

Open Space, Greenways & Outdoor Recreation Master Plan

Lackawanna and Luzerne Counties, Pennsylvania

FINAL PLAN

April 2004

“In the end our society will be defined
not by what we create, but by what we
refuse to destroy.”

John Sawhill

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EDAW

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CHAPTER 1

INTRODUCTION



1.0 Introduction

1.1 Background & Purpose

Lackawanna and Luzerne Counties are facing new challenges. Originally settled to take advantage of the area’s former abundant anthracite coal resource, the region is adapting to a diverse and multi-faceted economy. The area’s residents now place an increased value on the outstanding natural features and attractiveness of the area and have expressed an interest to protect these resources for future generations and to attract new businesses, residents and visitors. Much of the land within the bi-county area remains forested and undeveloped and is exceptionally scenic. The long and narrow mountain ridges running northeast to southwest are separated by wide valleys, providing impressive views and numerous possibilities for outdoor recreation enthusiasts. Like most of Pennsylvania, the majority of forested land within both counties is in private ownership.

The value of these natural resources is further documented by the large number of non-profit organizations, recreational clubs, trail groups, and interested citizens that are actively working to improve, protect or expand existing resources in the area. Numerous efforts to preserve critical habitat areas, environmentally sensitive areas and improve the water quality of the area can be found at the federal, state, county, and local levels.

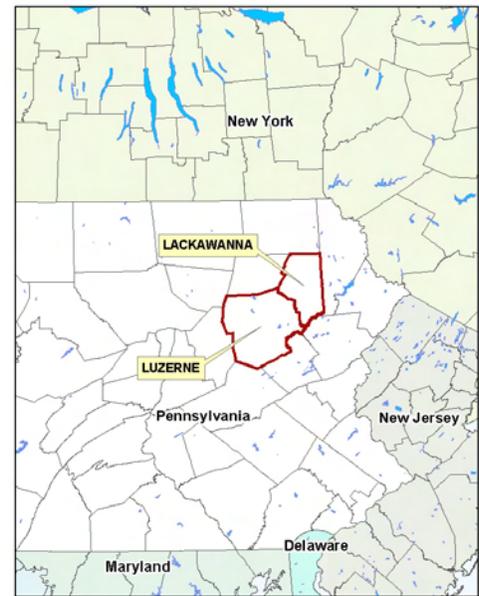


Figure 1.1 Luzerne and Lackawanna Counties, Northeastern Pennsylvania.

Development pressures on previously less-traveled landscapes are now forcing issues of conservation and preservation to the forefront. Nearby Pike, Monroe, Lehigh and Northampton Counties are experiencing population explosions and have taken important steps to address open space and recreation needs for their growing populations. As development continues to extend westward from the Delaware Valley, development pressure will be placed on existing open spaces in Luzerne and Lackawanna Counties. Already, access to the many streams, lakes and other important natural areas once enjoyed by the public is transferring into private hands. Ridgetops and open areas are being transformed from rural or forested areas into housing and business sites. Areas regarded for their ecological importance in providing critical habitat for both plant and animal species are being subjected to fragmentation from development. As reflected in US Census data, demand for housing is strong and municipalities are struggling

with how to achieve a balance between growth and development and protecting valued ecological and natural resources.

Furthermore, the NJ-PA Lackawanna Cut-off Railroad Restoration Project, currently in the conceptual design phase, will restore passenger rail service between Scranton, the Pocono's, northern New Jersey and New York City. This project will severely impact land use and development patterns in the bi-county study area as accessibility is increased. These concerns are helping to highlight the value of open spaces and recreational amenities and the need for a more proactive and planned approach to development.

This plan provides a blueprint for protecting, conserving and improving:

- ***Valuable natural resources***
- ***Ecologically & environmentally sensitive areas***
- ***The network of recreational opportunities***

With 40 separate local governing bodies in Lackawanna County and 76 in Luzerne County, the importance of a unified approach to address these concerns became necessary. Providing a planning framework for the preservation of open spaces and the development of greenways and outdoor recreation areas at the county level will provide local leaders at the municipal level with a defensible blueprint for decision making. This plan sets forth recommendations for

achieving a balance between natural resources and the built environment so that the region may continue to thrive and benefit from its rich natural, recreational and cultural resources.



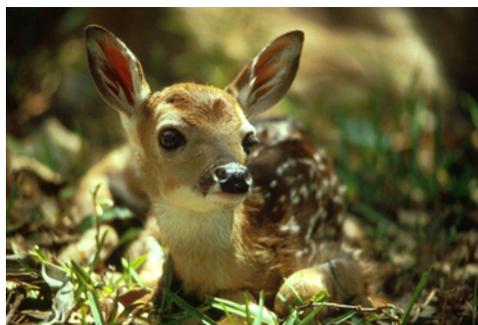
EDAW, Inc., 2003

Scenic views like this one in northern Lackawanna County are common.

What is Open Space?

In the simplest sense, open space is defined as an area of the natural landscape that has not been developed for intensive human uses. It has very few (if any) buildings, roads or other structures typically associated with residential, commercial or industrial

developments. Open space can be either publicly or privately owned and within the bi-county study area includes, but is not limited to, thousands of acres of forests, wetlands, undisturbed wildlife areas, scenic mountain ridges, rivers and streams, and agricultural lands. Open space includes land and water features, also providing a setting for outdoor recreation activities. The open spaces of Lackawanna and Luzerne Counties are a defining characteristic of the region. A moderate amount of open space lands in the study area are already permanently protected from development through public ownership and/or conservation related designations.



USFWS/Tom Stehm, 2001

White tail deer are abundant in the study area.

What are Greenways?

Greenways are linear corridors of open space that serve many functions. Typically greenways are associated with trails and outdoor recreation. Within the developed landscape, greenways serve a dual function: they provide open space for human access and recreational use, and they serve to protect and enhance natural and cultural resources (The Conservation Fund, 1993). Greenways are found along natural corridors such as stream valleys, rivers, or ridgelines and along man-made corridors like rail roads, canals, roadways or other transportation corridors. Greenways are important open space connectors linking wildlife habitats and ecosystems and providing a connected green infrastructure. The natural landscape of the bi-county area, with its ridgelines, rivers and tributaries, is an ideal setting for an expanded greenway network.



Lackawanna River Corridor Association, 2003

A footbridge along the Lackawanna Heritage Trail carries trail users across the River.



EDAW, Inc., 2003

Passive recreation can include environmental educational opportunities.

How is Outdoor Recreation Defined?

A diverse amount of outdoor recreation and sporting opportunities exist within the bi-county area providing many ways to become one with nature and the environment throughout the calendar year. The types of outdoor recreation activities are linked to the natural topography and landscape. These opportunities vary in degree of intensity and can be classified as either passive or active forms of recreation.

Passive recreation is considered low impact and has minimal impact or effect on resources. Passive recreation activities are an integral part of every day life and include walking, sitting and meditating, picnicking, wildlife and habitat observation, viewing scenic vistas, environmental education, etc.

More intense types of recreation activities fall under the category of active recreation. These activities typically have higher levels of impact on the resources and often involve a skill. For the purpose of this bi-county plan, forms of active recreation include hiking, swimming, biking, fishing, hunting, running, boating, rafting, climbing, horseback riding, skiing, motorized sports, etc.

Outdoor recreation activities typically take place in all types of settings from neighborhood parks and



Lackawanna River Corridor Association, 2003

Active recreation includes river kayaking.

municipal recreational facilities to state forests and gamelands. This study focuses on regional or county wide resources and does not address municipal level resources or those activities or facilities dedicated to or involving organized sports teams such as baseball, softball, tennis, volleyball etc. Planning for team or community organized activities occurs at the local municipal and school district level and is beyond the scope of this plan. However, this plan recognizes that local recreational facilities are a valuable community asset enjoyed by all age groups.

1.2 The Broader Perspective

The Importance of Open Space and Greenways

The movement to protect open space resources has gained increasing support throughout the United States. Across the country, Americans are voting in favor of measures that support conservation-related efforts, funding of parks, water supply protection, farmland conservation and others that will protect their special places and maintain or enhance their quality of life. During the 2002 election year, 187 conservation and conservation-related ballot measures were put to the voters. A total of 139 measures, or almost 75% of these, were approved, generating \$10 billion in local and state funding for land protection in 2002 alone (<http://www.tpl.org>).

Conservation efforts in Pennsylvania are also on the rise. The *Pennsylvania Greenways: An Action Plan for Creating Connections*, adopted in 2001, provides a coordinated approach to creating connections through a statewide system of greenways. The Plan promotes the development of greenway plans by county and local governments and recommends that all 67 counties complete and adopt Greenways plans by 2007. This bi-county plan represents one of the first of several plans either recently completed or now underway responding to this statewide initiative.

In addition, open space and greenways, including trails, are increasingly valued for their contribution in protecting the environment, their value as recreational assets and impact on quality of life, and their role in the fiscal health of a community. As stated in *Local Greenprinting for Growth*, a publication by the Trust for Public Land, open space has a number of recognizable and important benefits, including the following:

- Open space is good for the bottom line. Open space investments can save communities money by reducing infrastructure and public service costs associated with expensive, suburban-style development and bolster local tourism and agriculture economies.
- Open space attracts home buyers. Open space and trails are among the top community features home buyers look for when choosing a home. Studies show homeowners prefer clustered homes with access to permanently protected land over homes on large lots that lack open space.

- Open space protects public health. Land use practices that increase stormwater runoff are some of the biggest threats to public drinking water supplies. As a result, communities are increasingly linking their conservation and planning efforts to protect public drinking and public health.
- Open space can prevent costly flood damage. Protection of a floodplain is a cost-effective alternative to flood control projects, insurance, etc.
- Open space can secure our quality of life and our lifestyle. With a community's most treasured places preserved, so too are its character and quality of life.

Local governments are often in a reactive position when it comes to protecting sensitive lands. With energy focused on a single development proposal or specific threatened piece of property, open space preservation occurs at a piece-meal level. Although this approach may prove successful in the interim, it lacks a comprehensive approach geared toward creating a balanced and interconnected system of open space and greenways. Often times this piece-meal approach leads to a fragmented system of protected lands, offering little protection for wildlife, water resources or other ecosystems. This bi-county plan offers a regional, comprehensive approach to conservation that with implementation will help create an interconnected system of open space and greenways.

The numerous efforts already underway in the bi-county area indicate there exists a true understanding of the value of open space and greenways. The Wyoming Valley Wellness Partnership, for example is leading the way to improve community health through coordination of community groups and individuals that work to promote physical activity utilizing the region's trail system and other outdoor recreational amenities.

Economic Benefits and Fiscal Impacts

With local governments facing development pressures, it is also important for local decision makers to understand the economic benefits behind land conservation. Open space is a community investment that has a positive return for both the community and land owner. The way that land is used directly impacts and influences the types of services that local governments can or must provide. Local leaders are frequently faced with having to make a decision with limited knowledge about the types of resources present and without the knowledge of new conservation tools that might allow for development in concert with conservation. For example, conservation easements on private lands provide the benefit of protecting the land from development and also provide the land owner with the benefit of reduced taxes on the portion of land that is under easement, thereby reducing the overall tax burden.

Residential development brings new residents into the area, creating demand for new roadways and infrastructure like water and sewer, and impacting services like police, fire, trash collection, recreation, etc. Land use affects the types of equipment the local governments must buy (snow

equipment, road maintenance, engineering equipment, etc.) and the amount of taxes they must levy. The number of students in the local school district is heavily tied into land use, i.e. the prevalence of residential units adds potential school-age children to the school system. In turn, the number of students in the local school district impacts the cost to educate each student, the number of teachers, and consequently school taxes.

In a report entitled “Fiscal Impacts of Different Land Uses, the Pennsylvania Experience,” Timothy W. Kelsey of the Pennsylvania State University evaluated the land uses of eleven Pennsylvania communities. The report concludes that in all the townships studied, residential land required more from the school district and township government than it contributed. In Bingham Township Potter County, for example, for every dollar in revenue from residential land, \$1.56 was spent on services for that land. By contrast, commercial, industrial, and farm/open land contributed more to the local municipality and school district than they cost, thus helping to subsidize the needs of residential land. In Bethel Township, for example, for every dollar of revenue from commercial land, only \$.07 was spent on services for that land. In other words, residential land generally costs local taxpayers, while commercial, industrial, and farm- and open lands help taxpayers by paying more than they require back in services. These results are consistent with other states’ experiences and an important point in advocating and implementing land conservation programs at the local level.

1.3 Planning Process

The planning process for the Lackawanna and Luzerne Bi-County Open Space, Greenways and Outdoor Recreation Master Plan compliments the State Plan and has followed guidelines established by the Department of Conservation and Natural Resources (DCNR), the lead agency for the State Greenways Program. Funding for this project is provided in part by a grant from the Community Conservation Partnership Program administered by DCNR, the Pennsylvania Department of Community and Economic Development (DCED), Land Use, Planning, and Technical Assistance Program (LUPTAP), The Pennsylvania Department of Environmental Protection, The Willary Foundation, Pennsylvania Heritage Parks, and the Lackawanna Heritage Valley Authority (LHVA). The planning process has taken approximately a year to complete and was designed to be open, inclusive, and interactive to ensure community input in formulating the plan’s recommendations.

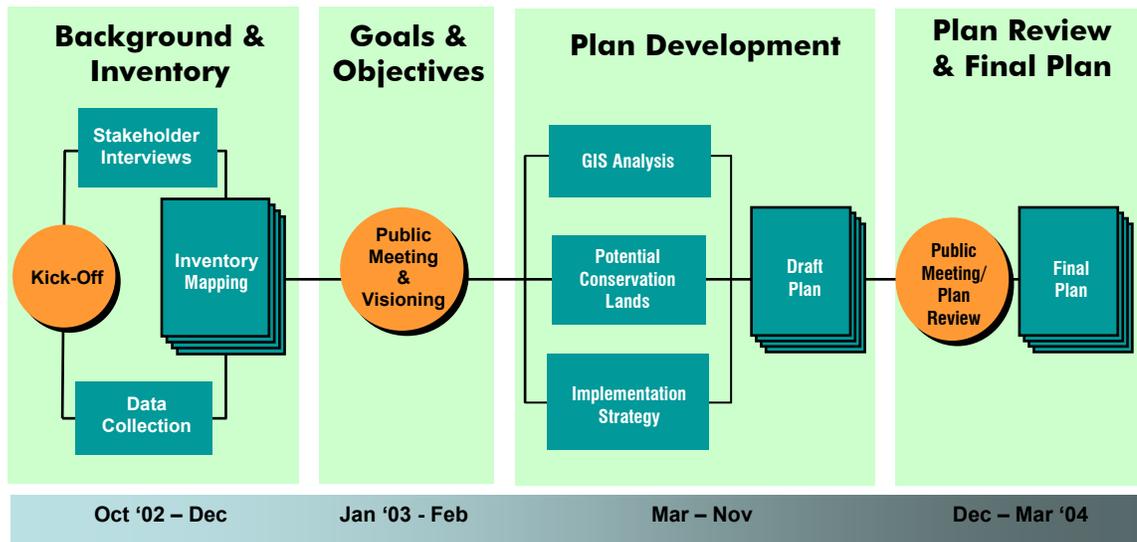
A unique aspect of this project is the vast geographic area that it covers, over 1,400 square miles, and the varying interests represented by local environmental and recreational groups as well as governmental agencies, educational institutions, and businesses. An Open Space, Recreation and Advisory Committee (OSRAC) helped guide and inform the process from project initiation to the final plan. Members of the committee represent a broad range of interests, both public and private, including but not limited to: parks, forests, fish and wildlife, trails, conservation, and economic development. Members of the OSRAC are listed in the Appendix.

In addition, public meetings and supporting outreach materials, including a project brochure and newspaper articles, were part of the public engagement program.

The planning process followed four general phases:

- Background and Inventory
- Vision, Goals and Objectives
- Plan Development
- Plan Review & Final Plan

Figure 1.2 Planning Process



Background and Inventory

The background and inventory phase involved two separate but interconnected parts: gathering existing data resources and creating a GIS system and meeting with key stakeholders and organizations. To build a foundation for analysis, all relevant land use, natural resources and environmental data was collected and transferred, where applicable, into a Geographic Information System. Significant resources were obtained from DCNR, the Pennsylvania Department of Environmental Protection (PADEP) Compendium, County Natural Areas Inventories, United States Geographic System, National Wetlands Inventory, Flood Emergency Management Agency (FEMA), the Pennsylvania Department of Transportation (PennDOT), and Wilkes University. Existing studies and reports provided additional data.

Furthermore, over 80 key stakeholders were contacted for more detailed information on their area of interest. Stakeholders that participated in the interview process are listed in Section 1.0 of the Appendix. Stakeholders



Citizens attended public meetings in February 2003 to learn about the plan.

EDAW, Inc., 2003

met in focus group interviews to exchange information on current local initiatives, discuss issues and concerns from their organization's perspective, and identify needs. Interviews included representatives from sportsmen clubs, habitat conservation groups, local governments, colleges and universities, youth and senior groups, tourism agencies, outdoor recreation interests (motorized and non-motorized), open space and watershed protection. Highlights of the stakeholder interview discussions are provided in the Appendix.

Goals, Objectives and Creating a Vision

In February 2003, over 150 interested citizens gathered at Scranton High School and Luzerne County Community College and engaged in small group discussions to develop goals and objectives for open space, greenways or outdoor recreation. Participants discussed concerns, documented needs and developed overall goals for each topic area and objectives for meeting those goals. This information, along with input from stakeholder interviews and the OSRAC, was used to cultivate a vision statement for the Plan.

Documenting the need or demand for open space, greenways or outdoor recreation facilities required more than simply developing goals and a Plan vision statement. To this end, the planning effort incorporated the results of DCNR's 2003 Pennsylvania Recreation Needs Survey and other available recent survey data at the state and local level. These surveys covered specific topics related to open space, greenways and outdoor recreation relevant to this planning effort and shed light on the attitudes and recreation needs of local citizens towards these topics.



Citizens provided input on mapped resources during public meetings in February, 2003.

