### Strengths

- Nearly 90% of the County's land use is either woodlands or farmland. About 60% of the County's land area is woodland (state-owned, federally-owned, or privately owned forests and open space) and 29% is agricultural use.
- Prime farmland soils and soils of statewide importance are present throughout Union County with the major concentration in the County's central valley. Working farms and cropland activities are located in many of these areas.
- Traditional small towns and villages are located throughout the County and provide a high quality of life, livable communities, mixed-used commercial districts, and public and civic amenities.
- The majority of the County (82%) is zoned for agriculture, agricultural preservation, woodlands, or rural density.
- Availability of outdoor recreational opportunities ranks high among residents as a strength of the County. Over 32% of the County is within the Bald Eagle State Forest and three state parks.

### Issues

- While 29% of the County is in agricultural land use, only 3% of the total land area has been permanently preserved as farmland through the County's agricultural preservation program.
- Residential housing has been increasing at a steady pace since 1990. The number of housing units is projected to increase (from 14,684 in 2000) by 40% in 2030 and 68% in 2050.
- Recent development activity has been scattered around the County and not necessarily located near existing towns and villages or municipal services. A GIS analysis of new development between 2000 and 2006 found that about 60% occurred in or near existing towns and villages and 40% occurred outside of those areas.
- Prime farmland soils are relatively easy to build on and are therefore attractive for new development located outside of established towns and villages. Such development consumes prime soils and creates compatibility issues with nearby working farms.
- While many of the County's municipalities have agriculture or preservation zoning districts, some form of low density residential development is permitted in

over two-thirds of those zoning districts.

- Residents have expressed a strong need for employment and retail services in the County, especially in the Western Planning Area.
- Constraints to developing in older towns and villages include the presence of the 100-year floodplain along stream corridors.
- There are some vacant or underutilized commercial and industrial properties in the County, in particular along Route 15 in Lewisburg and Route 45 in Mifflinburg. The closing of the Laurelton State Center in Hartley Township and Pennsylvania House Furniture in East Buffalo Township and downsizing of Yorktowne in Mifflinburg have created vacancies and loss

## 5.3 Land Use Goals

of employment in the County.

### Land Use Goals

- Productive farmland with prime agricultural soils is preserved from development and remains in agricultural use.
- Union County's valued natural resources (e.g., streams, wetlands, bird and animal habitat, steep slopes), woodlands, and open spaces are protected and preserved throughout the County.
- Urban services, such as public water and sewer, are designed to serve towns and villages and do not extend into working agricultural lands.
- Residential, commercial, and employment land uses are located in areas where they can be best supported, limiting their impact on agricultural land, natural resources, and community services/utilities.
- Municipal policies and regulations, including municipal zoning, are developed to support the preservation of farmland, conservation of natural resources, and development of traditional neighborhoods.
- New development is designed to incorporate a mix of uses and residential densities and provide convenient access to retail, parks, and services, and to create alternatives to vehicular transportation.
- Employment opportunities are maximized in new development to serve both towns and rural areas and provide a solid tax base in the municipalities.
- Underutilized and infill sites are used for new commercial and employment development.
- Development is sited and oriented to avoid the 100-year floodplain, maximize passive solar heating and cooling, and reduce energy costs.



## 5.4 Future Land Use

Figure 5-1 (Future Land Use) depicts in general terms where different types of uses should be located to implement the goals of the Plan. Table 5.1 provides definitions of the land use types shown on the map. As described below, the proposed future land use pattern is structured around the Growth and Preservation Framework presented in Chapter 3 and its two primary components, the Town Policy and Rural Policy. Based on this framework, approximately 80% of new residential development is targeted to occur in growth areas (Primary and Secondary) and 20% is targeted to occur in rural areas.

### Town Policy

#### Primary Growth Areas

Figure 5-1 designates four Primary Growth Areas in the County, centered on the four boroughs: Hartleton, Lewisburg, Mifflinburg, and New Berlin. In addition, a growth area was designated in Gregg Township by the US 15 South Comprehensive Plan and is shown on Figure 5-1. In these areas growth is focused in existing towns and established contiguous areas of a township, where infrastructure and services are available.

Boundaries are determined based on the existing development pattern, zoning, location of natural features, preserved farmland, and infrastructure. Most (at least 2/3) future growth occurring over the next 40-year period will be directed to the Primary Growth Areas and should be provided with a full range of infrastructure and services.

