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Key Message

Lancaster County has a rich legacy of natural resources that has allowed its inhabitants to thrive for centuries. While it is known that Native Americans modified the environment to suit their needs, the period since European settlement has witnessed an unprecedented alteration of the natural landscape to accommodate a growing population. Activities such as agriculture, the construction of roads and other infrastructure, and – most recently – suburban and rural development have all contributed to the degradation of the County’s natural resources. While many of these changes have significantly impacted our air and water, fragmented native habitats, and resulted in the loss of plant and animal species, the County’s landscape still retains a number of important natural resources. The extensive network of rivers and streams, the wooded slopes of the Pennsylvania Highlands (Furnace Hills and Welsh Mountain), and the spectacular Susquehanna River gorge are a few examples of the County’s natural heritage that helps define the County’s identity and quality of life. Woodlands, stream corridors, open spaces, and other “green” resources are an integral part of the landscape throughout the County’s rural and urban areas and perform essential and irreplaceable “life support” functions for residents.

Greenscapes: The Green Infrastructure Element of the Lancaster County Comprehensive Plan defines a vision, goals and objectives, strategies, and tools to preserve, conserve, restore, and enhance natural resources through the establishment of a countywide, integrated green infrastructure system. It highlights the importance of protecting large blocks of contiguous land and improving connectivity as it aims to establish a network of natural areas, conservation lands, and working landscapes. Greenscapes provides a blueprint for accommodating appropriate growth and development while preserving the region’s most valuable natural resources, native species, cultural assets and agricultural economy. The green infrastructure system created by applying the strategies and tools contained in the plan will provide a framework for sustainable growth and economic vitality in Urban Growth Areas, for agriculture and other compatible uses in rural areas, and for outdoor recreation and related activities such as walking, biking or paddling throughout the County.
The Benefits of Green Infrastructure

“Gray” infrastructure refers to engineered systems such as roads, sewer and water facilities, and electrical transmission lines. Green infrastructure differs from gray infrastructure in many ways, yet both are essential to a healthy, viable community. Gray infrastructure is the man-made substructure that supports societal functions such as communications, movement, and commerce. Green infrastructure is the substructure that supports life itself. Maintaining, restoring, and enhancing the critical environmental, social, and economic functions performed by green infrastructure are key to ensuring a sustainable future for Lancaster County.

Benefits of Green Infrastructure

**Environmental Quality**

1. Preserves natural resources such as floodplains, steep slopes, and wetlands
2. Recharges and protects the quality of surface and ground waters
3. Provides natural stormwater management services, including flood protection, erosion control, and pollution reduction
4. Reduces energy use and captures carbon dioxide, thus helping to counteract global climate change
5. Conserves native communities and provides habitat for species of concern

**Community Health**

6. Cleanses the air we breathe and the water we drink
7. Promotes outdoor recreation and exercise through activities such as walking and biking
8. Brings people into contact with nature, providing important psychological benefits

**Sustainable Economy**

9. Strengthens the economy through improved quality of life, increased property values, and increased economic activity
10. Conserves resources that support the economy
    - Hunting, fishing, and other forms of outdoor recreation
    - Tourism
    - Rural land uses such as agriculture, forestry, and resource extraction
11. Reduces costs associated with engineered “gray infrastructure” systems required to manage and treat stormwater and wastewater

The Challenge

From a distance, Lancaster County’s landscape appears to be a lush green garden of vegetation that has little trouble with the quality of its natural resources. A closer look, however, reveals that the County’s green infrastructure resources are highly stressed. A significant number of the County’s surface waters are severely degraded by sediment and nutrients. Eroded stream banks with sparse riparian vegetation are common in the County’s urban and agricultural landscapes. High nitrates are frequently detected in the drinking water of rural residents and water drawn from wells to supply public drinking water systems. Growth tracking reports prepared by the Lancaster County Planning Commission (LCPC) indicate that land development in rural areas is consuming significant amounts of prime farmland, fragmenting forestland, and negatively impacting natural habitat areas. A
number of plant and animal species have been identified as “species of concern” (those considered rare, threatened, or endangered at the state or federal level). Air quality is also a major concern. The American Lung Association report, State of the Air: 2008 (covering data from 2004 through 2006) ranks Lancaster County as being the eighth worst of 31 Pennsylvania counties for which ground-level ozone data were collected, and 115th worst out of 680 counties across the U.S. The challenge is clear: we must do a much better job of stewarding our green infrastructure resources to ensure a healthy, sustainable future for generations of Lancastrians to come.