EDAW, Inc., 2003

Plan Development

A four-step GIS-based evaluation system to evaluate and prioritize potential open space areas, referred to as potential conservation lands in the bi-county area, was developed. The process gave preference to ecological and environmental factors in identifying potential land for protection or conservation. Areas were assigned a high, medium or low ecological index and tested against established size criteria. At the same time, potential greenways or corridors were evaluated in light of their connectivity to existing open spaces and potential conservation lands. Potential conservation lands were evaluated and assigned appropriate recreational activities. This information was consolidated into a GIS-produced bi-county map identifying and naming potential conservation lands, greenways and outdoor recreation activities. A more detailed description of the evaluation process is provided in Chapter 6 of the Plan.

The next step in the planning process was the development of an implementation strategy, or action plan, to prioritize conservation lands and greenways projects and guide decision making. Guidelines for operation and management of resources, and potential short and long term

financing options were developed. Programs and policies and methods for fostering long-term citizen involvement were also identified. Priority projects in the Plan were assigned a responsible party for implementation. In addition, a thorough review of six local municipal planning and zoning codes was undertaken to identify obstacles and opportunities for plan implementation. This review provided recommendations on model ordinance and land development regulation language. This review process was completed at the request of the local municipalities; it is an initial step toward the ultimate goal of achieving such reviews and implementation of environmentally sound subdivision and land use development ordinances all across the 116 municipalities in the bi-county area.

Plan Review and Final Plan

The Draft Plan was released to the public in September 2003 and presented to the public during meetings held in October 2003. Following a 45 day public review period and incorporation of comments, the Final Open Space, Greenways and Outdoor Recreation Master Plan was completed in March 2004. The Plan was subsequently presented to each County Planning Commission for adoption and incorporation into the County Comprehensive Plan.

The most recent countywide comprehensive plans in both Lackawanna and Luzerne Counties are over twenty-five years old and out of date. Subjects such as land use, economic development, housing, transportation, and infrastructure are issues that are addressed in a comprehensive plan and are not part of this study. Although neither county has immediate plans for a complete comprehensive plan update, plans for individual elements that would typically be part of a comprehensive plan are being completed as comprehensive plan components, including this Open Space, Greenways and Outdoor Recreation Plan. Therefore, the review process for this plan will follow the Pennsylvania Municipalities Planning Code requirements for a comprehensive plan. The Lackawanna and Luzerne Bi-County Transportation Plan, completed in 2000, illustrates another recent example of a successful regional planning effort that was adopted in both counties as a component of each County's comprehensive plan.

In the absence of an updated Comprehensive Plan in each county, these plan components will serve as policy and decision making guidelines. It is anticipated that Lackawanna and Luzerne Counties will adopt the Open Space Greenways and Outdoor Recreation Master Plan as an updated component of the existing comprehensive plans.

What this Plan Addresses, and What it Does Not

The focus of this plan is strategic, although it covers a large geographic area. The plan outlines an approach on how to protect and preserve identified open space, greenways and outdoor recreation resources within the bi-county area. It is not the intent of this plan to suggest that all of the proposed conservation lands identified in this plan are unsuitable for any type of development. Through an extensive resource based process, this plan has identified areas that are likely to have valuable ecological and natural resources present that contribute to or have

an impact on water quality, sustainment of wildlife species and habitat, and the overall quality of life in the bi-county area. As discussed in Chapters 6 and 7, it is possible to achieve a balance between development and sustainability that allows for the preservation of valuable resources. The counties, cities, boroughs and municipalities will continue to grow; this plan identifies areas that should be more closely reviewed for impacts on resources and provides tools for making sustainable decisions.

This plan does not address existing or future land use, economic development, housing, infrastructure, urban design, transportation, or other components that are evaluated simultaneously as part of a comprehensive planning process. This plan also does not consider future development areas; it looks at the resources of the land, irrespective of future plans, and identifies areas that offer opportunities for preserving and protecting valuable resources. Future land use decisions should balance these opportunities with local economic development initiatives. This plan, therefore, lays the foundation for more informed decision making at the varying levels of government involved.

1.4 Regulatory Framework

In the Commonwealth of Pennsylvania, several initiatives relating to land use and the environment were created and are still in the process of being implemented. Supporting legislation has been adopted and municipal governments are working toward balancing land uses with protecting the environment.

In 1991, Pennsylvania Governor Tom Ridge enacted Executive Order 1998-3, charging DCNR, DEP, and PennDOT, assisted by the Pennsylvania Greenways Partnership Commission, to develop an action plan for advancing a Pennsylvania Greenways Partnership Program (PA Greenways Action Plan, 2001). In June 2001, *Pennsylvania Greenways: An Action Plan for Creating Connections* was completed. The Plan sets forth a series of goals and action items in a coordinated and strategic approach aimed at developing a statewide system of connected greenways. A key action statement calls for all counties to develop and adopt Greenways Plans by 2007. Lackawanna and Luzerne Counties, with the adoption of this plan, satisfy this statewide goal.

Recent amendments to the Pennsylvania Municipalities Planning Code (MPC), known as Acts 67 and 68 or “Pennsylvania’s growing smarter laws,” were signed into law in 2000 and resulted in significant changes to the Pennsylvania Municipalities Planning Code. The Acts encourage multi-municipal planning and set forth new laws that allow for a balanced and coordinated approach to development. Article XI specifically gives new powers and incentives to local governments to use intergovernmental cooperative agreements to develop and implement multi-municipal land use plans with adjacent communities. The provisions allow for the designation of growth areas where public infrastructure will be provided and rural resource areas where infrastructure is not planned. The provisions also give municipalities the authority to

maintain their individual zoning ordinances so long as the ordinances are generally consistent with the multi-municipal plan (10,000 Friends of Pennsylvania, 2002).

Act 67 (House Bill 14) specifically addresses Article XI of the MPC and authorizes the development of intergovernmental (joint) comprehensive plans to encourage municipalities to plan more effectively with neighboring municipalities, counties and other public agencies. The Act enhances the authority of municipalities to protect agriculture lands, natural and historic resources and provides funding incentives to municipalities that adopt ordinances and actions that are consistent with local and county plans. Specifically, the Act permits the designation of areas known as rural resource areas where infrastructure extensions are not intended to be financed. Furthermore, the Act authorizes the creation of plans for development that would have area wide significance and impact and also promotes creating plans aimed at conserving and enhancing natural, scenic, historic and aesthetic resources within an area.

Act 68 (Senate Bill 300) includes provisions that further support multi-municipal planning and implementation efforts. It enables counties and contiguous municipalities to act together to address issues that are regional in scope such as revitalization, water and sewer, transportation and the viability of agricultural and resource lands. Act 68 states that Comprehensive Plans shall include a statement indicating that the existing and proposed development of the municipality is compatible with existing and proposed development in surrounding municipalities. A Comprehensive

Multi-Municipal Planning Advantages, as provided by 10,000 Friends of Pennsylvania.

- 1. Promotes the protection of rural resources: Municipalities are required to plan and zone for natural and historic resources and agricultural lands.***
- 2. Promotes development in older boroughs and suburbs: Takes advantage of existing infrastructure and traditional neighborhood development.***
- 3. Provides funding incentives: The laws authorize state agencies to provide funding priority under state funding programs for multi-municipal planning and implementation.***
- 4. Requires state agencies to incorporate local plans in decision making: The laws require state agencies to consider or rely upon the multi-municipal plan in making funding and permitting decisions.***
- 5. Addresses regional issues: Enables municipalities to address regional issues such as water, sewer, emergency, agricultural preservation, and more, on a regional scale to avoid duplication of efforts, and encourage communication and efficiency.***
- 6. Allows cost sharing: The costs of completing land use plans, obtaining technical assistance and sharing tasks is shared among municipalities.***
- 7. Protects against curative amendment lawsuits: Municipalities within a multi-municipal planning area no longer have to necessarily plan for every use. Courts consider permitted uses in all municipalities within the planning area.***
- 8. Authorizes Transfer of Development Rights: Development rights can be transferred across municipal boundaries, relieving pressure on agricultural lands and helping to sustain developed areas.***
- 9. Allows tax-base sharing: Tax and revenue sharing tools allow benefits and burdens of development to be shared across the municipalities ensuring economic health of the region.***
- 10. Retains local control: The laws allow municipalities to retain local control over implementation and local issues so long as implementation is consistent with the multi-municipal plan.***

Plan must also include a plan for the protection of natural and historical resources including wetlands, aquifer recharge zones, woodlands, steep slopes, prime agricultural land, floodplains, unique natural areas and historic sites. The Act provides tools such as tax-base sharing and transfer of development rights across municipal boundaries.

1.5 Previous/Ongoing Studies and Initiatives

A number of relevant studies and initiatives have been undertaken or are in the process of being completed in the bi-county area. These efforts are found at the local, state and regional level and vary among private and public entities and include:

North Branch of the Susquehanna Rivers Conservation Plan, 2003. The plan will address environmental, cultural and natural resource issues within a two-mile corridor and make locally relevant recommendations for preservation or restoration of environmental integrity to the corridor based upon public input and information gathered during the course of the project. The project will also set the framework for the formation of a grassroots corridor-wide alliance or network that will include existing watershed related organizations and new stakeholders, such as local planning agencies, that can take the recommendations of the plan forward.

Long Range Transportation Plan, Lackawanna-Luzerne Transportation Study Area, 2002. Prepared for Lackawanna County Regional Planning Commission and the Luzerne County Planning Commission, this plan presents the long-range transportation plan for the bi-county region. The plan documents the current transportation planning status and proposed new projects. Geographic Information System (GIS) mapping was utilized to describe current modes of transportation, including trails, and identify future initiatives.

Lackawanna River Watershed Conservation Plan, 2001. Building upon the Lackawanna River Citizens Master Plan (1990) and the Lackawanna Heritage Valley Plan (1991), this plan provides recommendations for site specific conservation and recreation projects along the Lackawanna River and its tributaries. The plan addresses mine reclamation programs and includes stream walk survey data and alternatives to complete the Lackawanna River Heritage Trail (LRHT).

Luzerne County Natural Areas Inventory, 2001. This report provides information on rare, threatened, and global, federal and endangered species and outstanding natural features (floral, faunal and geologic) at the state level, and also includes sites that are significant on a county level. The report data and inventory maps (prepared by The Nature Conservancy) do not pinpoint specific sites, but rather zones of potential impact within a site's watershed. The sites listed were evaluated on their importance in protecting biological diversity on a global, federal, state, and local level, but many also have scenic value, provide water quality protection and are potential sites for low-impact passive recreation, nature observation, and education. A five tier quality ranking system was developed to set conservation priorities. Ranks are based on

rarity, quality, and threats or management needs of the elements at the site. The report identifies four sites as being critically significant at the state level in Luzerne County.

Wyoming Valley Wellness Trails Partnership, 2001. The Pennsylvania Environmental Council and the National Park Service facilitated the creation of the Wyoming Valley Wellness Trail Partnership. The mission of this Partnership of local trail organizations and the healthcare community (including hospitals, medical coverage providers, health departments and health/social service organizations) is to promote increased physical activity and active living through utilization of the local trail systems in the greater Wyoming Valley.

Wyoming Valley Levee Raising Project, Sasaki Associates, 2000. The plan creates an active waterfront that would connect the urban areas of Wilkes-Barre to the river at three locations. The project encompasses about 25 acres and includes a promenade on top of the raised levee, design elements and circulation improvements.

Wyoming Valley Inflatable Dam Feasibility Project, 2000. The Project sets forth recommended recreation facilities associated with the proposed dam. Facilities are focused at Nesbitt Park, River Commons Park, Kirby Park and the dam site.

Earth Conservancy's Lower Wyoming Valley Open Space Master Plan, 1998.

The plan introduces a vision and strategy for creating a Lower Wyoming Valley Open Space network with interconnecting trails while also promoting the natural and historic resources of the valley. The plan addresses three types of open space: trails, conservation lands and parklands.

Luzerne County Greenways & Open Space Advisory Council, Year One Recommendations, 1998. This document is a report on the progress of the projects identified by the Luzerne County Greenways and Open Space Advisory Council during the first year of operation.

Land Use Management Plan for PG Energy Lands in the Lackawanna & Wyoming Valley, 1998.

Compiled by CECO Associates, PG Energy Staff, a Land Use Committee, and Conservation Advisors, this plan was developed to promote the better use and stewardship of the watershed resource lands owned by PG Energy. The plan examines 20 watershed parcel properties. Each property was evaluated through a screening process and identified as having development suitability; resource management and conservation suitability; or both development and resource management potential.

Susquehanna Warrior Trail Feasibility Study, 1998. A feasibility study to determine if 18.5 miles of the former Delaware, Lehigh and Western Railroad line can be converted to a multi-use hiking, biking and backpacking trail.

Tunkhannock Creek Conservation Plan, 1997. This plan is designed to help guide government officials, conservation organizations and landowners interested in protecting and enhancing the Tunkhannock Creek Watershed. The plan details current statuses of various wetlands and their values and lists rare birds and mammals, covers land use and development, provides the results of a municipal survey and provides recommendations for the long-term health of the watershed.

Lackawanna County Natural Areas Inventory, 1997. Similar to the Luzerne County NAI, this report provides information on rare, threatened, and endangered species and outstanding natural features floral, faunal and geologic at the global, federal, state and county level compiled by The Nature Conservancy. A ranking system was developed to set conservation priorities based on rarity, quality, and threats or management needs of the elements at the site. The report identifies seven sites as being critically significant at the state level in Lackawanna County.

Lackawanna Valley Corridor Plan, 1996. Prepared as part of the approvals process for the Lackawanna Valley Industrial Highway, this study analyzes the secondary impacts of the highway's construction and proposes a framework for future land uses, transportation improvements and land development regulations.

Earth Conservancy Land Use Plan, 1995. This plan identifies a land use strategy for Earth Conservancy land holdings, including a preferred development concept that provides over 10,000 acres for parks, open space and undeveloped areas. The plan included a vision for economic stability balanced with preserving environmental resources.

Plan for the Lackawanna Heritage Valley, 1991. The report proposed the creation of the Lackawanna Heritage Valley, a conservation and development area created by a partnership among governments and the private sector. The Plan documents the local, state and national significance of the valley and its evolution and the preferred alternative develops a visitor and interpretive infrastructure to explain the Valley and its heritage to residents and visitors. This effort in part led to the establishment of the Lackawanna Heritage Valley Authority.

Lackawanna River Citizens Master Plan, 1990. A master plan for the restoration and use of the river and its adjacent lands, this plan is based on four main features: a plan to restore the river environment; a solution to meet the nearby recreation demands of residents; a plan to revamp local ordinances and plans to protect the river and provide for economic development opportunities; and a plan to propose an implementation mechanism that all the involved agencies can follow cooperatively.

CHAPTER 2

SOCIO-ECONOMIC CHARACTERISTICS



2.0 Socio-Economic Characteristics

The demographic characteristics of the population within the bi-county area have a direct relationship and effect on land development patterns, particularly open space. Furthermore, factors such as age, income, education, and occupation influence preferences for outdoor recreation and conservation. Past trends in population growth and housing are therefore useful in understanding and anticipating future land development patterns and impacts.

The variety of open space and outdoor recreation opportunities that currently exists within the bi-county area greatly contributes to the quality of life for county residents. These resources attract new residents and visitors into the region. This chapter presents information about the socio-economic characteristics of the bi-county population.

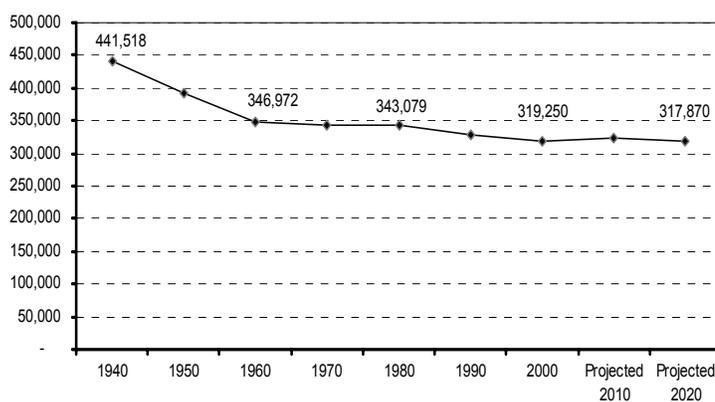
2.1 Demographics

Population

During the peak of the anthracite mining era of the early 1900s, both Lackawanna and Luzerne Counties flourished as mining towns expanded and dotted the landscape. However, the population began to decline as alternative fuels like oil and natural gas gained popularity in the 1920s, impacting the demand for anthracite coal and ultimately leading to the cessation of mining operations throughout the Lackawanna and Wyoming Valleys (Zbiek, 1994). The decline of the mining industry, once a major employer and economic engine for the region, left a void in the local economies, forcing an ex-migration of workers and families.

Since the 1940s, the region's population has experienced continual decline. Figures 2.1 and 2.2 illustrate historic population decline from 1940 through 2000, and projected population decline to the year 2020 for Luzerne and Lackawanna Counties. The largest population loss for both counties occurred between 1940 and 1960 with over

Figure 2.1 Luzerne County Population Trends



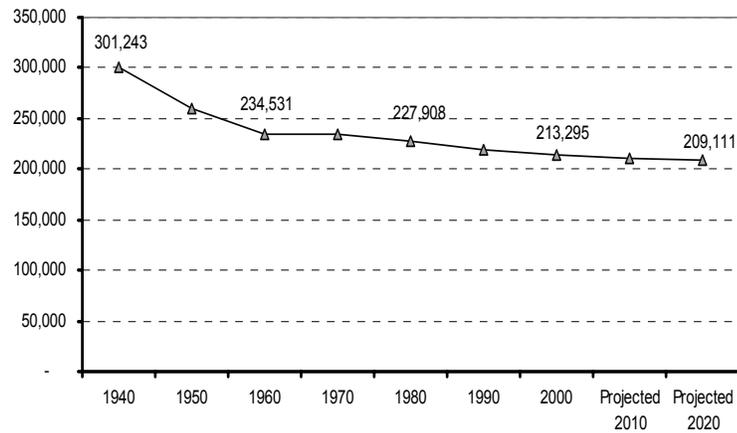
Source: Pennsylvania State Data Center.

150,000 people leaving the two-county area. From 1980 to 2000 Lackawanna County lost an average of 730 residents per year; Luzerne County lost an average of 1,191 residents per year. Population numbers from the Pennsylvania State Data Center project both counties will continue to decline in population, although at a slower rate, over the next 20 years.