To be compatible with existing town development and to maximize the use of land and infrastructure, an average density of 6 dwelling units (DU) per buildable acre is proposed for the Primary Growth Areas. Future land use in these areas is designated as town mixed-use or medium to high density residential on Figure 5-1.

Densities within the Primary Growth Areas are expected to be mixed. Where appropriate, based on services and the surrounding development pattern, densities of new development in some areas will exceed the 6 DU/buildable acre average and in other areas may be built at lower densities. The Eastern and Western Planning Areas each have one designated Primary Growth Area. There are two Primary Growth Areas in the Central Planning Area: Mifflinburg and a smaller area designated around New Berlin.

The preferred land use pattern in Primary Growth Areas is referred to as Traditional Neighborhood Development (TND). In the overall future land use framework, the majority of growth is directed to Primary Growth Areas, while the Secondary Growth Areas, described under the Rural Policy below, are envisioned to accommodate a much smaller proportion of total growth.

#### Traditional Neighborhood Development

**(TND)** promotes compact, mixed-use, pedestrian-friendly patterns modeled after traditional American towns as an alternative to conventional suburban development. Typical TND characteristics include interconnected streets, street design focused on creating a pedestrian-friendly environment, buildings close to the street, and a mix of uses. These uses include diverse housing types and a central core of retail and community-serving uses within convenient walking distance of the surrounding neighborhood.



## Rural Policy

### Secondary Growth Areas

In the Rural Policy, development that occurs outside of towns is directed to Secondary Growth Areas, focused on existing villages. These areas are designated throughout the County and are illustrated on Figure 5-1 (Future Land Use). New development is envisioned with the desired walkable land use pattern focused around a central place. Secondary Growth Areas are intended for a smaller percentage of the overall growth than Primary Growth Areas. In this category the intent is to “capture” development that would typically occur as rural sprawl. The target density for new development in the Secondary Growth Areas is an average of 2.5 DU per buildable acre. While it is envisioned that the amount of development in Secondary Growth Areas will be much less than in Primary Growth Areas, the combined total should be at least 80% of all new development in the County.

### Rural Resource Areas

As described in the Growth and Preservation Framework (Chapter 3) Rural Resource Areas include land with environmentally sensitive features, conservation areas, productive agricultural soils, preserved farms, woodlands, or steep slopes. Development is limited in these

areas in order to maintain and protect natural features or agricultural uses. On Figure 5-1 (Future Land Use) Rural Resource Areas include two categories: Conservation/Woodlands and Agriculture.

### Rural Development Areas

The Growth and Preservation Framework (Chapter 3) calls for a maximum of 20% of development to occur in Rural Development Areas. This category includes Rural Neighborhoods, Rural Business Centers, and “on-farm” development.

- Rural Neighborhood development may occur in existing Hamlets (see Table 5.1) or in existing subdivisions with undeveloped lots. The purpose is to capture residential development, which would otherwise occur outside of growth areas, and locate it adjacent to existing development. Rural Neighborhoods should be limited in scale and should incorporate conservation subdivision design principles and a clear development edge.
- Rural Business Centers (see Table 5.1) are areas where agricultural support services, mining, or light industrial uses occur. These areas are located near working farms, but should maintain a separation from residential neighborhoods to limit negative impacts related to business operations.
- On-farm Development refers to uses that relate to a farm business (e.g., agricultural support businesses, energy production, agri-tourism) and are located on the farm. It may also include a limited number of residential lots for family members.

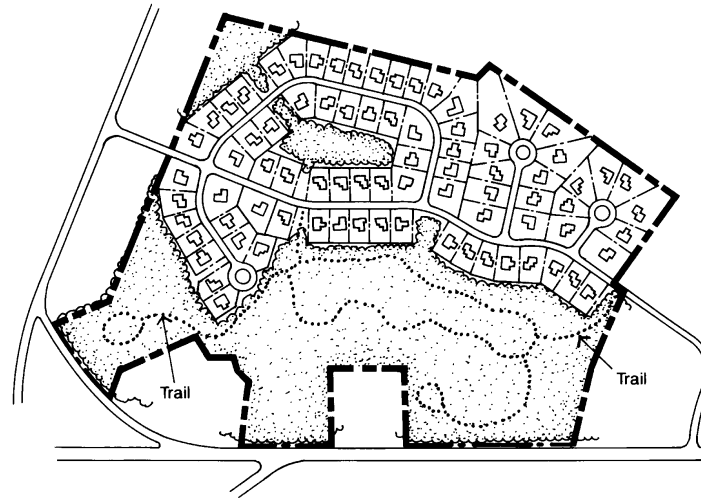
**Conservation Subdivision Design** promotes small-lot residential subdivision (1/2 to 1-acre lots) with the preservation of open space and farmland. Intended as an alternative to conventional large-lot subdivision, residential units are clustered in a neighborhood and open space is preserved through permanent conservation easements or covenants.