Agriculture and Green Infrastructure

Lancaster County is known for farming; approximately 383,000 acres or 63% of the landscape is in agricultural use. Agriculture has extensively altered Lancaster County’s native plant and animal communities and impacted the quality of its river and streams. Nevertheless, agricultural land provides important benefits for the County’s green infrastructure, such as recharging the groundwater and serving as wildlife habitat for certain species. Lancaster County and its municipalities have an active tradition of protecting farmland through purchase of development rights and effective agricultural zoning. Moreover, other county plans and initiatives – including Balance, the Growth Management Element of the County Comprehensive Plan – address farmland protection and the need to maintain a viable agricultural economy. Therefore, Greenscapes does not directly deal with agricultural preservation. It does, however, acknowledge the role of farmland as the landscape context for much of Lancaster County’s green infrastructure, as well as the contributions that farmers can make to a healthy green infrastructure system through conservation practices such as establishing vegetated riparian buffers, controlling runoff from animal concentration areas, and managing lands to enhance habitat value.

The Lancaster County Comprehensive Plan

The Lancaster County Comprehensive Plan (called Envision Lancaster County) outlines where the County is today, where we want to be in the future, and how we are going to get there. The plan includes three major components:

1. **Policy Element, called Revisions (1999)**

   The Policy Element contains the vision and goals of the Lancaster County Comprehensive Plan. This element is designed to show the interconnectedness between different planning issues. In addition, it discusses Key Focus Areas. These are issues that county residents feel are worthy of special attention — issues that concern them the most. They are:

   - Protect and preserve our natural and cultural heritage
   - Revitalize our urban communities
   - Develop livable communities
   - Create a sustainable economy
   - Celebrate, invest in, and mobilize the talents of our human resources
   - Promote strong leadership, awareness, responsibility, and involvement in community issues
As noted above, the first of these Key Focus Areas is to protect and preserve our natural and cultural heritage. More specifically, the Policy Element calls on all sectors of the community to maintain the integrity of historic buildings and structures, archaeological sites, and other cultural resources.

2. **Growth Management Element, called Balance (2006)**

The Growth Management Element translates the goals of the Policy Element into specific, targeted land-use strategies. It identifies areas that are appropriate for urban growth and areas that are better suited for agriculture, other rural uses, and resource conservation. For each of these areas, the Growth Management Element identifies appropriate tools and techniques for implementation, such as the use of traditional neighborhood design in Urban and Village Growth Areas. The vision for the Growth Management Element is to achieve and sustain Lancastrians’ vision of a balanced community where urban centers prosper, natural landscapes flourish, and farming is strengthened as an integral component of our diverse economy and cultural heritage. The goals and objectives of the Growth Management and Policy Elements provide an overall framework and direction for the functional elements listed below.

3. **Functional Elements**

Functional Elements are specialized planning documents designed to address specific issues of concern, such as cultural heritage. As these plans are completed, they are adopted as official amendments to the Lancaster County Comprehensive Plan. These elements (with their year of adoption by the Lancaster County Board of Commissioners) include:

- Cultural Heritage (2006)
- Housing (2006)
- Tourism (2006)
- Transportation (2008)
- Economic Development – The County is currently in the process of preparing this element.
- Water Resources (1997) – The County anticipates starting work on an update to this plan in 2009.
- Open Space (1992) – The Open Space plan will be replaced by Greenscapes following adoption by the Board of Commissioners in 2009.
Purpose of Greenscapes

Greenscapes is a key element of Envision Lancaster County that supports the goals of the other plan components, such as growth management, transportation, and cultural heritage. It replaces the Regional Open Space Plan, prepared as a Lancaster County Comprehensive Plan Element in 1992. The plan is not simply a set of policies and actions for county government. Instead, it provides a framework for action at all levels of government—including Lancaster County’s 60 municipalities—and across all segments of the community—organizations, nonprofit organizations, businesses, and citizens—to create a sustainable green infrastructure system. Creating this system is intended to fulfill four basic purposes or goals of Greenscapes:

- **Preservation** of Lancaster County’s exceptional natural resources, such as core habitat of species of concern; the highest quality streams and natural communities; and unique geologic features.

- **Conservation** or stewardship of other important natural resources (e.g., wetlands, floodplains, and medium-quality streams and natural communities) and the essential ecological services they provide throughout the County.