During this time frame Lackawanna County is projected to lose 209 residents a year and Luzerne County 69 residents per year.

In light of this projection, it is difficult to accurately predict how many people may move in or out of the area over the next twenty years. For example, slight shifts in the local economy (business closing or opening) may influence people’s decision to stay or move.

Figure 2.2 Lackawanna County Population Trends



Source: Pennsylvania State Data Center.

Race

The racial composition of both counties is very similar. According to Census 2000, about 97% of the residents in each county are White and less than 2% are African American, with other races accounting for less than 1% of each county’s population. Ancestry of residents in the bi-county area is very diverse. In Lackawanna County, almost 50% of the population is either Irish or Italian, with another 18% being Polish and 15% German. In Luzerne County, about 24% of residents are of Polish descent about 18% are of Irish descent, 16% of German descent and 16% are Italian descent.

Age

According to Census 2000, Luzerne and Lackawanna Counties have very similar age profiles, as show in Figure 2.3. The median age for each county is about 40 years.

The largest percentage of each county’s population (about 15%) is between the ages of 35 and 44, followed closely by 45 to 54 year olds (14%) and 25 to 34 year olds (12%). Over the next twenty years, the people in these groups will age and move into higher age brackets, meaning a large portion of each county will be comprised of residents 45 and older as we reach the year 2020.

Figure 2.3 Age of Population, 2000

Age	% of Population	
	Luzerne County	Lackawanna County
0-5 yrs	4.95%	5.26%
5-9 yrs	5.81%	6.07%
10-14 yrs	6.38%	6.52%
15-19 yrs	6.56%	6.83%
20-24 yrs	5.41%	5.95%
25-34 yrs	12.22%	11.73%
35-44 yrs	15.00%	14.72%
45-54 yrs	14.02%	13.79%
55-59 yrs	5.39%	5.19%
60-64 yrs	4.60%	4.47%
65-74 yrs	9.45%	9.26%
75-84 yrs	7.55%	7.55%
85 & above	2.66%	2.67%
Total	100.00%	100.00%

Source: United States Census, 2000.

The residents of Lackawanna and Luzerne Counties are aging in place. Almost 20% of each county’s population is over the age of 65. With advances in technology, people are living longer and leading more active lifestyles well into retirement. Providing the types of outdoor recreation opportunities that meet the needs of aging but active residents, as well as teenagers, young adults, and visitors is an important consideration.

Education

The education level of residents age 25 and over is improving in each county. Figure 2.4 shows a clear increase in the percentage of residents holding Associates, Bachelor’s and Graduate or Professional degrees from 1990 to 2000. The increase in educational levels corresponds to the shift toward service and managerial occupations.

Figure 2.4 Educational Attainment – 25 Years and Over

	Luzerne County		Lackawanna County	
	1990	2000	1990	2000
Less than 9th Grade	11.3%	5.9%	10.6%	5.2%
9-12th Grade	16.7%	13.1%	16.0%	12.8%
HS Graduate	41.0%	41.4%	39.9%	40.6%
Some College, No Degree	12.4%	16.4%	12.3%	15.2%
Associates Degree	5.6%	6.9%	6.3%	6.6%
Bachelors Degree	8.2%	10.4%	9.3%	12.4%
Graduate or Professional	4.8%	6.0%	5.6%	7.2%
Total	100.0%	100.0%	100.0%	100.0%

Source: United States Census, 1990 and 2000.

2.2 Development Patterns

Population data is only one of several characteristics to consider when planning for future open space, greenways and outdoor recreation opportunities. Whereas Lackawanna and Luzerne Counties are not expected to incur explosive growth over the next decade like some neighboring counties, they are facing development pressures of their own.

Farmland

Agriculture is the largest industry in Pennsylvania, producing over \$44 billion annually and providing approximately 1 in 6 jobs in agriculture and related businesses (American Farmland Trust, 2002). However, research shows that the number of acres in farmland is decreasing, a trend occurring on a national level as well as locally.

According to USDA’s National Resources Inventory, between 1992 and 1997 more than 11 million acres of rural land were converted to developable uses and more than half of that conversion was agricultural land (American Farmland Trust, Fact Sheet, 2002). The rate



The amount of active farmland in the bi-county area is decreasing yearly.

EDAW, Inc., 2003

of farmland loss (conversion) is greater in Lackawanna County, as shown in Figure 2.5. Since 1987, Lackawanna County has lost 61 farms and about 12,500 acres of land have been taken out of production. Luzerne County lost 22 farms and about 1,000 acres of farmland during the same time period.

The financial situation for many farmers is difficult. According to the American Farmland Trust, the typical American farm business receives less than ten cents of the food dollar and sells commodities for 1950s prices. Farmers often consider selling parts of or all of their land to developers to recover lost profits. Finding the right tools and incentives to keep farming an economically viable option for farmers in Lackawanna and Luzerne Counties will play a critical role in farmland protection and open space preservation. Understanding the relationship between land use (developed versus undeveloped) and its contribution, or lack thereof, to the local tax base will also be important.

Figure 2.5 Farmland Statistics

	1987	1992	1997
Number of Farms			
PA	51,549	44,870	45,457
Lackawanna	299	239	238
Luzerne	473	376	451
Farmland Acres			
PA	7,866,289	7,189,541	7,167,609
Lackawanna	42,033	36,963	29,509
Luzerne	58,411	49,850	57,317
Avg. Farm Size (Acres)			
PA	153	160	158
Lackawanna	141	155	124
Luzerne	124	133	127

Source: 1997 Census of Agriculture; NEPA Alliance, 2002.

Housing

Agricultural land, with its relatively flat topography and expansiveness, is often viewed as desirable for housing development. Likewise, remote forest areas are also attractive to those searching for seclusion and privacy. Despite the decline in population, the number of housing units county-wide is increasing steadily, indicating an existing and growing level of development pressure. From 1980 to 2000, the counties experienced about a 6% rise in the number of housing units, shown in Figure 2.6. Upon closer analysis, the urban centers of Scranton and Wilkes-Barre experienced a decline in the number of housing units. In other words, the County-wide demand for additional housing units is being met outside urban areas, most likely on previously undeveloped lands. Unplanned, single family, large lot residential development occurring in non-urbanized areas is the major threat to rural, and in

some cases, environmentally valuable, undeveloped lands in each County.

Figure 2.6 Housing Units Trends

	1970	1980	1990	2000	% Change 1980 - 2000
Luzerne	116,843	136,201	138,724	144,686	6.23%
Lackawanna	79,291	89,572	91,707	95,362	6.46%
Scranton	36,255	36,159	35,357	35,336	-2.27%
Wilkes-Barre	20,693	21,395	20,734	20,294	-5.10%

Source: United States Census, 2000.

When comparing the number of units in each structure, it becomes clear that the increase in housing units is attributed to 1-unit detached units in each County. Furthermore, data indicates that the value of housing is rising. Between 1990 and 2000, there were significant increases in the value of owner-occupied housing in each county. In Luzerne County, the median value of owner-occupied housing units increased about 50% from \$56,000 to \$84,800 while in Lackawanna County owner-occupied units increased 36% from \$68,900 to \$93,400.

Building permit data obtained from the Pennsylvania State Data Center in Figure 2.7 further explains the rise in housing units; the residential building permits issued are primarily for single (one) family dwellings.

Figure 2.7 Building Permit Data

Year	Lackawanna County*		Luzerne County**	
	One family	2 + family	One family	2 + family
1995	402	46	557	50
1996	390	38	585	69
1997	401	87	570	110
1998	366	77	579	37
1999	361	59	569	53
2000	370	150	586	35
2001	355	72	618	33

Source: Pennsylvania State Data Center, *All municipalities reported for Lackawanna County in every year. **Avoca, Bear Creak Village, Conyngham, Courtdale, Dyrvea, Fairmont, Hughestown, Hunlock, Huntington, Jeddo, Lake, New Columbus, Newport, Ross, Sugar Notch, Union, Warrior Run and Yatesville are not reported for Luzerne County for any of the years.

Equally important in this regard is the location and the amount of land utilized to accommodate the increasing number of one-family housing units. Residential development is the primary threat to rural landscapes, according to a report entitled "Smart Growth at the Frontier: Strategies and Resources for Rural Communities," issued by the Northeast-Midwest Institute. Residential development can fragment forests, watersheds, and habitats; create pollution from automobiles, septic systems and surface runoff and encroach on land that supports resource-based economies (Wells, 2002). Housing demands can be successfully met by using conservation techniques that preserve the very amenities homebuyer's desire. Understanding the consequences of unplanned growth and having the tools available to promote smart growth will be critical in protecting valuable resources.

Figure 2.8 shows a year 2000 county comparison of total land area and housing per square mile. Although Lackawanna County is almost half the size of Luzerne County, it maintains a much higher density of housing (and thus a higher density of population) per square mile.

Figure 2.8 Land Area and Housing Density

	Luzerne	Lackawanna
Total Area (Sq. Mi.)	907.1	464.5
Housing Units	144,68	95,36
Housing/Sq. Mi.	162.	207.

Source: United States Census.

2.3 Employment and Economics

During the 1980s both counties experienced an increase in the number of people age 16 and over in the workforce. However, from 1990 to 2000 the trend has slowed or reversed, with Luzerne County adding less than 500 to the workforce, and Lackawanna County losing over 1,100 workers.

The local economy in each County has also shifted emphasis. The number of jobs in the labor field continues to fall as more people enter into service-related and managerial occupations, as shown in Figures 2.9 and 2.10. Associated with the movement toward service and managerial occupations are higher paying jobs. The median household income

Figure 2.9 Luzerne County Employment

	1980	1990	2000
Employed 16 & Over	135,000	143,046	143,492
Managerial	17.7%	21.1%	27.7%
Sales & Support	26.6%	31.1%	28.1%
Service	13.4%	13.8%	15.2%
Farming	0.7%	1.0%	0.2%
Craft & Repair	13.4%	12.2%	9.8%
Labor	27.9%	20.8%	19.0%
Median Household Income	\$13,990	\$23,600	\$33,771

Source: United States Census, years 1980 through 2000.

Figure 2.10 Lackawanna County Employment

	1980	1990	2000
Employed 16 & Over	92,003	97,407	96,290
Managerial	18.7%	22.5%	29.6%
Sales & Support	27.8%	31.0%	29.1%
Service	13.5%	13.7%	15.6%
Farming	0.6%	0.7%	0.2%
Craft & Repair	12.8%	11.9%	8.2%
Labor	26.3%	20.3%	17.4%
Median Household Income	\$14,267	\$24,816	\$34,438

Source: United States Census, years 1980 through 2000.

other surveys and time series covering the same industries may be based on samples drawn from the universe. The series covers most of the country's economic activity but excludes data on self-employed individuals, employees of private households, railroad employees, agricultural production employees, and most government employees.

This information is pertinent when looking at employment trends in the construction sector in each county, as show in Figure 2.11 below. With the growth in housing units, it is not surprising that the total number of employees in the construction sector has grown since

(MHI) in each County has increased about \$20,000 over the past twenty years. Lackawanna County maintains a slightly higher MHI than Luzerne County.

Released annually, County Business Patterns (CBP) provide useful information in understanding the local economy. County Business Patterns provide sub-national economic data by industry. The series is useful for studying the economic activity of small areas and analyzing market potential. CBP may differ from census numbers; CBP obtains data from census collections and administrative records for the entire universe, whereas

1998. This information is consistent with housing data that indicates growth in single family homes.

Figure 2.11 Construction Sector Employment Trends

	Luzerne County			Lackawanna County		
	1998	1999	2000	1998	1999	2000
Total Employees	122,507	122,554	127,328	90,808	89,771	93,383
Construction	5,359	5,633	5,721	2,791	2,930	3,203
<i>Residential Construction</i>	717	723	769	445	250-499	555
<i>Single Family Construction</i>	662	673	731	430	480	538
<i>Multi-Family Construction</i>	55	50	38	15	0-19	17
<i>Building & General Contracting</i>	1,336	1,308	1,436	900	895	983

Source: United States Census, County Business Patterns, 2000.

2.4 Recreation Demand

A number of different steps have been used to determine local attitudes to open space conservation and outdoor recreation demand as part of this planning effort. These included:

- Stakeholder & focus group interviews
- Public participation workshops
- State and local recreation surveys

Each of these is summarized in this section of the report. It should be noted that a specific survey was not conducted for this project since the state has recently conducted a state-wide recreation study with findings relevant to this study. This survey will also have demand data specific to Luzerne and Lackawanna Counties available later this year for follow-on recreation planning purposes.

Stakeholder & Focus Group Interviews

During November and December, 2002 a number of separate meetings were held with stakeholders and user groups involved in the open space planning effort. Over 80 people were invited to these meetings representing the following interests:

- Environmental conservation
- Tourist promotion
- Outdoor recreation
- Open space & watershed protection
- Youth & seniors groups
- Sportsmen (hunting & fishing)
- Businesses
- Local colleges & universities
- Local governments

From these discussions, a number of varied issues were identified relevant to the planning study, including environmental resources recommended for protection, varying funding and

implementation methods and specific local concerns that should be addressed in the plan or as a follow-up to this study. Specific outdoor recreation needs identified during these interviews included the following (not listed in order of priority):

- River access for boating
- Primitive camping areas (separate from recreational vehicle camping)
- Legal riding areas for motorized vehicles
- Separate trails for motorized & non-motorized sports
- Equestrian-friendly trails
- Public greenways/trails
- Facilities for snowmobiling (winter) and ATV (summer) racing

Although not all-inclusive, these interviews helped identify some of the unmet recreation needs in the bi-county area, as well as other issues and concerns affecting the open space planning effort.

Public Participation Workshops

To further solicit information and comment on the open space planning process, a Visioning/Goals Setting Workshop was held in each County on February 4 and 5, 2003. The intent of these workshops was to introduce the overall planning effort and to solicit input on potential goals and objectives for developing the plan. The specific goals and objectives covering the three components of the plan (open space, greenways and outdoor recreation) are identified in Chapter 5. In addition, the following specific recreation needs (not in any priority) were identified during the workshops:

- Designated areas for ATV & motocross riding
- Additional boat & public access points to local water resources
- Hiking & biking trails
- Separate motorized and non-motorized trails
- Bike lanes on roadways
- Additional areas for backpacking & primitive camping
- Picnicking & camping areas for families
- Wheel-chair accessible trails
- Protected areas for nature interpretation, bird watching, etc.



Participants met in small groups to identify goals and objectives for the plan.

EDAW, Inc., 2003



Citizens reviewed and commented on natural resource data.

EDAW, Inc., 2003

DCNR SCORP Recreation Needs Survey

A state-wide recreation needs survey was conducted during 2002 and 2003 as part of the 5-year update to Pennsylvania's **State Comprehensive Outdoor Recreation Plan (SCORP)** being prepared by DCNR. This survey attempts to measure the recreation needs throughout the state for varying types of passive and active recreation, as well as the quantity and quality of state and local facilities available to meet this need. Over 21,000 households were included in the survey and the results are being prepared to be statistically valid at the county level. Although this complete survey is not completed yet, it provides helpful information regarding attitudes towards open space and identified recreation needs in the state and two-county level. It should be noted that this survey covers all types of recreation, including ball fields for active sports, local, regional and state parks and open space and conservation lands for hunting and fishing. For the purposes of this study, the survey results addressing the recreation areas encouraging outdoor recreation types as defined in Chapter 1 (hiking, mountain biking, hunting, fishing, etc.) are the most relevant.

Some of the summary results concerning state-wide attitudes to open space and greenways are as follows:

- 72% of the respondents identified outdoor recreation as important to them
- 74% agreed that parks & natural areas increase property values
- 66% agreed that greenways & trails increase property values
- For senior citizens, walking/hiking trails was the highest facility need identified
- 50% agreed that open space where they live is threatened by development
- 52% agree that that greenways should connect neighborhoods with other community elements and 55% agree that greenways should connect municipalities and parkland

The SCORP survey revealed the following recreation funding priorities (based on percentage of respondents ranking as the number one priority):

- Maintain existing facilities: 46%
- Acquire open space: 16%
- Acquire additional land: 13%
- Provide programs: 8%
- Supply information: 7%
- Assist local government with recreation programs: 5%
- Assist local government in multi-municipal departments: 5%

Two other funding questions and their results are as follows:

- My municipality should provide a permanent source of funding for park and recreation based on general tax revenues:
 - 22% disagree
 - 35% neutral
 - 43% agree

- The state should increase its permanent source of funding for park and recreation based on general tax revenues:
 - 17% disagree
 - 33% neutral
 - 50% agree

In terms of recreation demand, respondents were asked to evaluate recreational areas near their place of residence as adequate, should be increased, should be improved, or no opinion. The results from the SCORP survey for the recreation types relevant to this plan are provided in Figure 2.12.