The developer is required to first provide a site plan which delineates and preserves environmentally sensitive features (e.g., steep slopes, wetlands, woodlands, or working farmland). Typically there is a minimum lot size required for this type of development and incentives such as density bonuses are offered to developers. Non-residential land uses are generally restricted to agriculture, parks, and municipal uses. In hamlets, limited commercial, service, institutional, and office uses are also permitted (*see following page for conservation subdivision design illustration*).

**Garnet Oaks, Bethel Township, Delaware County Developer: Realen Homes, Ambler**  
**Source: Natural Lands Trust, Growing Greener, Conservation by Design**

Just over half of this 58-acre site has been conserved as permanent privately-owned open space through the simple expedient of reducing lot sizes to the 10,000–12,000 sq. ft. range (approximately 1/4 acre). The developer reports that these lot sizes did not hinder sales because about two-thirds of the lots directly abut the densely wooded open space, which gives them the feel and privacy of larger lots. In fact, the evidence indicates that the open space definitely enhanced sales in two ways: increased absorption rates and higher prices (through premiums added to the prices of lots which abut the conservation areas).

The locations of these conservation areas were carefully selected after a comprehensive analysis of the site's natural and historic features had been conducted.



**Conservation Subdivisions, New Jersey**



## Regional Impacts

The Pennsylvania Municipalities Planning Code (MPC) requires that County Comprehensive Plans identify current and proposed land uses which have a regional impact and significance. The majority of new growth in the County is planned for infill development in existing commercial, employment, and residential centers (see Town Policy). This type of new development will provide additional housing and employment opportunities but is not expected to have a significant regional impact. There are developments with the potential to impact the region in terms of traffic impacts, employment, commercial floor space, and residential options. Two examples include the planned redevelopment of the 40-acre Pennsylvania (PA) House site and the potential development of the former Walmart site on Route 15. Redevelopment of the PA house site is mostly conceptual at this stage but is planned for mixed-use. MC Federal Credit Union recently completed a partial renovation of the main showroom and is using the facility for offices and banking. Energy efficient practices (including the installation of a geothermal heating and cooling system) were utilized in the renovation. Plans for the remaining 11,000 SF space are underway. As the site develops, additional traffic impacts and employment, retail, and housing options are anticipated.

Bucknell University, Evangelical Community Hospital, and the existing Super Walmart are developed sites that currently impact the region. Other future land uses that may cause regional impacts include large shopping centers, movie theaters, large-scale entertainment, major industrial parks, distribution centers, school complexes and/or office parks.