- **Restoration** of degraded natural resources (e.g., low-quality streams and natural communities, and riparian buffers) and incorporation of green infrastructure (e.g., pocket parks, street trees, native plantings, and stormwater infiltration areas) into urban and suburban landscapes.

- **Recreation:** improving quality of life, community health, and the economy by providing diverse, readily accessible outdoor recreation opportunities, including a county-wide system of regional parks and greenways.

One reason for preparing the plan is to meet the requirements of the Pennsylvania Municipalities Planning Code, commonly referred to as the MPC. The Commonwealth’s “enabling” legislation for municipal governments, the MPC outlines the structure through which municipalities can create and enforce planning and zoning regulations. The MPC has been amended many times since it was first passed in 1968. One of the most sweeping changes occurred in 2000, when the MPC began requiring county and municipal comprehensive plans to include provisions for the protection of natural and historic resources. Together, Greenscapes and Lancaster County’s 2006 Cultural Heritage Element meet this requirement.
Preservation Areas

Conservation Areas
The Planning Process

Greenscapes was prepared by the Lancaster County Planning Commission (LCPC) working with a consultant team comprised of RETTEW Associates, Inc. and Wallace Roberts & Todd, LLC (WRT). Mapping, analysis, and assessment of Lancaster County’s natural resources conducted by the Pennsylvania Natural Heritage Program for the concurrent update to the 1990 Natural Areas Inventory of Lancaster County, PA were integral to the development of the plan.

Like all planning initiatives undertaken by LCPC, the process was designed around public involvement. A Task Force comprised of representatives of County departments, other agencies and organizations, businesses, and citizen groups with an interest in green infrastructure issues met regularly to provide input, policy direction, coordination, and technical assistance throughout the process. Additional means of public input included public meetings, stakeholder interviews, and focus groups.

The planning process researched green infrastructure initiatives from across the nation; documented existing conditions and trends affecting Lancaster County’s green infrastructure resources; articulated a strategic vision for green infrastructure; defined goals, objectives, strategies, and tools for creating a countywide green infrastructure system; and defined roles, responsibilities, and actions to be taken by Lancaster County and partners in the public and private sectors to implement the plan.

Greenscapes seeks to reverse this trend by creating an integrated green infrastructure system that extends throughout Lancaster County. The strategic vision for the system is:

*Lancaster County’s natural life support system— a network of natural areas, green spaces, and greenways in rural, suburban, and urban areas that sustains ecological functions and values and provides a broad array of environmental, social, and economic benefits for the people of Lancaster County and the surrounding region.*

The vision for the green infrastructure system is illustrated in the plan’s Green Infrastructure Concept Map (on page 12). The map combines the four basic goals identified above into a complete green infrastructure system concept map depicting exceptional natural resources to be preserved, natural resources to be conserved, degraded natural resources to be restored, and existing and proposed publicly accessible recreational resources.
The goals and objectives presented below outline what should be accomplished during the life of Greenscapes. Four goals establish the principal directions that should be followed in order to implement the strategic vision for the green infrastructure system. The objectives beneath each of the goals describe, in more detail, the intent of the goals. In addition, the plan identifies specific strategies and tools for use in implementing the objectives to meet the goals of the plan. By implementing the goals and objectives, Lancaster County can protect, preserve, restore, and enhance the natural environment that supports life sustaining functions and directly relates to the quality of life of the citizens of Lancaster County.

**Preserve Lancaster County’s exceptional natural resources.**
- Secure the future of the County’s natural heritage by defining, identifying, and permanently protecting its most important natural and treasured resources.
- Ensure the long term viability of the County’s biological diversity by maintaining, enhancing, and restoring the habitat of plant and animal species of concern and greenway connections between them.

**Conserve natural resources and services throughout Lancaster County’s urban, suburban, and rural landscapes.**
- Maintain the ecological integrity of environmentally sensitive lands.
- Promote land management practices that result in the conservation and sustainable use of renewable natural resources.
- Increase the understanding and awareness of citizens and elected officials of the social, economic, and environmental importance of natural resource conservation.

**Restore ecological connections and natural resource systems throughout Lancaster County’s urban, suburban, and rural areas.**
- Restore the County’s natural environment and its ecological functions.
- Incorporate green elements throughout the built environment to improve the environmental quality of urban and suburban development.
- Enhance the quality and ensure the quantity of surface and groundwater resources needed to sustain healthy aquatic ecosystems, drinking water supplies, and water-based recreation activities.
- Enhance the County’s air quality through reforestation and tree planting.