Figure 2.12 State-wide Recreation Facility Demand

Resource	Needing Improvement	%*	Needing Increase	%*
Trails	Bicycle Paths	13	Bicycle Paths	50
	ATV Trails	12	Walking Paths	42
	Greenways	12	Mountain Bike Trails	40
			Hiking/Backpacking Trails	40
Viewing/Learning	Heritage Parks/Historic Sites	16	Environmental Education Centers	47
	Wildlife Areas	15	Wildlife Areas	44
	Wilderness Areas	14	Natural Areas	44
	Natural Areas	14	Wilderness Areas	43
Hunting/Fishing	Anadromous	13	Anadromous	30
	Cold Water	11	All others	25-28
	Warm Water	11	Mountain Bike Trails	40
	Small Game	10	Hiking/Backpacking Trails	40
	Big Game	10		
Boating/Swimming	Lakes & Stream Swimming Areas	17	Indoor Pools	49
	Outdoor Pools	14	Water Trails	41
			Canoe & Kayak River Access	39
			Outdoor Pools	38
			Lake & Stream Swimming Areas	38
Camping	Campgrounds without Hookups	12	Cabin Rentals	49
	Cabin Rentals	11		

* Percent of respondents identifying this recreation facility
Source: DCNR SCORP, 2003

The survey also identified the top three recreation needs in the state (including both active and passive recreation types). These are as follows:

- Activities needing improvement:
 - Playgrounds (17%)
 - Lake and stream swimming areas (17%)
 - Picnic areas (17%)
- Activities needing increase:
 - Sledding areas (58%)
 - Ice skating areas (54%)
 - Skateboarding & rollerblading areas (50%)

In summary, from a state-wide perspective, the top areas for improvement included a number of passive outdoor recreation facilities and areas which have relevance to this study (marked with an asterisk), including the following:

- Playgrounds
- Lake and stream swimming areas*
- Picnic areas*
- Heritage parks and historical sites*
- Wildlife areas*

In addition, the top areas that need to be increased include both passive and active recreation facilities, including:

- Sledding areas*
- Ice skating areas*
- Skateboarding and rollerblading areas
- Bicycle paths*
- Indoor pools

TPL Survey for Environmental Protection & Land Conservation Funding

Another survey was recently conducted with relevant information to this study. This was a state-wide survey commissioned by the Trust for Public Land (TPL) working with Pennsylvania conservation organizations to determine voter support for a dedicated environmental protection fund in Pennsylvania. The survey was conducted in April, 2002 by Susquehanna Polling & Research, Inc. This survey showed strong support for open space protection and additional funding for environmental programs and facilities in the state. Some of the specific results of the survey are as follows:

- Voter support for using public funds for environmental protection:
 - Support: 84%
 - Oppose: 11%

- Voter support for a dedicated environmental fund:
 - Support: 78%
 - Oppose: 14%

- Voter support for additional land conservation funding to preserve land to protect water quality:
 - Lakes, rivers & streams: 96%
 - Drinking water supplies: 93%

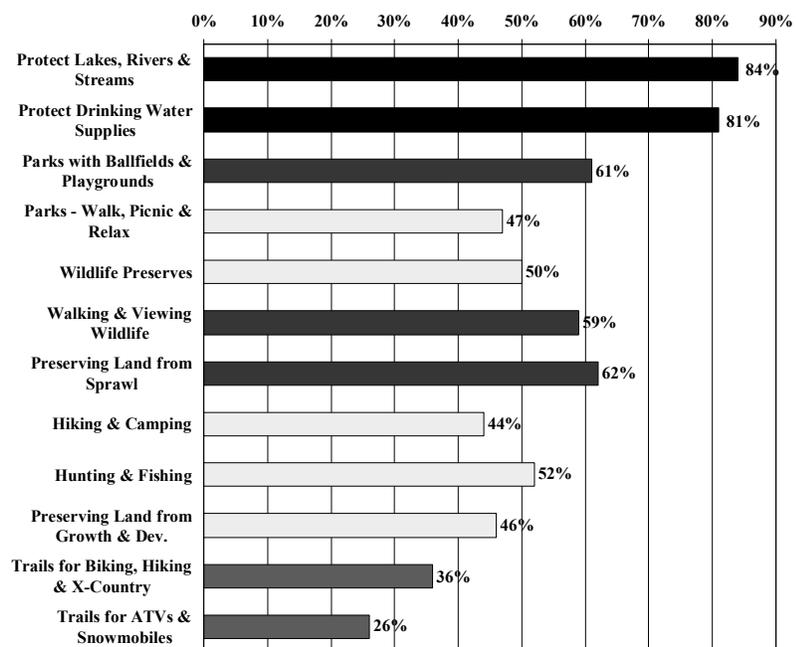
- Voter support for additional land conservation funding to preserve land for habitat:
 - Wildlife preserves: 82%
 - Hunting & fishing: 76%

- Voter support for additional land conservation funding to preserve land for recreation:
 - Walking & viewing: 81%
 - Hiking & camping: 79%

- Voter support for additional land conservation funding to preserve land from sprawl:
 - Growth & development: 72%
 - Suburban sprawl: 80%

- Voter support for additional land conservation funding to create trails:
 - Biking, hiking & cross-country skiing: 72%
 - ATVs & snowmobiles: 44%

Figure 2.13 TPL Survey Summary: % of Voters Who Strongly Support Land Conservation



Source: Pennsylvania Land Trust, 2003

A summary of these TPL survey results is provided in Figure 2.13. As evident in the graph, there is strong state-wide support for many of the components included in this plan, including protecting lakes, streams, rivers and water supplies, preserving land from sprawl, and providing open space for walking and viewing wildlife.

Local Environmental Surveys

Two surveys with relevance to this plan have been conducted at the local level. In 1997, a citizen survey was conducted by Pennsylvania Environmental Council (PEC) as part of the planning effort to produce the *Tunkhannock Creek Conservation Plan*. This survey was conducted to determine the interest in various recreation activities and environmental issues from citizens living in the Tunkhannock Creek Watershed, a major portion of which extends into the northwestern portion of Lackawanna County. From this survey, the values local citizens most appreciated about the Watershed included:

- Natural beauty (1st)
- Protection of watershed (2nd)
- Wild & scenic values (3rd)
- Preserving wetlands (4th)
- Health fishery (tied for 5th)
- Protection of threatened & endangered species (tied for 5th)
- Preservation of farmland (6th)

Threats to the Tunkhannock Creek Watershed identified by the local citizens included:

- Using the streambank as a garbage dump (1st)
- Water pollution (2nd)
- Inadequate septic systems (3rd)
- Loss of wetlands (4th)
- Land development (5th)

This survey is helpful in identifying some of the concerns of local Lackawanna County residents towards open space and greenways for one of the major water bodies existing in the County that easily could translate to other streams and rivers in the region, as well as open space conservation in general.

Another local survey was recently conducted in 2002 by the Susquehanna Greenway Partnership to determine interest in establishing the Susquehanna River Greenway along 500 miles of this river through the state. This survey also provides insight into attitudes towards land conservation in the bi-county study area for this project since the Susquehanna River traverses through the middle of Luzerne County and forms the southwest boundary of Lackawanna County.

Some of the overall major results include the following:

- The survey indicated a high level of support for the Susquehanna Greenway (61% in favor).
- Awareness about greenways in general and the Susquehanna Rive Greenway in particular was low among the people surveyed.
- A balanced approach for the Greenway was supported, including conservation and resource protection, economic development, providing recreation opportunities and protection from flooding & high water.
- Survey respondents identified improving the quality of life and benefiting the local economy were the top benefits of the Greenway.

The survey also tabulated results for six reaches or portions of the Susquehanna River through Pennsylvania to provide specific data for individual counties bordering the proposed Greenway. Reach 1 includes Bradford, Susquehanna, Lackawanna and Wyoming Counties; Reach 2 includes Luzerne, Columbia, Montour and portions of Northumberland County. Figure 2.14 provides a table summarizing the survey results for these two counties. This table points out some similarities and differences between the two reaches reflecting varying attitudes towards greenways and their potential outdoor recreation opportunities in the bi-county study area.

Figure 2.14 Susquehanna River Greenway Survey Summary for Reach 1 (includes Lackawanna County) and Reach 2 (includes Luzerne County)

Item	Findings: Reach 1	Findings: Reach 2
1. Number of Respondents	76	105
2. SUPPORT FOR SG CREATION		
a. Yes	74%	57%
b. No	3%	5%
c. Maybe/Not Sure	23%	31%
3. Community should be part of SG		
a. Yes	46%	63%
b. No	9%	5%
c. Maybe/Not Sure	46%	30%
4. Heard about greenways before survey		
a. Yes	23%	24%
b. No	67%	60%
c. Maybe/Not Sure	10%	12%
5. Heard about the SG before survey		
a. Yes	10%	23%
b. No	80%	69%
c. Maybe/Not Sure	10%	5%
6. Impression of Susquehanna River		
a. Highly favorable, an asset	24%	31%
b. Favorable, nice to have it	50%	46%
c. Don't really care about it	17%	13%
d. Unfavorable, not nice to have it	0%	4%
e. Highly unfavorable, it's a drawback	1%	1%
7. Importance: Rated on a scale of 1 (critically important) to 5 (not important) weighted by the frequency of response. The closer to a score of 1, the more important.		
a. Clean Water	1.4	1.5
b. Scenery	2.0	2.2
c. Public Access	2.2	2.3
d. Natural Resources	1.9	2.1
e. Historic Resources	2.3	2.6
f. Cultural Resources	2.4	2.7
g. Flooding Potential	2.5	2.5
8. Blocks to Use of Susquehanna River		
a. Not enough river access	31%	43%
b. Too far from residence	31%	12%
c. Don't know what's available	61%	35%
d. Need to learn how to do the activity	11%	8%
e. No facilities	20%	31%
f. Not interested	14%	16%
g. Dirty water	17%	51%
h. Trash	10%	19%
i. Don't like the river	3%	3%

Figure 2.14 continued

9. What should be the most important focus of Susquehanna Greenway			
a	Natural resource conservation	26%	16%
b	Recreational opportunities	10%	12%
c	Economic development	1%	0%
d	Protection from flooding	6%	12%
e	Protection of heritage resources	0%	2%
f	A balance of all the above	53%	51%
10. Importance of Greenway Benefits: Rated on a scale of 1 (important) to 3 (not important) weighted by the frequency of response. The closer to a score of 1, the more important.			
a.	Improve community image	1.4	1.3
b.	Attract new businesses	1.3	1.5
c.	Keep existing businesses	1.2	1.5
d.	Attract new residents	1.7	1.7
e.	Keep residents from moving away	1.5	1.6
f.	Attract tourists	1.3	1.6
g.	Be a vacation destination	1.5	1.5
h.	Help local economy	1.3	1.3
i.	Make community better place to live	1.2	1.2
j.	Improve property values	1.5	1.4
k.	Result in a greenway project in your community	1.5	1.4
l.	Result in connecting communities along river with greenways & trails	1.4	1.4
11. Use of the Susquehanna River and lands along the River			
a.	Scenic drives	66%	65%
b.	Enjoying peace and quiet	49%	66%
c.	Enjoying nature	59%	67%
d.	Enjoying views of river	61%	75%
e.	Bird watching	24%	27%
f.	Environmental education	23%	16%
g.	Photography	37%	32%
h.	Spending time with family & friends	54%	52%
i.	Picnicking	31%	30%
j.	Walking/running	42%	46%
k.	Hiking	21%	26%
l.	Biking	19%	21%
m.	Using riverfront parks	26%	61%
n.	Horseback riding	1%	0.3%
o.	Hunting/Trapping	27%	10%
p.	Fishing	34%	31%
q.	Boating – motorized	19%	21%
r.	Boating – non-motorized	18%	14%
s.	Swimming	28%	14%
t.	Community events & festivals	25%	43%

Source: Susquehanna Greenway Public Opinion Survey, 2003

CHAPTER 3

ENVIRONMENTAL CHARACTERISTICS



3.0 Environmental Characteristics

The Luzerne-Lackawanna Bi-county study area is blessed with numerous rich natural resources, abundant wildlife habitat, and numerous lakes, rives and streams providing ample recreation opportunities for its residents and visitors. This area also forms the western edge of the Pocono Mountains in northeast Pennsylvania, which are well know for their scenic beauty and natural amenities and serve as a popular resort/get-a-way area for the more urbanized areas to the east. Many of these same resources are now increasingly threatened by development, including second-home development in the upland areas and suburban development in the valleys and farmland as described in Chapter 2. This section of the report describes some of the natural characteristics present in the bi-county study area, which form the basis of this resource-based planning effort summarized in this document.

3.1 Terrestrial Resources

Luzerne and Lackawanna Counties are located primarily within two physiographic provinces: the Appalachian Plateau Province and the Ridge and Valley Province. The Anthracite Valley Section of the Ridge and Valley Province extends through the middle of both counties and includes Lackawanna Valley and Wyoming Valley and the mountains on either side. This Anthracite Valley Section overlies the older geology in these valley areas and bordering mountains which contained the hard anthracite coal the region is famous for and was the mainstay of its economy throughout the 19th and early 20th century.



Earth Conservancy, 2003.

Mine-scarred land in Luzerne County.

The surface features of this region were modified extensively by the glaciers that covered this region during the Ice Age and ended approximately 12,000 years ago. These glaciers left deposits that vary in thickness and also created depressions that are now represent the numerous lakes, wetlands or bogs found throughout the region. Nuangola Lake, Lily Lake, Bear Lake, Harvey's Lake, Archbald Pothole and Moosic Lake are examples of these glaciated features. Many of these glaciated features (that are not already developed) represent unique

ecological communities or wildlife habitats that deserve protection or conservation from future man-made disturbances.

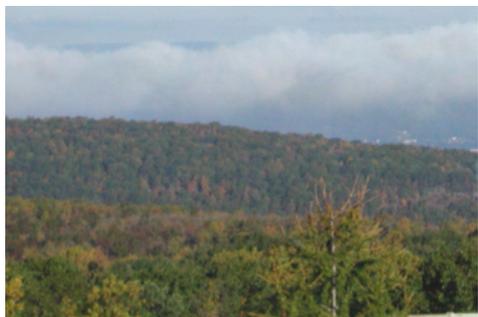


Pennsylvania Environmental Council, 2003

Susquehanna River near Wilkes-Barre.

As shown on Figure 3.1, the landscape of both counties is dominated by major river valleys running southwest to northeast through the county and is bordered by a series of mountain ridges and upland areas on either side. This includes the Susquehanna

River in Luzerne County and the Lackawanna River in Lackawanna County. The mountains that border these river valleys are significant with elevations over 2,000 feet above sea level in certain areas. They form distinctive ridgelines that are visible for miles from the developed valley areas and also provide attractive areas for second-home development with panorama



EDAW, Inc., 2003

Wilkes-Barre Mountain ridge in Luzerne County.

views overlooking the expansive valleys below. In Luzerne County, the most notable mountains and ridgetops include Penobscot Mountain and Wilkes-Barre Mountain east of the Susquehanna River, Shickshinny Mountain and Larksville Mountain west of the Susquehanna, Nescopeck Mountain in the southern portion of the county, and North Mountain near Ricketts Glen State Park in the northern portion of the county. In Lackawanna County, the Moosic Mountains are the dominant

feature east of the Lackawanna River, and Bald Mountain is the major mountain range west of the river. As noted in the interviews and public meetings conducted for this project, protecting ridgetops and steep slopes from development was repeatedly expressed as a community interest because of the scenic and ecological value of these resources.

Soils in both counties have been affected by glaciations and in most places are too stoney or wet for cultivation. In the mountainous areas, slopes are steep and the soils are thin. The valley areas have the best soils and have some farming as a traditional activity, but this is increasingly being replaced by commercial, industrial and residential development. Nescopeck Valley in Luzerne County remains the largest contiguous farming area in both counties and supports a range of dairy and truck farms and orchards.

The anthracite coal mining industry had a major effect on the region's landscape that is still evident. The Wyoming and Lackawanna Valleys and surrounding areas have numerous pits, remnant mine openings, spoil piles, culm banks and acid mine water discharges remaining from past mining activities. On the positive side, there are a number of reclaimed lands, as well as areas designated for reclamation particularly in Luzerne County by PADEP Bureau of Abandoned Mine and Reclamation and the Department of Interior's Office of Surface Mining (OSM). Unreclaimed and reclaimed former mining areas in the upland portions of the study



Earth Conservancy, 2003

Culm banks like this one are visible remnants of the coal mining era.

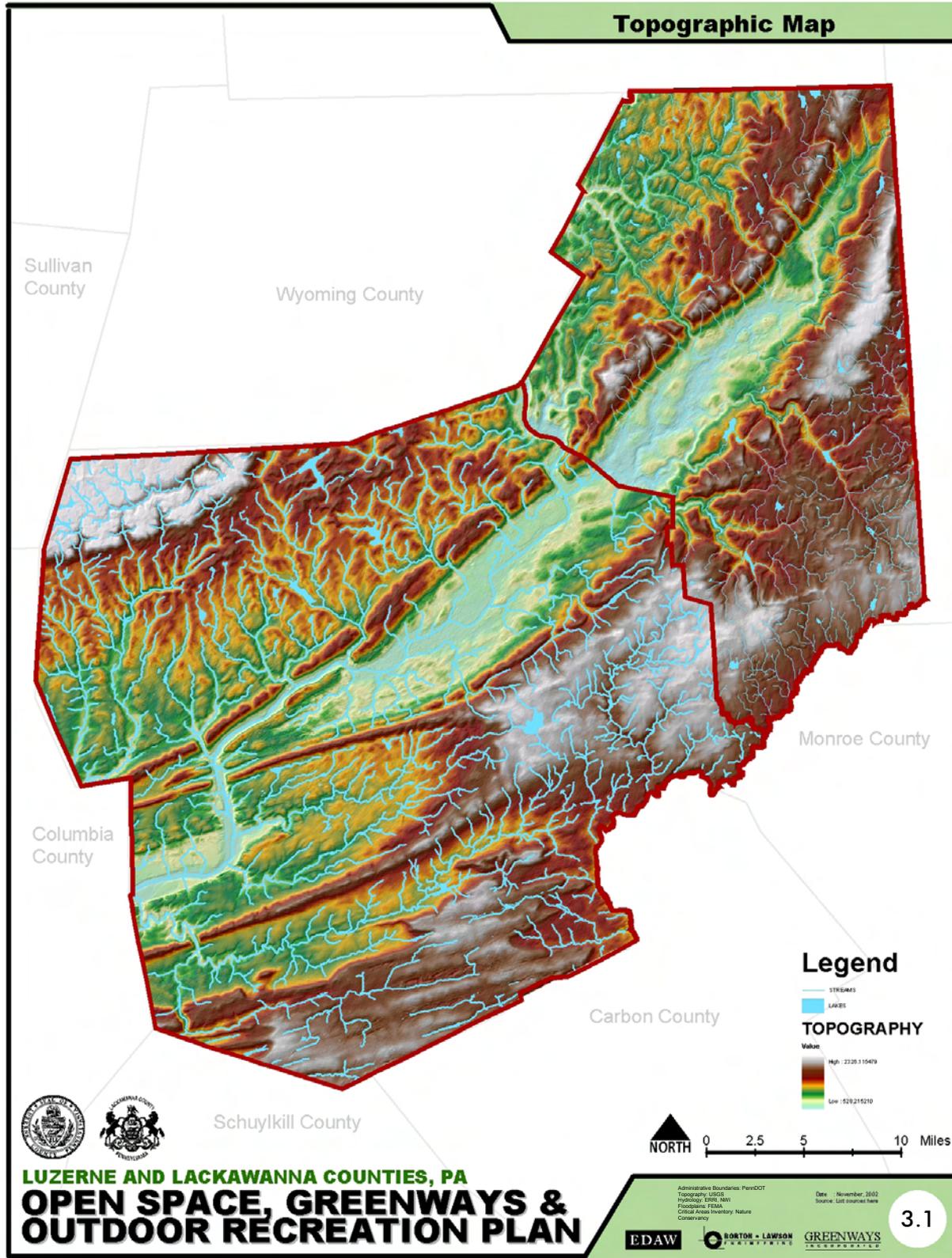


Earth Conservancy, 2003

Reclaimed mine lands, Luzerne County.

area have open space potential because of their natural hazards, steep topography and lack of water and sewer availability. However, these same former mining areas located on the flatter land and lower elevations in the valleys are being investigated for industrial and commercial development similar to other brownfield sites along the East Coast. In Luzerne County, a number of these parcels are under the jurisdiction of the Earth Conservancy, which prepared a long-range land use plan in the mid 1990s to develop a number of these areas, as well as set-aside other areas environmentally or economically not suited for development.