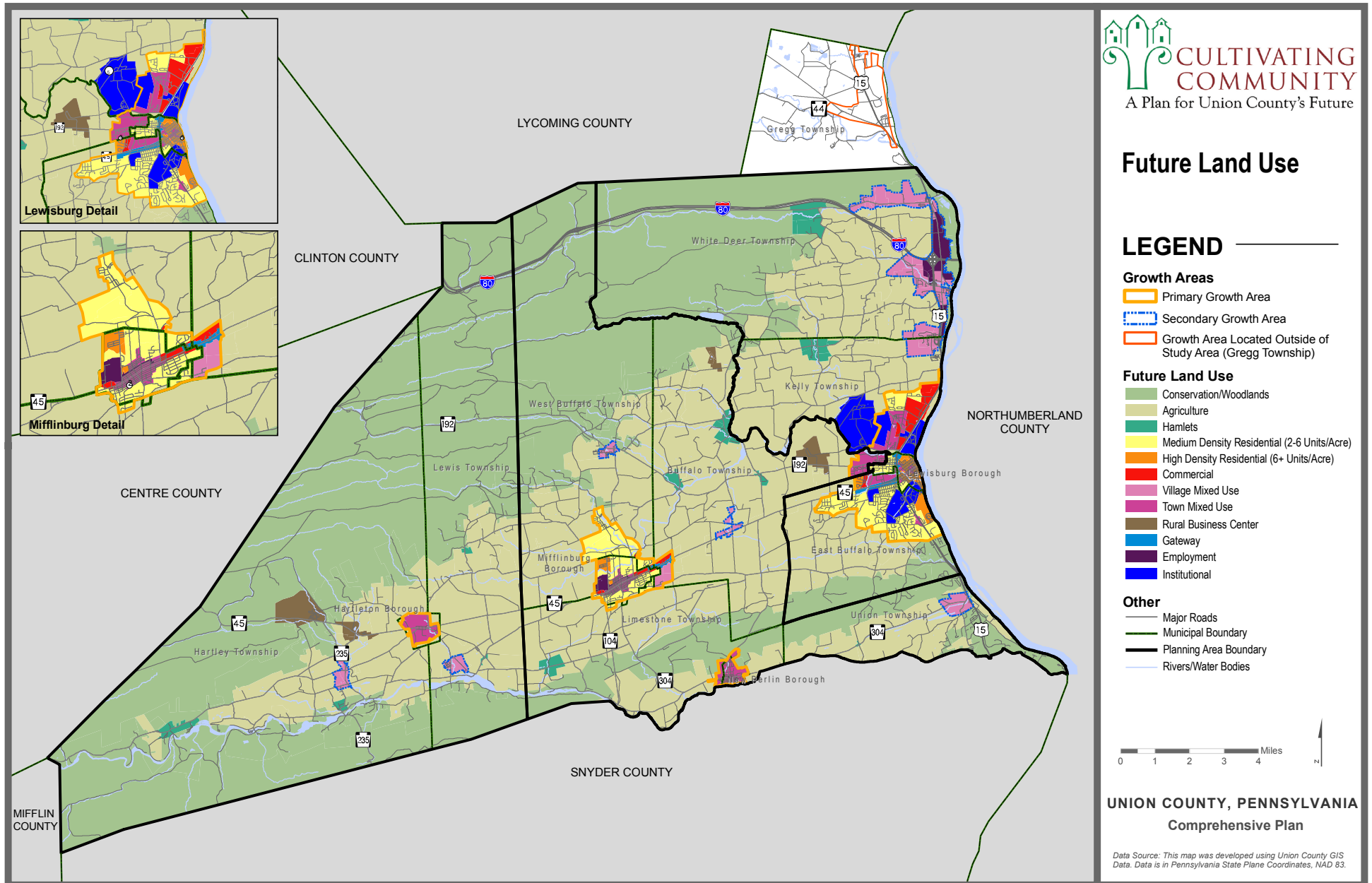
## Compatibility with Contiguous Municipalities

Union County's proposed land use pattern (see Figure 5-1) is compatible with existing and proposed development in the County's contiguous municipalities. In many areas the Bald Eagle State Forest and surrounding woodlands create an open space buffer between Union and its surrounding counties (Lycoming, Clinton, Centre, Mifflin, and part of Snyder County). The Susquehanna River creates a similar buffer to the east with Northumberland County.

Planned growth areas in Lycoming County are compatible with the planned areas in Union County. Planned agricultural and woodland uses along the southern boundary of the County are consistent with Snyder County's plans for rural and woodland uses and a potential greenway corridor along Penn's Creek. Snyder County's Future Land Use Plan designates a center for new development (Penn's Creek) which is similar in concept and scale to New Berlin's Primary Growth Area.