**Enhance the quality of life of residents through the provision of a diversity of easily accessible outdoor recreation opportunities and experiences.**
- Protect large open spaces for passive outdoor recreational opportunities such as hiking, biking, paddling, wildlife viewing, outdoor learning, and the traditional pastimes of hunting and fishing.
- Provide a diversity of close-to-home, active recreation opportunities within Designated Growth Areas.
- Create a countywide network of open/green spaces and connections between them.
- Improve community health by providing convenient, accessible opportunities for outdoor recreation and exercise.
Implementation

Plans are turned into reality by taking action. Successful implementation of Greenscapes cannot be accomplished by government alone. Instead, it will require a collaborative effort involving all sectors of the community:

- **Public** (Lancaster County, municipalities, and the Commonwealth of Pennsylvania)
- **Semi-public** (Lancaster County Conservation District, school districts, institutions, sewer and water authorities, and utility and infrastructure companies)
- **Private nonprofit** (Lancaster County Conservancy, urban community development organizations, foundations, and other nonprofit agencies)
- **Private for profit** (developers, businesses, and corporations)
- **Citizen-based** (watershed groups, outdoor recreation groups, property owners, and other groups and individuals)

Greenscapes provides a common direction and framework for action by these diverse interests to create the Lancaster County green infrastructure system. It also contains a “toolbox” of 45 specific implementation tools that can be used by the different entities. These tools are divided into four broad categories:

- **Policy and Planning**: Initiatives at the municipal, multi-municipal, county, and regional levels that address green infrastructure as a fundamental component.
- **Regulation**: Municipal regulations and incentives that address the green infrastructure goals of preservation, conservation, restoration, and recreation in new developments.
- **Capital Investment**: Public and private sector financial investments to establish green infrastructure system components.
- **Outreach and Partnership**: Education, technical assistance, and other means of involving the entire Lancaster County community in creating the green infrastructure system.

Greenscapes identifies the following priority tools for each category:

- **Priority Policy and Planning Tool: Green Infrastructure Planning**
  Within the framework established by Greenscapes, prepare municipal and multi-municipal plans that define green infrastructure resources and strategies at the local level.

- **Priority Regulatory Tool: Green Infrastructure Overlay District**
  Enact zoning overlay districts at the municipal level that designate green infrastructure resource areas as an integrated system (preferably identified in a green infrastructure plan) and define standards for their conservation. Overlay district standards should emphasize conservation of floodplains and riparian buffers along stream corridors as a priority.
• **Priority Capital Investment Tool #1: Land Acquisition**
  Acquire priority green infrastructure lands using a combination of public and private sector resources. Acquisition efforts should be targeted both to preserve exceptional natural resources in rural parts of Lancaster County and to secure green infrastructure in urban and suburban areas.

• **Priority Capital Investment Tool #2: Purchase of Development Rights**
  Using Lancaster County’s Agricultural Preserve Board and the Lancaster Farmland Trust’s successful farmland preservation programs as a model, acquire development rights to preserve priority green infrastructure lands as an alternative to fee simple acquisition.

• **Priority Outreach and Partnership Tool #1: Green Infrastructure Technical Assistance**
  Provide assistance to groups and individuals involved in implementing the green infrastructure system (e.g., municipalities to develop green infrastructure plans and regulations; watershed organizations and other citizens’ groups to secure grants; landowners to manage green infrastructure on their properties).

• **Priority Outreach and Partnership Tool #2: Environmental Advisory Councils**
  Establish Environmental Advisory Councils (EACs) to lead green infrastructure efforts at the local level. State legislation authorizes formation of municipal and multi-municipal EACs to advise local officials on the conservation, management, promotion, and use of natural resources within the jurisdiction(s).

While the plan designates the above tools as priorities, many others have important contributions to make in creating Lancaster County’s green infrastructure system. For example, a range of planning and policy tools, such as comprehensive plans, park and recreation plans, transportation plans, and official maps, can address green infrastructure as an integral component. Transfer of Development Rights (TDR) is a regulatory tool that has great potential to preserve green infrastructure lands without incurring acquisition costs. Agricultural best management practices, environmental restoration, and nutrient trading are capital investment tools that can be used by the private sector to conserve and restore green infrastructure. Conservation easements and wildlife habitat management tools are examples of outreach and partnership tools that can be used by landowners to preserve and enhance green infrastructure on their properties.