Figure 3.1 Bi-County Topography



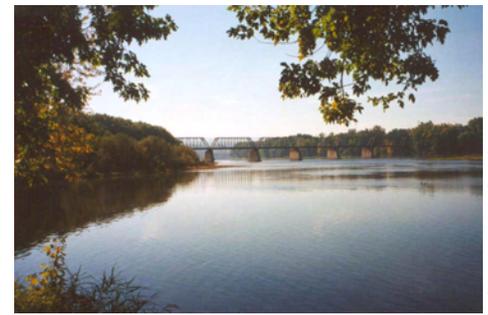
3.2 Hydrologic Resources

The Susquehanna River is the major water body in the bi-county area and runs southwest to northeast through Luzerne County, forming the southwestern boundary of Lackawanna County. The Lackawanna River merges into the Susquehanna River near Pittston (and the escarpment know as Campbell's Ledge) and extends through Lackawanna County up through Carbondale and into Wayne County to the northeast. The watersheds generally north of Nescopeck Mountain, Penobscot Mountain, Wilkes-Barre Mountain and Moosic Mountain through both counties drain into the Susquehanna and Lackawanna Rivers. Southeast of these ranges, the watersheds drain into the Lehigh River which forms the southeastern boundary of both counties and eventually drains into the Delaware River, near Allentown. Hydrological resources are shown in Figure 3.2.



A view of the Susquehanna River from Campbell's Ledge.

Lackawanna River Corridor Association, 2003



The Lackawanna and Susquehanna River confluence, Pittston.

Lackawanna River Corridor Association, 2003

Both counties have major streams running from the upland areas into these three rivers, which serve as important natural greenways by providing habitat corridors along the streams and potentially water trails or hiking paths connecting to the urbanized areas in the valleys. In Luzerne County, major streams include:

- Pikes Creek
- Huntington Creek
- Pine Creek
- Bear Creek
- Wapwallopen Creek
- Little Wapwallopen Creek
- Nescopeck Creek

In Lackawanna County, the major stream corridors include:

- Tunkhannock Creek through Benton, Abington, North Abington, Dalton, Glenburn and LaPlume
- Leggetts Creek near Clarks Summit
- Rush Brook in Jermyn
- Fall Brook in Carbondale
- Roaring Brook, the largest tributary to the Lackawanna River, west of Scranton extending to Covington Township

- Stafford Meadow Brook in Scranton
- Spring Brook in Spring Brook

The bi-county study area falls into two overall watersheds: the Susquehanna River Basin, which included lands surrounding the Susquehanna and Lackawanna Rivers (eventually draining into the Chesapeake Bay), and the Delaware River Basin, which includes lands in the southeast portions of both counties near the Lehigh River (eventually draining into the Delaware River and Delaware Bay). Each of these river basins is divided into watersheds monitored by the Pennsylvania Department of Environmental Protection (DEP). In this study area, this includes the Upper and Middle Susquehanna River Watersheds and the Lehigh River Watershed. These are further divided into sub-watersheds for more detailed monitoring at the county and local level. Of particular relevance to this study are the sub-watersheds in rural, non-urbanized areas surrounding high water quality streams important to freshwater aquatic species and/or drinking water reservoirs used for municipal water supplies.

As mentioned above, numerous wetlands are found in this portion of Pennsylvania as a result of the glaciers that passed through the area. Many of these wetlands are shallow basins where peat has accumulated and support either broadleaf-conifer swamps, including spruce, hemlock, red maple and birch tree species, or open shrub swamps that support lower growing wetland shrubs, such as rhododendron, mountain holly, blueberry, sphagnum mosses and sedges. Both forest and shrub dominated wetland communities are particularly important for rare plant and animal species and deserve protection from development.

A unique wetland feature in this part of the state is glacier kettlehole bogs which have concentric rings of plant species around an open water pond. Examples of these include Potter Creek Bog in Lackawanna County and Dorrance Bog in Luzerne County. Many of these wetland features and other wetlands in the bi-county study area have been disturbed by man or beavers, as well as natural fires. In addition, many of the lakes in the area have been enlarged by damming and are increasingly popular for residential development providing boating and fishing such as at Harvey's Lake in northern Luzerne County.



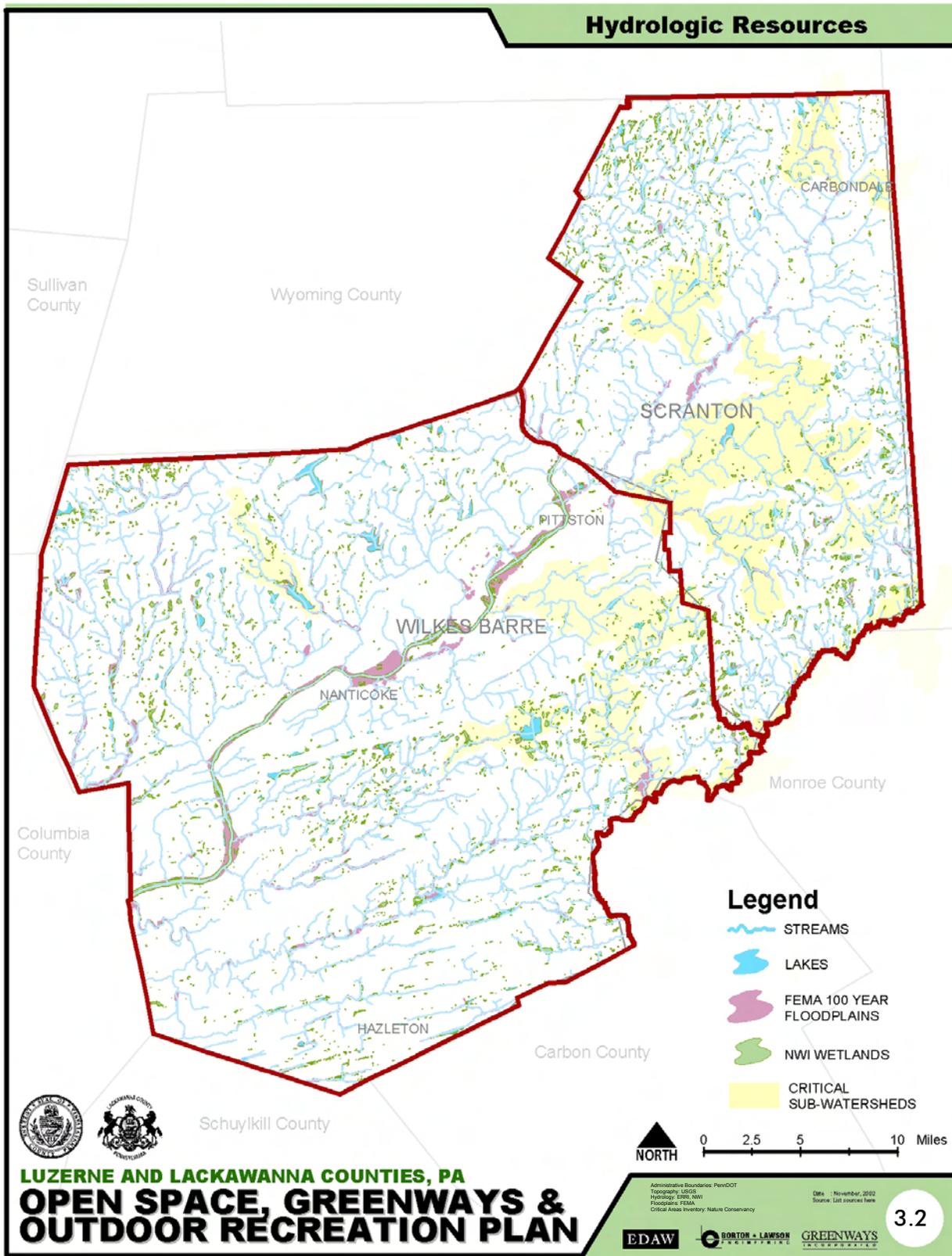
Harvey's Lake, Luzerne County.

EDAW, Inc., 2003.

Other unique natural features are the ephemeral/fluctuating or vernal pools that fill annually with precipitation, surface water and/or rising groundwater but dry out through evaporation by late spring or summer. When these pools contain water, they become important breeding grounds for a number of amphibian species. The Edgewood and Briggsville Vernal Pools in Luzerne County are two prime examples. These vernal pools also exist on some of the ridgetops where they occur in the grooves between parallel rock outcrops.

The wetland features are extensive throughout the study area and important resources deserving protection because of their numerous benefits in terms of improving water quality, retaining stormwater, providing unique animal and plant habitat, and their scenic values. It should be noted that for the purposes of this study, the National Wetland Inventory (NWI) from the U.S. Geologic Survey was used to map these wetlands, which is a readily available and accepted database for identifying these natural resources. However, more localized wetlands may exist that are not included in this database and are equally deserving of protection. Additional planning efforts at the local level are encouraged to record these resources and include them in subsequent open space planning initiatives.

Figure 3.2 Bi-County Hydrologic Features



3.3 Ecological Resources

The bi-county study area is covered with two major forest types reflecting the physiographic conditions and natural and man-made disturbance over time: the Appalachian Oak Forest generally in the ridge and valley area in the middle of both counties and the Northern Hardwood Forest at the higher elevations in the northwest and southwest portions of the bi-county area. The Appalachian Forest is similar to the traditional Oak-Chestnut Forest found throughout the Mid-Atlantic States. Most of this forest type has historically been cut down, however, second growth now covers much of the upland areas on the sides of the mountain ridges overlooking the valleys.

Less frequent and more unique are the Pitch Pine-Scrub Oak vegetation communities found on isolated dry, exposed ridgetops. Examples of this are Arbutus Peak and Stockton Mountain Barrens in Luzerne County and the Moosic Mountain Barrens in Lackawanna County. These ecological communities support rare plant and animal habitat unique to Pennsylvania and deserve immediate protection from future man-made disturbances.

The bi-county area also has abundant wildlife particularly in the mountainous, less developed areas outside of the Wyoming and Lackawanna Valleys. The area is well known for hunting and fishing and has extensive gamelands as described in Chapter 4. The Lackawanna River south of Scranton and the Susquehanna River provide warm water fishery habitat, and the numerous tributaries and streams to the major rivers in the study area provide extensive cold water fishery habitat for trout. A number of the larger water bodies have been significantly affected by acid mine drainage, which continues to be a major water quality issue in region. In fact, because of the extensive pollution from mining, those streams and lakes that are pristine with good water quality are particularly valuable for preserving and enhancing aquatic habitats, as well as providing potable water for local municipalities.

Natural Areas Inventories, (NAI) conducted by the Nature Conservancy for both counties (1997 for Lackawanna County and 2001 for Luzerne County), provide an excellent compilation of documented unique natural features and areas in each County, including mapped locations of the best natural communities (habitats) and known locations of endangered, threatened and rare plant and animal species. The inventories include areas designated as having global, federal, and state-wide importance, as well as areas of local significance, which are ranked in terms of their priority for protection. Figure 3.3 shows critical areas identified in the NAI reports for each County.

In Luzerne County, the highest ranked natural areas included:

- Arbutus Peak (Bear Creek, Dennison, Fairview, Hanover & Wright Townships and Laurel Run Borough)
- Edgewood Vernal Pools (Butler Township)

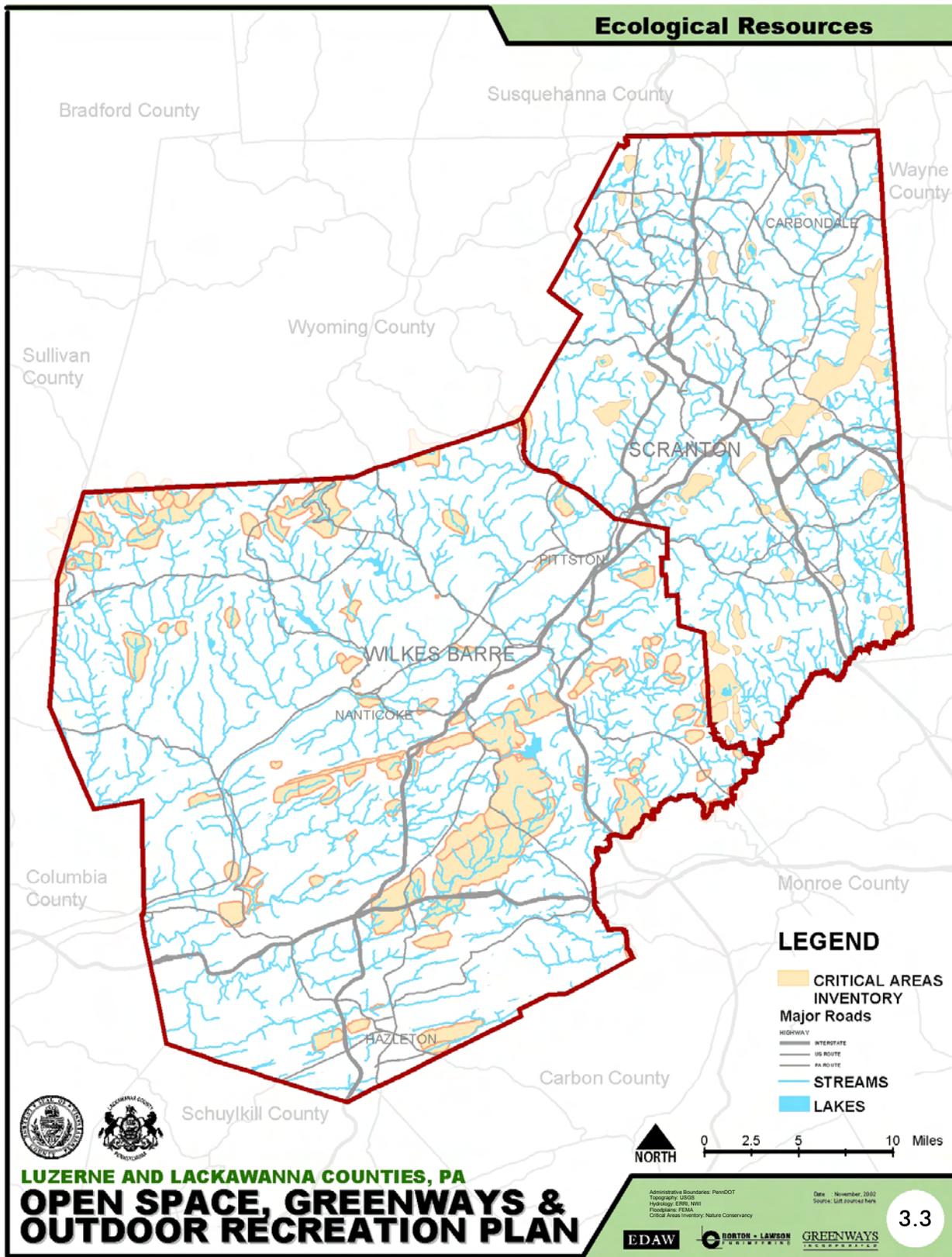
- Indefatigable Swamp (Ross Township in Luzerne County and Forkston Township in Wyoming County)
- Nescopeck Creek Valley (Butler & Dennison Townships)

In Lackawanna County, the highest ranked natural areas included:

- Moosic Mountain Barrens (Jefferson, Carbondale & Roaring Brook Townships; Jessup, Olyphant Throop & Dunmore Boroughs)
- Bear Lake & Grassy Pond (Thornhurst Township)
- Potter Creek Bog (Madison Township)
- Bear Swamp (Roaring Brook Township)
- Bald Mountain (Newton & Ransom Townships)
- English Swamp (Clifton & Covington Townships)

Each of these areas, as well as many of the other unique natural areas identified in these inventories, should be considered for protection or conservation because of their ecological value on a global, federal, state-wide or local level. Because of the community interest in protecting unique ecological areas in the region, conservation strategies to conserve these natural areas are an important part of the open space recommended contained in Chapters 6 and 7.

Figure 3.3 Bi-County Ecological Features



3.4 Geographic Information System Mapping

A significant portion of this study was developing a Geographic Information System (GIS) database of the natural and man-made features in the bi-county study area having relevance to open space/greenways planning. Numerous sources which exist at the state and local levels were used for this mapping effort (led by Borton-Lawson Engineering on the project team). Figure 3.4 documents the resources mapped as part of this planning effort and the source data used to develop these maps. Once compiled, this GIS database was used to develop the planning recommendations described in Chapter 6. This database is also being provided in digital form to the Planning Departments in both counties for subsequent open space planning purposes. In addition, through follow-on planning studies, additional coverages can be added over time to augment the GIS database and expand its usefulness to local municipalities. Through this, the GIS database is envisioned as a “live” planning tool with significant utility for the foreseeable future at the state, county and local levels for on-going and related planning efforts.