<b>Table 5.1 Future Land Use Map – Land Use Categories</b>	
<b>Agriculture</b>	Land primarily used for agricultural purposes. Residential and other farm related uses are incidental to the agricultural land use. Agricultural land is typically located on soils of prime or statewide importance.
<b>Conservation</b>	Land that is characterized by forest habitat, steep slopes, wetlands, and wildlife habitat. The majority of the land in this category is in state forest ownership. Development is strictly limited to protect natural resources and woodlands.
<b>Hamlet</b>	Areas of existing development located in predominantly rural areas, which are too small to be considered villages. Typically these areas include a mix of uses or are predominantly residential, adding to the County's agricultural character. A limited portion of the County's future land use needs can be accommodated in these areas. New development should be consistent with the existing rural character and preserve resource areas through conservation subdivision design or similar technique. Hamlets indicated on Figure 5-1 include Weikert, Glen Iron, Swengal, Pleasant Grove, White Springs, Cowan, Mazappa, Buffalo Crossroads, and Kelly Crossroads.
<b>Medium Density Residential</b>	Land designated for single, two, or multi-family residential at densities less than 6 units per acre.
<b>High Density Residential</b>	Land designated for single, two, or multi-family residential development at densities of 6 units per acre or greater.
<b>Commercial</b>	Land that is designated for commercial sale of goods and services, including retail and wholesale establishments, personal services (dry cleaners, beauty salons, restaurants, etc.) and service related offices (medical, dental, financial, real estate, etc.).
<b>Gateway</b>	Land in this category is generally commercial in use, but requires added consideration for its form and design, given its prime visibility along major corridors in and out of growth areas. The concept is to create attractive entrances to growth areas through coordinated streetscape design (street trees, sidewalks, building setbacks, landscaping, signage, lighting, etc.).
<b>Mixed-Use (Town or Village)</b>	Land designated for a mix of residential and commercial uses. Mixed-use development typically occurs in a denser, compact, and walkable form. Proposed mixed-uses within Primary Growth Areas are classified as Town Mixed-Use. All Secondary Growth Areas are classified as Village Mixed-Use on Figure 5-1.
<b>Rural Business Center</b>	Land primarily used for commercial or industrial development that is related to the agricultural and rural economy. Such development is intended to be consistent with the agricultural areas in which the centers are located. As indicated on Figure 5-1 there are three Rural Business Centers proposed for the County, one in the Western Planning Area and two in the Central Planning Area. Rural Business Centers are not intended to stimulate growth in rural areas, but rather to "capture" development that would typically occur as rural sprawl.
<b>Employment</b>	Land primarily designated for employment-related uses, including offices, light manufacturing, technological and research-related parks. Convenience retail and personal services (dry cleaners, beauty salons, daycare facilities, etc.) are incidental to the employment-related uses. The major employment center in the County is located in the White Deer Township Secondary Growth Area, along Route 15, near the I-80 and US 15 Interchange.

**Figure 5-1**  
Future Land Use





## 5.5 Land Use Strategies



The land use strategies provide direction for achieving the Town and Rural Policies. They are divided into three categories: location, pattern, and form, respectively.

While some strategies may overlap, in general:

- Location addresses where growth and preservation will occur.
- Pattern addresses the type or mix of land uses.
- Form addresses the shape that new development will take and how it will relate to existing development and rural resources.

### Location

#### 5-1. Enact municipal or multi-municipal policies and regulations to direct at least 80% of new residential development through the year 2050 to Primary and Secondary Growth Areas.

*Figure 5-1 (Future Land Use) designates four Primary Growth Areas and six Secondary Growth Areas throughout the County and targets at least 80% of new residential development through 2050 into these areas. In addition, the Town Policy calls for all major new commercial (retail and employment) to be located in Primary Growth Areas or in designated employment centers. Adopting the growth area boundaries*

*at the municipal level is a first step in advancing the sustainable growth principles introduced in Chapter 3, which are: 1) focus new development in and around established communities; 2) preserve rural resources; 3) conserve energy; and 4) conserve fiscal resources.*

*Municipalities that have growth areas within their boundaries should evaluate and revise, where necessary, existing zoning and subdivision ordinances to accommodate residential and mixed-use development within the designated boundaries.*

#### 5-2. Enact municipal or multi-municipal policies and regulations to protect Rural Resource Areas and direct the remaining 20% of growth to Rural Development Areas as the basis for managing development outside Primary and Secondary Growth Areas.

*As part of the Rural Policy, Figure 5-1 (Future Land Use) designates Hamlets and Rural Business Centers throughout the County. Rural Business Centers are located in the Central and Western Planning Areas and are intended to “capture”*

*agriculturally-related commercial or industrial development that would otherwise occur as rural sprawl. Concentrating this type of development in Rural Business Centers, rather than allowing it to spread out, requires fewer infrastructure improvements (e.g., roads, water, and sewer) and development costs.*

*To accommodate a minimal amount of residential growth and acknowledge the existing rural development patterns which contribute to the character of the County, Rural Neighborhood development should be directed to existing hamlets and other development areas as well as a limited number of new on-farm residences for family members.*