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1 Nutrient trading is a program developed by the Pennsylvania Department of Environmental Protection to implement water quality requirements for the Chesapeake Bay watershed under the U.S. Clean Water Act and Chesapeake 2000 Agreement.
Lancaster County Green Infrastructure Concept Map

Legend

Restoration Area
Preservation Area
Conservation Area

Recreation:
Existing Recreation Areas
Existing Trail
Proposed Trail
Key Initiatives and Actions

The plan identifies five key initiatives with priority actions designed to act as “catalysts” for further action across the Lancaster County community to create the green infrastructure system. These catalytic initiatives and actions are:

Education and Communications
- Implement an ongoing program to provide information and educate citizens on the importance of green infrastructure.
- Use a variety of means to reach the community, including a green infrastructure website and green infrastructure events program.

Technical Assistance
- Expand the scope of the LCPC’s current regional comprehensive planning assistance program to include multi-municipal and municipal green infrastructure plans.
- Develop a model green infrastructure overlay district for use by municipalities.

Funding
- Develop a Green Infrastructure Fund to target projects that implement Greenscapes.
- Coordinate other county, state, federal, and private sources of funding to fund catalytic green infrastructure projects.

Capital Planning and Development
- Complete the county regional parks system proposed in the 1992 Regional Open Space Plan.
- Develop a countywide system of proposed greenway trails.
- Develop green infrastructure design standards for public projects.

Partnership
- Convene a Green Infrastructure Summit that brings together partners who will be involved in implementing Greenscapes.
- Create the Lancaster County Green Infrastructure Coalition – a network of existing agencies, organizations, and groups – to coordinate implementation of Greenscapes.
- Establish the Lancaster County Environmental Advisory Council (EAC) as an umbrella organization for the formation of EACs at the municipal and multi-municipal levels.

It is proposed that the first four initiatives be led by Lancaster County with the support of partners. The fifth initiative is designed to leverage the County’s efforts by establishing an ongoing process of collaboration and coordination for plan implementation, with the Lancaster County Conservancy and other partners playing a leading role.

In accordance with the recreational goal of the plan, Initiative #4 focuses on completing the regional parks system and developing a countywide greenway trails system, concepts first proposed in the 1992 Regional Open Space Plan. Establishment of a “Friends of Lancaster County Regional Parks” organization is proposed to bring private resources to bear on development and management of the regional parks and greenway trails system. Local recreational needs are to be met through municipal and multi-municipal initiatives using standards and policies established by Greenscapes as a general guide.
How You Can Help Create Green Infrastructure

At a basic level, Greenscapes is about individual and collective responsibility for action to ensure a sustainable future for Lancaster County. Many different agencies, organizations, groups, and individuals in the public, private, and nonprofit sectors will have roles to play in creating the green infrastructure system. The following bullets highlight ways that several key players – municipalities, businesses and developers, and citizens – can do their part in implementing Greenscapes. Additional information on what other interested parties can do (e.g., school districts, nonprofit organizations, sewer and water authorities, and utility companies) is provided in Chapter 5.0 of the Plan.

What Municipalities Can Do
- Establish Environmental Advisory Councils (EAC)
- Prepare green infrastructure plans working with the LCPC
- Enact ordinances to conserve green infrastructure resources (e.g., green infrastructure overlay districts)
- Identify high priority green infrastructure lands for preservation or restoration
- Meet local recreational needs through the provision of parks (using the Greenscapes standard of a minimum of 10 acres of parkland per 1,000 residents as a guide) and greenway trails
- Incorporate green infrastructure into capital improvement projects (e.g., street tree plantings, vegetated infiltration basins to accommodate stormwater runoff, etc.)

What Businesses and Developers Can Do
- Provide green infrastructure in development projects (e.g., protection of natural resource areas, native plantings, provision of recreational areas and trails, etc.)
- Use “green building” techniques
- Pursue environmental restoration projects, including market-based opportunities related to water resource protection and enhancement (e.g., nutrient trading)
- Participate in green infrastructure education and outreach efforts
- Support green infrastructure projects through financial contributions and employee involvement

What Citizens and Property Owners Can Do
- Join an organization such as a watershed group to promote green infrastructure
- Preserve and restore green infrastructure on your property (e.g., prepare a wildlife habitat management plan; use native plants in your backyard, etc.)
- Permanently protect natural resources on your land (e.g., by donating a conservation easement)
- Become a spokesperson for green infrastructure in your community

By taking these and other actions, using the tools, and following the strategies contained in the plan, the entire community can work together to ensure that Lancastrians will enjoy all of the benefits provided by green infrastructure – Lancaster County’s natural life support system.