Figure 3.4 Luzerne-Lackawanna County GIS Database Coverages

Existing Open Space Resources	Federal/State/County Parks
	State Forests
	State Gamelands
	Conservation Easements
	Farming Easements
	Fishing/Boating Access Areas
Ecological/Natural Resources	Wildlife Habitat
	NAI Sites/Areas
	T & E Species Habitats
	Forest Cover
Terrestrial Resources	Topography/Slopes
	Ridgetops
	Soils
	Land Cover
Hydrologic Resources	Lakes/Rivers/Streams
	Drinking Water Reservoirs
	Wetlands
	Floodplains
	Watersheds
Mining Features	Existing Mineland
	Reclamation Sites
	Culm Banks/Abandoned Mineland
Transportation Features	Roads/Highways
	Existing/Abandoned Railroads
	Existing/Proposed Trails
	Utility Rights-of Ways
	Major Pipelines
	Scenic Roads
	Airports/Bus Stations/Park & Ride Areas
Man-made Development	Urban Areas
	Major Historic Sites/Areas
	Jurisdiction Boundaries

CHAPTER 4

PROTECTED RESOURCES



4.0 Protected Resources

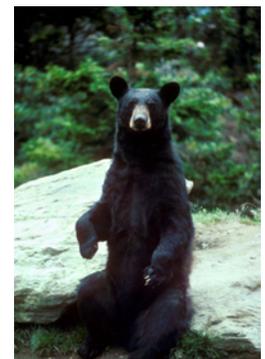
Within the bi-county area there are a number of public and privately owned lands that are managed as protected open space resources. Many of these lands also provide opportunities for outdoor recreation. Combined, these protected resources provide an existing green framework and an excellent starting point for developing a regional network of open space, greenways and outdoor recreation opportunities.

A number of data sources were utilized to develop a base map of existing protected resources including the Pennsylvania Department of Environmental Protection (PADEP) Compendium, United States Geological Society, DCNR, County Conservation Districts, Fish and Boat Commission, Pennsylvania Conservation Stewardship, Pennsylvania Department of Transportation (PennDOT), LANDSAT, Wilkes University and local municipalities. This section provides an overview of public and privately held lands in the bi-county area and public lands that provide outdoor recreation opportunities. The existing protected resources in each county are included in Figures 4.3 and 4.4 pages 17 and 19 of this Chapter.

4.1 State Game Lands

The Pennsylvania State Game Commission, created to protect and conserve wildlife, has been managing wildlife resources in the State for over 100 years. The State Game Commission is responsible for managing and protecting the State's wild birds and mammals and is very involved in land management through the State Game Lands system. Since the early 1920s the State Game Commission has been purchasing and managing lands throughout the State and currently maintains about 1.4 million acres. Funding for land acquisition and management is primarily provided through hunting and license fees and sales, a fixed income source. License fees cannot be increased without approval of the General Assembly, and fee increases have historically come only about every 10 years. Timber, mineral and oil/gas revenues and a federal tax on sporting arms and ammunition provide additional revenues (<http://www.pgc.state.pa.us/pgc/index.asp>). The State Game Commission under state law is only permitted to spend \$400 per acre for property. As a result, the State Game Commission leverages its funds with conservation groups, land trusts and conservancies to purchase private property.

Hunters, anglers, hikers, birdwatchers and other wildlife enthusiasts are welcome on State Game Lands. The State Game Commission also operates three public access programs with private property owners to allow public hunting and trapping on private lands. Within the bi-county area the State Game Commission manages 15



USFWS/Mike Bender, 2002

The bi-county area is a destination for hunters.

individual State Game Lands totaling over 61,000 acres of land. Luzerne County maintains 10 State Game Lands totaling about 49,000 acres and Lackawanna County maintains 5 State Game Lands encompassing about 15,500 acres. State Game Lands within the bi-county area are listed in Figure 4.1.

Figure 4.1 Bi-County State Game Lands

Lackawanna County		Luzerne County	
	Acres		Acres
Game Land 91	2,220	Game Land 57	8,263
Game Land 135	3,430	Game Land 91	14,459
Game Land 300	5,709	Game Land 119	7,967
Game Land 307	1,053	Game Land 149	1,989
Game Land 312	190	Game Land 187	8,186
		Game Land 206	1,524
		Game Land 207	2,073
		Game Land 224	342
		Game Land 260	3,116
		Game Land 292	624

Source: PA State Game Commission, 2003.

4.2 State Forests

The Pennsylvania State Forest system, established in 1898, was created to provide a continuous supply of wood products, protect watersheds and provide outdoor recreation opportunities (<http://www.dcnr.state.pa.us>). Today, the Pennsylvania Bureau of Forestry manages over 2.1 million acres of state forest lands in 48 counties across the Commonwealth, accounting for 12% of the State’s forested land. Other forested lands throughout the state are owned by “Private Forest Landowners.” Although these lands are not included within the Bureau of Forestry public lands inventory, they do account for an additional 12 million acres of forested lands.

The Bureau of Forestry is currently in the process of updating the State Forest Resource Plan. This document sets forth policies, goals and objectives that will guide the management of lands within the State Forest system. Management of timber harvesting on state forests is a critical component of the resource plan. The Bureau of Forestry also works with private land owners to promote conservation and best management practices of forested lands and to help ensure that flora and fauna habitats remain intact. State Forests also provide numerous opportunities for outdoor recreation. Although the types of permitted activities vary from one state forest to another, typical activities include hunting, hiking and camping, snowmobiling, and nature watching. At this time, all terrain vehicles are not permitted in the Lackawanna State Forest, however, the State Forest is looking into the possibility of permitting ATV use on future land acquisitions.

The Lackawanna State Forest is the only State Forest within the bi-county area. It occupies 8,813 acres of land in two separate tracts. The larger portion, known as the Thornhurst

tract, is located in the southwestern portion of Lackawanna County and encompasses 7,409 acres. Hiking and backpacking along the 23 mile Pinchot Trail system located within the forest provides a welcomed challenge to outdoor enthusiasts. The Nanticoke tract in Luzerne County occupies 1,404 forested acres. A 97-acre designated state forest natural area known as the Spruce Swamp State Forest Natural Area is located within the Lackawanna State Forest.

4.3 State Parks

Pennsylvania's state park system was initiated in 1893 and has been growing ever since. Demand for outdoor recreation facilities and places to enjoy the great outdoors grew steadily through the early 1900s. The greatest period of state park growth occurred between 1955 and 1970. In 1955, the park system consisted of 45 state parks and five historical parks (<http://www.dcnr.state.pa.us>). According to the DCNR, today the Pennsylvania Bureau of State Parks system is one of the largest state parks systems with 116 outdoor recreational

"The primary purpose of Pennsylvania State Parks is to provide opportunities for enjoying healthful outdoor recreation and serve as outdoor classrooms for environmental education" (<http://www.dcnr.state.pa.us>).

areas and over 227,000 acres of property. Meeting the demands and changing interests of the public remains a charge of the Bureau of State Parks.

Lackawanna and Luzerne Counties fall under the Pocono Endless Mountain region of the State Park System. A brief description of the six state parks within the study area is provided below.

Lackawanna State Park.

Lackawanna State Park covers 1,411 acres of forested land in the valley of northwestern Lackawanna County. The main feature of the park is the 198 acre Lackawanna Lake. Since its dedication in 1972 Lackawanna State Park has offered hikers, campers, ice skaters, boaters, anglers, sledders and nature enthusiasts a place to recreate. The park's environmental education specialist provides year-round environmental education programs to the community and park visitors. Over 500 acres are open to hunting, trapping and training of dogs and the Abington Trail permits horseback riding.



Lackawanna Lake provides outdoor recreation opportunities.

EDAW, Inc., 2003

Archbald Pothole State Park

Once a county park known as Archbald Pothole in the 1940s, Lackawanna County deeded the park to the State in 1961 and by 1964 Archbald Pothole State Park was dedicated to the State Bureau of Parks. The park's most noted feature is the world's largest glacial pothole – 38 feet deep and up to 42 feet in diameter. The pothole formed between 11,000 and



EDAW, Inc., 2003

Archbald State Park is home to the largest glacial pothole.



EDAW, Inc., 2003

Frances Slocum State Park.

30,000 years ago during the Wisconsin Glacial Period and was discovered in 1884. Available outdoor recreation opportunities on the 110 acre park include trail hiking, wildlife observation and hunting.

Frances Slocum State Park

Located in northeastern Luzerne County, Frances Slocum Park encompasses 1,035 acres of land. With almost 10 miles of hiking trails and a 165 acre horseshoe shaped lake, the park provides numerous outdoor recreation opportunities. In addition to hiking, boating and fishing, facilities and resources in the park provide swimming, camping, environmental education, and picnicking opportunities.

Nescopeck State Park

Located in southeastern Luzerne County, Nescopeck State Park occupies 3,550 acres of land in Butler and Dennison Townships, including almost 20 miles of hiking trails and a nine acre lake. The park is situated between Mount Yeager on the south and Nescopeck Mountain on the north. According to DCNR, the park is managed cooperatively with the Pennsylvania Game Commission and is composed of both state game lands and land acquired specifically for the park.

Considered an undeveloped park, plans for Nescopeck's redevelopment are underway. Slated park improvements include the construction of an environmental education center that takes advantage of the rich resources in the valley along the six miles of Nescopeck Creek. An expanded network of hiking and cross-country ski trails also is included in the plans for development

Ricketts Glen State Park

Touted as one of the most scenic places in the state, Ricketts Glen State Park covers 13,050 acres in Luzerne, Sullivan and Columbia counties. The park includes Lake Jean, a 245 acre water body and Glens Natural Area, a Registered National Natural Landmark. The Glens Natural Area is the main scenic attraction of the park and includes several free-flowing waterfalls, a variety of wildlife and old growth forests.

A number of recreational opportunities exist at Ricketts Glen including 26 miles of trails for hiking, camping and picnicking facilities, swimming, nine miles of horseback riding trails, boating and fishing, hunting, environmental education and wildlife observation. The Park is part of the proposed Pennsylvania Audubon Susquehanna River Birding and Wildlife Trail due to its diverse wildlife habitats.

Lehigh Gorge State Park

The Lehigh Gorge State Park runs parallel to the Lehigh River and extends through 4,548 acres of natural, cultural and recreational resource lands. Lehigh Gorge State Park travels through Luzerne and Carbon Counties beginning at the U.S. Army Corp of Engineers Francis E. Walter Dam at the north end to the town of Jim Thorpe at the south. The focus of the park is the Lehigh River, designated a Pennsylvania State Scenic River and the Lehigh Gorge, a deep gorge with steep walls, rock outcrops and waterfalls. The Lehigh River is currently under consideration for becoming a designated Pennsylvania Water Trail from the Francis Walter Dam to the River's mouth. The Park is located in the Audubon's Lehigh Reach of the Delaware and Lehigh National Heritage Corridor. More than 25 miles of old tow path and abandoned rail lines along the Lehigh River make up the Lehigh Gorge Trail and are available for hiking, biking and outdoor activities. Additional activities available in the park include white water rafting on Class II and Class III rapids, hunting, fishing, environmental interpretation, cross country skiing and snowmobiling.

4.4 Pennsylvania Heritage Areas

A heritage area is a distinct geographic region with identifiable natural, cultural, historical and recreational resources that combine to tell a unique story about an area. Heritage areas can be designated locally, or as part of a State or the Federal system of heritage areas. National Heritage Areas are designated by the United States Congress and receive funding from the National Park Service. Today there are 23 National Heritage Areas that are defined as being "representative of the national experience through physical features that remain and the traditions that have evolved in the areas" (<http://www.cr.nps.gov>).

The Pennsylvania Heritage Parks Program is designed to promote and enhance the cultural, historical, natural and scenic resources of the State's industrial history. The program was established in 1989 and provides a process for the designation of state heritage areas and promotes heritage tourism and economic development. Pennsylvania has eleven Heritage Parks throughout the state and two are found within the bi-county study area: Delaware and Lehigh Canal National Heritage Park Corridor and the Lackawanna National Heritage Valley.

Lackawanna National Heritage Valley

Designated in 1991 as the State's first Heritage Park, the Lackawanna National Heritage Valley received recognition as a national heritage valley in September 2000. Encompassing

over 2,900 square miles in portions of Lackawanna, Luzerne and Susquehanna Counties, the heritage valley celebrates the rich history behind the lives of miners and workers of the anthracite mining industry era and the region's role in America's industrial revolution. The Lackawanna Heritage Valley Authority (LHVA) is working in partnership with federal, state and local entities to implement the goals and strategies of the Lackawanna Heritage Valley Plan.

Projects within the Lackawanna Heritage Valley have focused on cultural, historical and recreational assets and include the creation of a 40 mile Lackawanna River Heritage Trail. LHVA is also working with LRCA to improve water quality within the River and entire watershed through the development of watershed studies and projects. Opportunities to experience the area's history are found throughout the Lackawanna Heritage Valley. The Historic Scranton Iron Furnaces, Pennsylvania Anthracite Heritage Museum, Steamtown National Historic Site, the Electric City Trolley Station and Museum, Everhart Museum, underground mine tours in McDade Park and several historic properties offer a sampling of unique experiences.

Delaware and Lehigh Canal State Heritage Park Corridor

The Delaware and Lehigh Canal Heritage Park Corridor stretches over 180 miles through Bucks, Carbon, Lehigh, Luzerne and Northampton Counties, from Bristol to Wilkes-Barre. Designated as a National Heritage Corridor in 1988, the Corridor traverses the Delaware, Lehigh and Wyoming Valleys and follows the Lehigh and Susquehanna Railroad, the Lehigh Navigation System and the Delaware Canal. The Corridor celebrates the technological and commercial innovations related to coal extraction, railroads, canals, agriculture, commerce and industry that occurred during Industrial Revolution era. The Delaware and Lehigh Canals were the longest- and last-operated towpath canals in America with commercial navigation lasting until 1942 (<http://www.cr.nps.gov/nr/travel/delaware/intro.htm>).

The Corridor includes several National Historic and Natural Landmarks, recreation trails (including the Lehigh Gorge Trail), and hundreds of sites listed in the National Register of Historic Places, state parks, state historical sites, state scenic rivers, and state game lands (<http://www.cr.nps.gov>). The Lehigh Canal National Heritage Corridor Commission provides management for the corridor.

4.5 County Parks

Both Luzerne and Lackawanna Counties maintain County Recreation Departments that oversee a variety of public parks and recreation resources.

Moon Lake Park

Located in Luzerne County and operated by the Luzerne County Parks Department, Moon Lake Park offers 648 acres of fields and forest, including a 68-acre lake. The park provides

camping facilities, picnic areas, an Olympic sized swimming pool, basketball and tennis courts, a disc golf course, a boat marina, fishing, and a nature education center. Over 20 miles of hiking trails extend throughout the park, offering cross country skiing in the winter.

McDade Park

Dedicated in 1978, McDade Park is Lackawanna County's largest county park with over 126 acres of recreational amenities. Originally an old surface mine, McDade Park was reclaimed and converted into a recreational park in the mid 1970s with assistance from the National Park Service and the Bureau of Mine Reclamation. Today, the park offers year round active and passive recreation opportunities to a local and regional audience. The park is home to the Pennsylvania Anthracite Museum and offers mining tours and outdoor theater productions. Recreation opportunities include hiking, walking and nature trails, picnic facilities, an arboretum, playgrounds, a fishing pond, an Olympic sized swimming pool, basketball and tennis courts, baseball fields, multipurpose fields, and a mining tour.



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McDade Park is a regional attraction with cultural and recreational activities.

Montage Ski and Recreation Area

Montage Mountain, located off Interstate 81, encompasses 140 acres and is owned and operated by the Lackawanna County Recreation Department. The mountain boasts a 2,000 foot summit and over 21 ski trails ranging from beginner to expert. In addition to downhill skiing, Montage Mountain offers snowtubing. Patrons also enjoy events at the nearby Lackawanna Stadium, Ford Pavilion and the waterslides.

Covington Park

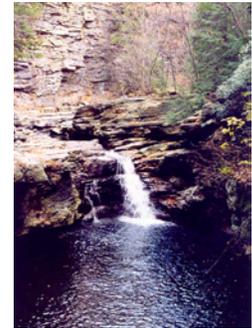
Covington Park is located in southeastern Lackawanna County, east of Interstate 380. Largely undeveloped, the park offers open multipurpose fields, baseball fields and fishing.

Seven Tubs Natural Area

Located southeast of Wilkes-Barre in Luzerne County, the Seven Tubs Natural Area includes a geologic formation of seven "potholes" or tubs carved out of the sandstone rock formation by the force of Wheelbarrow Run. Protection and preservation of the 532 acres in which the tubs are located has been a joint effort between Pennsylvania Power and Light, the Nature Conservancy and Luzerne County. The Tubs Nature Area opened to the public in 1992 (<http://nature.org>). Improvements to the trail system in the Tubs are being developed.

Merli-Sarnoski Park

Situated in the northern part of Lackawanna County near Carbondale, Merli-Sarnoski Park covers about 850 acres of land. The park was acquired in the late 1970s and provides a number of outdoor recreational activities including boating, fishing, hiking, baseball, soccer, picnicking, and swimming.



Lackawanna River Corridor Association, 2003

Nay Aug Park and Gorge.

4.6 Other

Nay Aug Park and Gorge

Nay Aug Park, located in and owned by the City of Scranton, encompasses 92 acres. A major attraction in the park is Nay Aug Gorge and Waterfall – designated a National Natural Landmark by the National Park Service. A variety of activities and/or facilities are available within the park including biking, picnicking, hiking, a swimming pool, a concert pavilion and a scenic overlook of the gorge.

Moosic Mountain Barrens

The Nature Conservancy recently purchased 1,200 acres of land in the heart of the Moosic Mountain barrens in Lackawanna County from a subsidiary of the Greater Scranton Area Chamber of Commerce. The Moosic Mountain Barrens area extends over 6,500 acres and exemplifies the largest example of a ridge-top heath barrens natural community in the State (www.natureconservancy.org). This area is also listed as supporting species of special concern. The land will be managed to protect the ecological features and ecosystems present.



Lackawanna River Corridor Association, 2003

Moosic Mountain barrens, Lackawanna County.

Rabbit Hollow Wildlife Sanctuary

The Rabbit Hollow Wildlife Sanctuary is located in Abington Township, Lackawanna County near a tributary of Ackerly Creek. The property was donated to the Nature Conservancy in 1975 and soon after transferred to Abington Township. It includes about 16 acres of woodland and wetlands with diverse animal and botanical habitats – evergreens, hardwood meadows and a swamp (Ostrander, 1996).