### **5-3. Concentrate infrastructure improvements and expansion of public services in growth areas.**

*Limiting infrastructure and service improvements, such as roads, water, and sewer extensions to the Growth Areas is essential to influencing where development will occur in the future. In addition, by improving existing infrastructure and services, the growth areas can better accommodate new development.*

### **5-4. Encourage broader participation in land conservation programs.**

*Union County has an active Conservation District which administers the County's Purchase of Agricultural Conservation Easement (PACE) program. Increasing participation in this program and considering implementation of other land and natural resource preservation programs (e.g., TDR, voluntary easements, etc.) can help limit development in Rural Resource Areas.*

## **Pattern**

### **5-5. Examine zoning districts countywide to implement the development pattern shown on Figure 5-1 (Future Land Use).**

*To implement the Growth Management Strategy and Future Land Use Plan, municipal zoning ordinances must be adopted, where they do not now exist (Union Township, Limestone Township, and Hartleton Borough), and revised to be consistent with land use categories shown on Figure 5-1 (Future Land Use).*

*Specifically, zoning changes or new ordinances should limit development outside of Growth Areas, Rural Business Centers, or Hamlets and*







*encourage mixed-use development inside of Growth Areas.*

**5-6. Establish Traditional Neighborhood Development (TND) as the preferred land use pattern in Growth Areas.**

*Mixed-use development is the Sustainability Key for the Land Use Element. A major component of TND is the inclusion of a mixed-uses and residential densities, similar to the pattern already established in Lewisburg, Mifflinburg, and smaller communities throughout the County. Extending and improving the existing TND pattern as infill or new development in the Growth Areas where infrastructure is present, can help to maintain the viability of existing communities while diverting growth from the surrounding rural areas. Zoning and developer incentives (e.g., density bonuses) are effective tools in implementing TND. TND regulations can vary in scale and density as appropriate to the established context. For example, lower density village or hamlet overlay districts can be applied to Secondary Growth Areas or in smaller communities located outside of designated growth areas.*

**5-7. Develop a variety of residential amenities, such as parks and community centers, in Growth Areas and avoid development in the floodplain.**

*Open space and preservation of natural features should not be reserved for Rural Resource Areas; instead, quality of life amenities, such as parks, trails, bike paths, and open space, can be integrated within neighborhoods and centers throughout the Growth Areas. Existing floodplains areas along stream corridors present an opportunity to create additional parks, greenway corridors, and passive open space in Growth Areas. All commercial and residential development in flood prone areas should be avoided.*

**Form**

**5-8. Create walkable, mixed-use, compact communities that maintain and complement the historic and cultural character of existing towns and villages in Growth Areas.**

*Municipalities can adopt a range of regulations, standards, and other strategies to implement mixed-use development. Examples of potential tools include TND ordinances, historic districts, design guidelines, form-based zoning overlays,*

*infill development standards, developer incentives, and standards for mixed-use development.*

**5-9. Preserve and enhance natural resource systems throughout rural resource areas by influencing the shape and density of new development.**

*By influencing the form of development in rural areas, through regulations, standards, and other strategies, municipalities can help preserve and enhance natural resource systems (air quality, water quality, riparian/wetland areas, etc.). Potential tools include conservation subdivision, minimum open space requirements, tree preservation standards, light pollution ordinances, rural neighborhood design standards, acquisition of easements for open space or farmland, public-private partnerships, private land-owner outreach programs, and technical assistance.*

**5-10. Reduce the overall environmental impact of buildings.**

*In addition to creating mixed-use neighborhoods in and around established communities, the need to conserve energy by decreasing fossil fuel consumption and reducing automobile use is one of the sustainable growth principles introduced*

*in Chapter 4 and a priority issue identified in the citizen survey.*

*According to the U.S. Green Building Council (USGBC), buildings account for 72% of total electricity consumption and 39% of energy use. Minimizing the impact of buildings on the environment, through green building techniques and low impact site design standards, is one approach to conserving energy and protecting natural resources. Sustainable building practices, such as passive solar building siting, energy efficient building systems, use of renewable energies, green roofs, on-site water recycling, and native landscaping can be integrated into existing and new development through increased education, awareness, and incentives.*

*The SEDA-COG Energy Resource Center, is an example of a local organization working in the public and private sectors with the goal of reducing energy costs and creating new energy markets in the region. The Center is planning to move into a new LEED-certified building, partially funded by a state grant, which will serve as a learning laboratory for sustainable building practices.*