Kirby Park and Natural Area

Located along the west bank of the Susquehanna River in Luzerne County, Kirby Park is a historic remnant of the early 1900s anthracite mining boom. In 1921 F.M. Kirby donated land for a riverfront park and hired the Olmsted Brothers (Fredrick Law Olmsted, Jr.) to develop a park plan. (Riverfront Parks Brochure, Riparian Trails Guide). The park was completed in 1924 and originally included ornamental trees, tennis courts, an athletic field,

reflecting pool and footpaths. It is owned and managed by the City of Wilkes-Barre Parks and Recreation Department. The Riverfront Parks Committee, a non-profit volunteer organization, provides education and other management activities at Kirby Park. With the flooding events of 1936, Kirby Park was divided into two parts by a new levee system along the River. Trails within Kirby Park connect to the remaining Levee Trail System, leading eventually to the Back Mountain Trail and Susquehanna Warrior Trail.

Susquehanna Riverlands

Located along the Susquehanna River in Luzerne County, the Riverlands is a 1,200-acre area offering recreation and nature study. Owned by Pennsylvania Power and Light (PPL), the property is adjacent to the nuclear power plant in Salem Township. The site is operated under a multiple-use land management program with the PA Game Commission, Bureau of Forestry, PA Fish and Boat Commission and other public and private agencies. A recreation area with trails, ball fields, picnic areas, volleyball courts, a Nature Center and a 30-acre lake is located west of the River. South of the recreation area is a wetlands nature area that protects a variety of plant and animal species and also permits hunting, fishing and trapping. Other amenities include a Planet Walk with interpretive panels and the Council Cup Scenic Overlook – an 800-acre expanse on the east bank of the River that provides hunting, fishing and hiking. About 400 acres located west of the River are reserved for recreation use and wetlands study.

Easements and Agricultural Lands

Local land conservancies, including the Lackawanna Valley Conservancy, Countryside Conservancy, North Branch Land Trust, Wildlands Conservancy, along with County Conservation Districts in both counties, are actively working with local property owners to secure property easements aimed at protecting and preserving land from development. A conservation easement is a legal agreement, usually between the landowner and a local agency or land trust, that permanently limits the uses of the land (or a portion of it) to protect its resources. Easements may result in property tax savings by reducing the market value of the land, which in turn lowers real estate taxes. Local land conservancies and trusts should continue to be considered key players in the implementation of this plan. Land trusts may maintain title of property, can convey title to a public agency and can also work with developers as partners in subdivision design and open space maintenance

Lackawanna County has over 1,500 acres of land held in 28 conservation easements, with easements ranging from 4 to 300 acres. In Luzerne County there are five conservation easements totaling about 476 acres of land.

The Pennsylvania Agricultural Conservation Easement Purchase Program helps slow the loss of prime farmland to non-agricultural uses. Under the program, state, county and local governments purchase conservation easements from owners of quality farmland, ensuring

the land will be available for agricultural use indefinitely. To qualify for the program, land must be within an Agricultural Security Area (ASA). Farmers may petition to have their lands designated as an ASA. Designation ensures the farmer can continue his operation, gives protection from nuisance ordinances and allows the property to be considered for easement purchase, among other benefits. Agricultural easements also prevent non-agricultural related development on viable agricultural lands. Certain requirements must be met in order to receive designation including a minimum of 250 acres of land.

Figure 4.2 Significant Agricultural Areas in Lackawanna County

Both Luzerne and Lackawanna Counties actively participate in the program and have appointed agricultural land preservation boards. Luzerne County's Agricultural Preservation Board has over 800 acres in agriculture easements. The Lackawanna Farmland Preservation Board has successfully negotiated 21 agricultural easements, protecting over 2,100 acres of agricultural land.

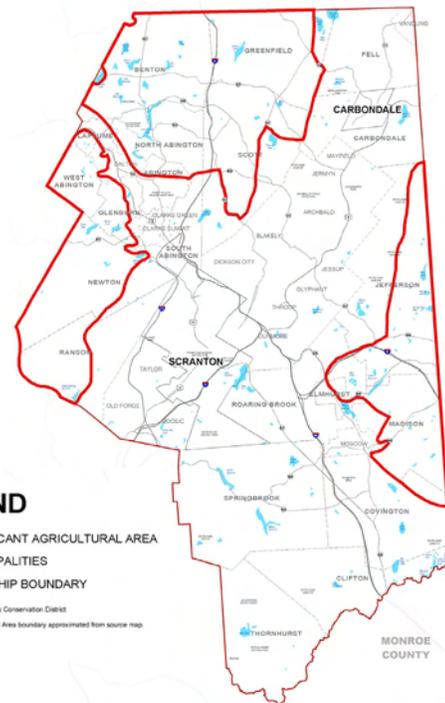
The Lackawanna Farmland Preservation Board has also identified "Significant Agricultural Areas" within the County that are a focus for farmland preservation activities. These areas, shown in Figure 4.2 to the right, have a concentration of productive agricultural soils, large tracts of actively farmed lands, and limited urban infrastructure. The Significant Agricultural Areas boundaries are outlined on a map known as appendix (j) to the County program policy book.

A scoring application process using many weighted factors helps establish a list of farms that are considered for the easement purchase program. To aid in facilitating the permanent protection of farmland in "Significant Agricultural Areas", a twenty-five-point bonus is added to the qualified farms during the application process.

The evaluation method and process in Chapter 6 discusses the types of data that were used to determine conservation areas, including agricultural areas.

4.7 Greenways & Trails

All across the United States local trail groups are working with local counties, municipalities, state agencies, land



EDAW, Inc., 2003

Abandoned and active rail lines are plentiful in the bi-county area.

trusts, conservancies, and others to develop a network of greenways. A major player in this effort is the Rails-to-Trails Conservancy whose mission is to create a nationwide network of public trails from former rail lines and connecting corridors (<http://www.railtrails.org>). Transformation of railroads into trails and greenways is underway in the bi-county area.

Figures 4.3 and 4.4 identify two trail categories: existing and in-progress. Trails are numbered consecutively across both counties for a total of 21 different trails. Existing trails are trail segments or systems that are complete and officially open to the public. In-progress trails are trails that are in the process of being completed. In-progress can be associated with stages of acquisition, planning, development or funding of a particular trail. Internal trail systems within State and County Parks are not included in this section.

4.7.1 Existing

Back Mountain Trail (2.2 miles existing)

Spearheaded by the Anthracite Scenic Trails Association (ASTA), a not-for-profit volunteer group working to acquire and preserve rail rights of way, the Back Mountain Trail is a work in progress. The trail route follows a former Lehigh Valley Railroad line from Luzerne Borough to Harvey's Lake and eventually Ricketts Glen. Phase one of the trail, about 2.2 miles from Luzerne Borough to Trucksville has been acquired and developed. Efforts to



Back Mountain trailhead, Luzerne Borough.

EDAW, Inc., 2003

acquire easements for the completion of the 14 mile Back Mountain Trail to Harvey's Lake are underway. The trail will extend through Kingston and Dallas Townships, and Kingston, Luzerne, Dallas and Harvey's Lake Boroughs. Information is available through the Back Mountain Trail Council on ASTA's website at <http://bmt.editthispage.com>.

Lackawanna River Heritage Trail (4.5 miles existing)

The Lackawanna River Corridor Association (LRCA), in partnership with the Lackawanna Heritage Valley Authority and the Northeast Pennsylvania Rail Trail Council, is working to create a 40-mile Lackawanna River Heritage Trail along the Lackawanna River that will eventually join the Delaware and Lehigh Trail. This pedestrian/bicycle trail is proposed from the confluence of the Lackawanna and Susquehanna Rivers at Pittston northward through Scranton, Carbondale, and Forest City in the vicinity of Stillwater Dam. About 1.5 miles of trail along the Lackawanna River between the Steamtown National Historic Site and the Scranton City line has been successfully



Lackawanna River Heritage Trail, Scranton.

EDAW, Inc., 2003

acquired and developed. An additional 3 miles is located between Blakely and Archbald. Negotiations with private property owners along the remaining trail route are underway. Interpretive signs along the trail tell the story of the Lackawanna Valley. Information is available through the Lackawanna River Corridor Association website: <http://www.lrca.org>, and through the Lackawanna Heritage Valley Authority website: <http://www.LHVA.org>.

Lehigh Gorge Trail (26 miles existing)

The Lehigh Gorge Trail is 26 miles in length and follows an abandoned railroad grade through the Lehigh Gorge State Park. The trail offers hiking, biking, sightseeing and photography. The Lehigh Gorge Trail from White Haven to Glen Onoko is open to cross-country skiing and the section from White Haven to Penn Haven Junction, consisting of 15 miles, is also open to snowmobiles. For more information, visit <http://www.dcnr.state.pa.us>.

Mocanaqua Loop Trail (8 miles existing)

The Mocanaqua Loop Trail is a recently completed eight mile loop trail along the northern reach of Penobscot Mountain that features scenic views of the Susquehanna River. This trail is the first segment of the Earth Conservancy's (EC) proposed Escarpment Trail and was recommended in the Earth Conservancy's 1999 Lower Wyoming Valley Open Space Master Plan. More information is available by calling the Earth Conservancy at (570) 823-3445.

Pennsylvania Bicycle Routes L (and Route L Spur) and Y

A portion of state Bicycle Route L travels through both Luzerne and Lackawanna Counties. This regional trail extends from Chester County in southeast Pennsylvania, through Berks, Lehigh, and Carbon Counties, before reaching Luzerne County near White Haven. The trail is on-road and posted with markers. After traveling north, the trail heads east through Pleasant View Summit and into Lackawanna County near Bear Lake. The trail travels north through Scranton and Carbondale to the state line. Route L Spurs in Luzerne County provide opportunities for alternate routes into the valley.

Bicycle Route Y extends about 30 miles across the northern part of Lackawanna County and eventually intersects with Route L near Carbondale. Route Y follows US Route 6 from Tunkannock to Factoryville where it then follows State Route 107 into Jermyn. The route then heads north through Mayfield and into Carbondale where it again joins with US Route 6 and travels into Wayne County.

4.7.2 In-Progress Trails

Susquehanna River Greenway

The Susquehanna Greenway Partnership is working to establish a greenway along the length of the Susquehanna River's main and west branches in Pennsylvania, a total of about 444 miles. The greenway is proposed to extend 1 mile on either side of the river and link existing greenways, water trails and other scenic and historic or cultural places. Community outreach

efforts are underway in each County to help identify unique characteristics and themes for each reach of the river. More information can be found at <http://www.susquehannagreenway.org>.

Wyoming Valley Levee Trail System

Located along the West side of the Susquehanna River, the Wyoming Valley Levee Trail System will stretch 15 miles from Forty Fort to Plymouth when complete. Portions of the trail in Forty Fort and Kingston are complete, with the remaining sections slated for completion by the end of 2003. The Wyoming Valley Levee Trail System is proposed to connect into the West Side Trail and eventually the Back Mountain Trail. More information is available by visiting the Luzerne County website at <http://www.luzernecounty.org>.



EDAW, Inc., 2003

A completed portion of the Wyoming Valley Levee Trail System.

West Side Trail

The West Side Trail is a unique trail system that extends through the urban areas of Exeter, West Wyoming, Wyoming and West Pittston, west of the Susquehanna River. The proposed route varies from sidewalk to rail corridor. A regional entity composed of members of each jurisdiction in which the trail is located is being proposed to provide management, maintenance and operation of the trail. Funding for the first phase of the trail is secured. At its completion the West Side Trail will extend nine miles and connect to the Luzerne County Rail-to-Trail project in Pittston and Jenkins Township. More information is available by contacting Karen Szwast at (570) 654-6816.

Luzerne County Rail with Trail

Formerly known as the Pittston Trail, the Luzerne County Rail-with-Trail is proposed to extend 11.6 miles east of the Susquehanna River, beginning at the Luzerne County Courthouse and continuing to Pittston with eventual connection to the LRHT through Duryea and Old Forge. The trail travels adjacent to an active rail line of the Reading, Blue Mountain and Northern Railroad. Plans include connecting to the Lackawanna River Heritage Trail. The trail Master Plan is complete and the trail is in the final design phase with the first 1.8 miles from the Pittston Waterfront Park to Jenkins Township about to undergo construction.

Ashley Planes Trail

The Ashley Planes Trail will provide a key linkage from the Mountain Top Trail into the Valley. Discussions are underway between the Earth Conservancy, ASTA and the Delaware and Lehigh regarding trail design, funding and maintenance. More information on the Ashley Planes Trail is available by calling the Earth Conservancy at (570) 823-3445.

Black Diamond Trail (Mountain Top Trail)

In 2001, ASTA received title from Delaware and Lehigh National Heritage Corridor for 15 miles of the abandoned Reading, Blue Mountain and Northern Railroad from Wilkes-Barre to White Haven. The proposed trail will travel through Dennison, Fairview and Wright Townships and White Haven and Laurel Run Boroughs, ultimately linking other trail systems in the Wyoming valley to the Lehigh River. Information on the Black Diamond Trail is available through the ASTA's website at <http://bmt.editthispage.com>.

Susquehanna Warrior Trail (SWT)

Planned as a multi-use hiking, biking and walking trail along a utility corridor and former portion of the Delaware, Lehigh and Western Railroad (DL&W), the Susquehanna Warrior Trail connects the Susquehanna Riverlands, near Berwick, northward to Larksville Borough along the north/west bank of the Susquehanna River. The completed trail will extend 18.5 miles along the Susquehanna River in Luzerne County, running parallel to the in progress EC Escarpment Trail along the southern bank of the Susquehanna River. Easements for the entire trail have been secured and construction on the first 10 miles of the trail (from Schickshinny north seven miles and from Schickshinny south for 3 miles) will begin in late 2004. Connections to the EC Escarpment Trail will occur at two locations. More information is available by calling Julie McMonagle at (570) 696-5082.

Escarpment Trail

A portion of the Escarpment Trail, the Mocanaqua Loop, is already complete and open to the public. The overall Escarpment Trail proposes a nine mile trail along the northern reach of Penobscot Mountain between Mocanaqua and Nanticoke, along the Susquehanna River. The route provides excellent views of the valley. Although not formally recognized, the majority of the trail already exists and accommodates hiking and biking enthusiasts. The EC is moving forward with plans to design and construct the trail. More information on the Escarpment Trail is available by calling the Earth Conservancy at (570) 823-3445.

Delaware & Hudson Gravity Railroad Trail

Designed to transport coal over the summit of Moosic Mountain via a rail system of cable operated incline planes, the Delaware and Hudson Gravity Railroad originally ran from Carbondale in Lackawanna County to Honesdale in Wayne County. The Pennsylvania Coal Company also built a similar gravity rail line from Pittston through the valley to Dunmore, over Moosic Mountain near the Roaring Brook to Hawley. Sections of the old canal and gravity system are still visible and efforts are underway to formally recognize these trails and preserve their place in history. The Gravity Railroad Trails are in private ownership at this time. Potential exists to connect the Gravity Railroad Trails to the O&W Trail to the west and connect into Honesdale to the east. The Rail Trail Council of Northeastern Pennsylvania is working to secure funding for a portion of the trail. For more information on the D&H

Gravity Railroad contact the Rail Trail Council Northeast Pennsylvania at (570) 785-7245 or <http://www.nepa-rail-trails.org>.

Delaware & Hudson Rail Trail

The D&H Rail Trail runs from the Simpson Viaduct at Route 171 in Lackawanna County north through Lanesboro to the New York State border. The entire trail is 36 miles in length and offers biking, hiking, cross country skiing and snowmobiling. The Rail Trail Council of Northeast Pennsylvania owns and maintains the trail and is currently involved in trail improvement projects including improve drainage and resurfacing for the first ten miles of the trail starting in Simpson. The actual trail head for the D&H is located on the O&W Trail, due to bridge issues. The D&H Trail provides significant regional linkage opportunities to the O&W Trail and an extended Lackawanna River Heritage Trail. For more information on the D&H Gravity Railroad contact the Rail Trail Council Northeast Pennsylvania at (570) 785-7245 or <http://www.nepa-rail-trails.org>.



The D&H Rail- Trail Head in Simpson, PA.

Lackawanna River Corridor Association, 2003

O&W Rail Trail

The O&W Rail Trail, owned and managed by the Rail Trail Council of Northeastern Pennsylvania, begins in Simpson and runs parallel to the D&H Rail-Trail for almost ten miles, with the Lackawanna River often running in between the two trails. Long term improvement plans include developing a loop system between the D&H and O&W. There is also the potential for extending the trail an additional 26 miles to Hancock, New York, although this portion is in private ownership and is not improved. For more information contact the Rail Trail Council Northeast Pennsylvania at (570) 785-7245 or <http://www.nepa-rail-trails.org>.

Penobscot Ridge and Wilkes-Barre Mountain Trail

Originally proposed in the EC's Lower Wyoming Valley Open Space Master Plan and currently only a proposed project, the Penobscot Ridge (14.5 miles) and Wilkes-Barre Mountain Trails (6.7 miles) would provide 21 miles of trail along the mountain ridgetop corridors from just south of Mocanaqua to the Seven Tubs Natural Area. The Wilkes-Barre Mountain Trail would connect to the proposed Black Diamond Trail, helping to create a regional network of trails. More information on the Penobscot Ridge Trail is available by calling the Earth Conservancy at (570) 823-3445.

Seven Tubs Trail System

Improvements to the internal trail system at Seven Tubs are under development. Potential improvements include connecting the Tubs trails to the Black Diamond, Penobscot Ridge

and Wilkes-Barre Mountain Trails. This trail system is not included due to scale. More information is available by calling the Park Manager at (570) 477-5467.

Greater Hazelton Rail-to-Trail

The Greater Hazelton Civic Partnership, working with the Hazelton City Authority and Butler Enterprises, is working to create a rail-to-trail in southern Luzerne County along an inactive rail line beginning in Ashmore and eventually connecting to the Lehigh River. Easements for the 16.2 mile trail are under negotiation; the first 4.2 miles have been secured and are under development. Contact the Greater Hazelton Civic Partnership at (570) 455-1508 for more information.

Countryside Conservancy Trolley Trail

Located along an abandoned electric trolley line in northwestern Lackawanna County, the Countryside Conservancy Trolley Trail is envisioned as a ten mile hiking and biking trail extending from Clarks Green to Factoryville, with future connections to Lake Winola. Trail development is in the preliminary stages with easements and fee simple purchases procured for several segments. The trail plans to utilize the cinder right of way of the abandoned Northern Electric Street Railway, an inter-urban trolley line active between 1902 and 1936. More information is available by calling the Countryside Conservancy at (570) 945-6995.

Roaring Brook Corridor Trail

Working in partnership, the LRCA, LHVA, and the Rotary Club of North Pocono will be conducting a feasibility study for the phased development of trail within the Roaring Brook Corridor. Referred to as the North Pocono Greenway, the trail would extend 12 miles along a former Erie and Wyoming Valley railroad located next to the Roaring Brook. The trail would travel from Dunmore, through Roaring Brook, Elmhurst, Jefferson and Madison Townships. Potential exists to extend the trail to Moscow Borough and through Covington Township. Lackawanna County maintains ownership of the land. For more information visit the LRCA website at <http://www.lrca.org>.

Pennsylvania Coal Company Gravity Railroad

Extending from the Dunmore Borough to the summit of Moosic Mountain, the 12 mile PA Coal Company Gravity Railroad trail travels through Dunmore and Troop and passes through portions of Roaring Brook and Jefferson Townships before terminating near the village of Cortez. The corridor contains significant masonry foundation ruins of stationary engine houses along the incline planes as well as incline beds and railroad beds. The trail travels through a 750 foot tunnel through the summit of Moosic Mountain and therefore through the Moosic Mountains Barrens area. Various groups are interested in preserving the trail including the LRCA, Lackawanna Historical Society and other civic groups. For more information please contact the LRCA at <http://www.lrca.org>.

Figure 4.3 Lackawanna County Existing Open Space and Recreation Resources

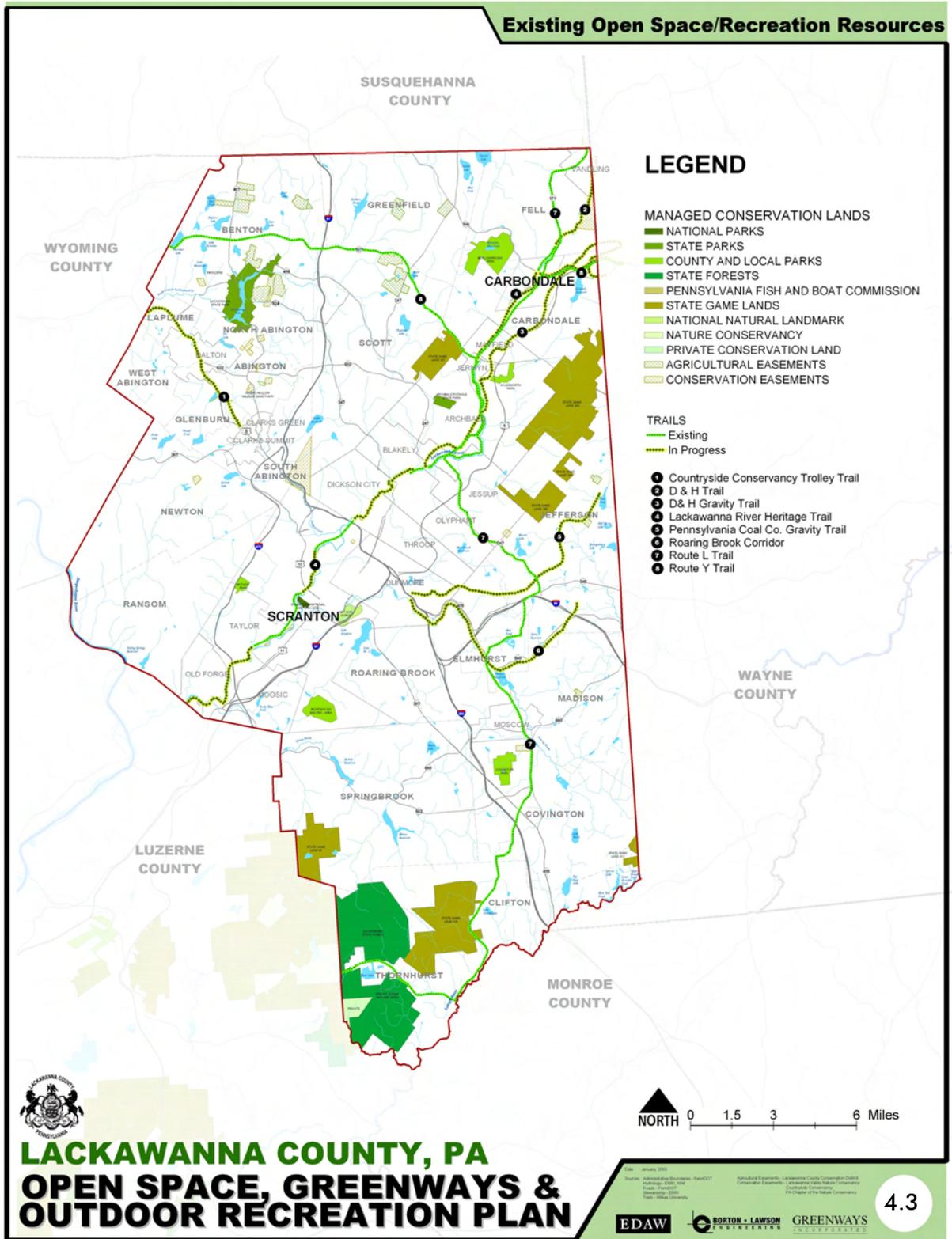
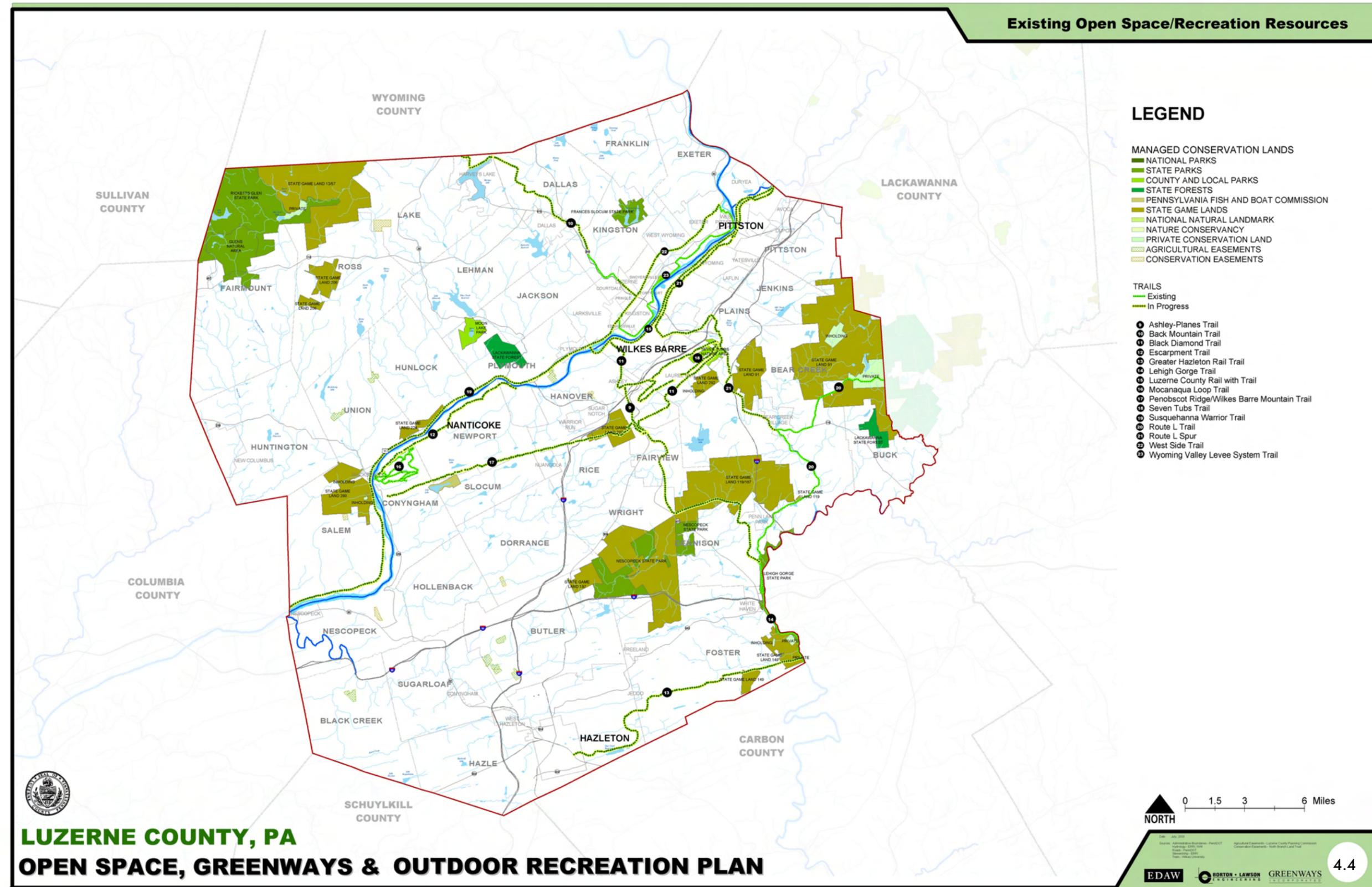


Figure 4.4 Luzerne County Existing Open Space and Recreation Resources



CHAPTER 5

VISION, GOALS & OBJECTIVES



5.0 Vision, Goals and Objectives

The Vision, Goals and Objectives, along with the Potential Conservation Lands Map, are the foundation of the Open Space, Greenways and Outdoor Recreation Master Plan. Together they paint the picture of the bi-county region for the next 20 years.

The Vision, Goals and Objectives articulate the community's ideas and aspirations for the future and provide policy direction and guidance on developing a network of open space and greenways that also provide expanded outdoor recreational opportunities. Recommendations in the plan are identified as short term (0 to 5 years), mid term (6 to 10 years) and long term (beyond 10 years).

The Vision for the bi-county area is presented below, followed by goals and objectives for each of the plan's main elements: Open Space, Greenways and Outdoor Recreation.

5.1 The Vision

Early in the planning process, members of the OSRAC and participants in stakeholder interviews and public meetings were asked to reflect on the resources and features of the landscape that they deemed as important and valuable. People were asked to discuss their views on how the landscape was developing. They shared concerns about losing access to nature's treasures and about losing the scenic beauty of the area. People expressed an interest in protecting water quality, wildlife and the rural nature of the area. These discussions provided the basis for the following description of the bi-county area's future:



At the public meetings in February, participants helped prioritize goals and objectives.

A Vision for Lackawanna and Luzerne Counties

Residents of Lackawanna and Luzerne Counties are inspired by the verdant mountain ranges and fertile river valleys of the region and place a high priority on protecting and preserving important land and water resources that make the region unique. The amount of land under protection continues to increase as existing resources are expanded, environmentally sensitive areas are protected, and development is directed away from complex ecosystems. The bi-county area supports a high quality of life and is an attractive destination for outdoor enthusiasts who enjoy a network of interconnected greenways and trails and a wide range of outdoor recreation activities.

5.2 Goals & Objectives

To achieve the Vision, the OSRAC endorsed a number of goals related to topics of open space, greenways and outdoor recreation. Additional goals related to issues that transcend each topic were also developed. Goal statements outline broad policy statements to which County and local governments in the bi-county area can work toward. More specific objectives have been developed for each goal statement that set forth recommendations for action.

The Goals and Objectives identified in this Plan are forward thinking and will serve as a guide for future decision making at both the County and local level. Implementation of this plan, discussed in Chapter 7, will require the cooperation and collaboration of County and local governments as well as the various not for profit groups and volunteers already hard at work in the bi-county area.

Open Space

Goal: Protect and preserve important natural features, environmental areas and ecologically sensitive habitats for the benefit of present and future generations.

Objectives:

- Limit development in areas identified as having rare, threatened or endangered species and secure funds to acquire these properties.
- Limit wildlife habitat fragmentation and promote bio-diversity by connecting ecological sensitive habitats and environmental areas through green corridors.
- Promote and support Agricultural Land Preservation Programs to purchase development rights for the protection of farmland.
- Protect forested areas and unique scenic resources to the greatest extent possible.
- Partner with PA State Game Commission and Bureau of Forestry to purchase land and expand the number of acres classified as PA State Game Lands and Bureau of Forestry.
- Promote partnerships with local land trusts to hold easements and/or purchase environmentally sensitive lands.

Goal: Protect and preserve open spaces along river corridors, water supply sources and their recharge areas to protect water quality.

Objectives:

- Limit development on steep slopes adjacent to streams, floodplains and wetlands.
- Seek the preservation of open space along streams.
- Establish development restrictions for areas immediately surrounding surface water drinking supplies.

- Encourage the development of Watershed and River Conservation Plans to document and protect watershed and river resource quality.
- Establish and promote a program to purchase and accept donations of open space land for resource protection and passive recreational use along streams and rivers.

Goal: Address the impacts of public and private development on environmental resources.

Objectives:

- Develop a County-wide integrated GIS system in both counties using the data in the Open Space, Greenways and Outdoor Recreation Plan data as a benchmark.
- Improve methods and procedures for assessing environmental impacts of public and private development:
 - Develop a simple environmental checklist for screening projects for potentially significant environmental effects and apply this checklist to all re-zonings, conditional use permits, site plans and subdivision plans.
 - Establish methodologies for more detailed evaluation of potentially significant impacts identified through the screening.
 - Require developers to prepare detailed analyses for areas that are identified during the environmental checklist screening.
 - Incorporate environmental checklists and analyses into staff reports to municipal leaders, County Commissioners and Planning Commissions to allow comparison of environmental impacts with fiscal and community impacts.
- Use environmental analyses to modify, redesign or replan proposed developments for the protection of environmental resources.
- Continue to support and promote innovative techniques designed to improve water quality and mitigate acid mine drainage.
- Conduct a comprehensive inventory of abandoned and active mine lands. As part of this effort, identify potential uses of abandoned mine lands deemed suitable for redevelopment and list potential funding sources.

Greenways

Goal: Provide safe and accessible greenways that encourage recreational use.

Objectives:

- Erect appropriate signage at trail heads and at various points along trails to identify permitted uses (e.g. non-motorized verses motorized).
- To enhance safety, where feasible, provide separate trails for motorized trail uses.

- Design trails with a variety of surface treatments to accommodate users with different recreation interests and capabilities.

Goal: Utilize rail, transportation and utility corridors to develop a network of greenways that connect urban areas and encourage alternative transportation modes.

Objectives:

- Complete a comprehensive bi-county inventory of active and abandoned rail corridors, incorporating previous studies and in conjunction with county rail authorities and active rail companies.
- Identify and prioritize rail corridors documented in the inventory for potential trail use. Complete feasibility studies for priority corridors and develop a county-wide funding approach and timetable for purchasing the priority rail corridors.
- Promote trails as alternative avenues for commuting to places of employment.
- Incorporate trails and pedestrian-bike paths with proposed new roadways in both counties where appropriate and feasible.

Goal: Develop a system of linked recreation resources to strengthen the local economy, foster public health and wellness, and provide community amenities.

Objectives:

- Continue to implement the Plan for the Lackawanna Heritage Valley.
- Support the Wyoming Valley Wellness Trails Partnership and expand its intent throughout the bi-county area.
- Support the completion of local trails projects and greenways initiatives.

Outdoor Recreation

Goal: Provide a variety of outdoor recreation opportunities, including land and water-based recreation, to meet the diverse interests of citizens and visitors.

Objectives:

- Establish standards for passive recreation use facilities so they do not negatively impact the natural functions of open space or greenways.
- Develop a system of walking, hiking and biking trails that can link to the Delaware and Lehigh Trail and the Lackawanna Heritage Trail.
- Construct new bike lanes and off-road bike paths annually as part of the regional (MPO) capital improvements program for transportation projects.
- Acquire land for a designated all-terrain vehicle facility.
- Acquire land for a designated natural wildlife observation area in the bi-county area.

- Work with the Bureau of Forestry and PA State Game Commission to designate additional trails that permit horseback riding.
- Assist in the creation of a regional sportsman advocacy group to monitor issues and promote the needs of this constituency.
- Increase the number of water access points along the Susquehanna and Lackawanna Rivers and encourage the creation of water trails and associated guides and maps.
- Identify and strive to meet appropriate recreation standards for programs and facilities.
- Complete County park and recreation facility master plans.

Overall

Goal: Utilize innovative planning and development strategies and a variety of funding sources and incentives to acquire, manage and preserve open space lands and outdoor recreational resources.

Objectives:

- Create a bi-county Open Space and Greenways Authority to promote regional cooperation and facilitate the acquisition and management of resources.
- Create a Trails umbrella organization comprised of representatives from the various local trail groups to coordinate trail development and consolidate funding initiatives.
- Target local businesses and industries for their support in managing outdoor recreational resources.
- Set aside part of the annual Capital Improvements Program for maintenance of open space, trails and outdoor recreation facilities.
- Develop an assistance program for local municipalities to develop and adopt open space plans and code amendments that support the Bi-County Open Space, Greenways and Outdoor Recreation Master Plan.
- Consider assessing fees on all development proposals and earmark these funds for acquiring open space.
- Seek funding from all appropriate federal, state and local sources as well as private foundations, private sector businesses, corporations and conservation minded benefactors.
- Develop incentive programs for the private preservation of important natural features, sensitive habitats and unique environmental areas.
- Organize a County-wide program to purchase and accept donations of open space lands.
- Offer density bonuses or intensity increases to private developers for the preservation of natural features, sensitive habitats and environmental areas
- Promote the use of transfer of development rights, purchase of development rights, and easements to preserve open space lands.

Goal: Educate stakeholders in the benefits of smart growth and conservation and support strategies to conserve and protect resources on private lands.

Objectives:

- Conduct annual training sessions for elected officials and municipal leaders on current conservation strategies and tools and the benefits of smart growth.
- Utilize media outlets to promote the benefits of smart growth and celebrate the accomplishments of local conservation efforts.

Goal: Document and promote the variety of outdoor recreation opportunities in the bi-county area.

Objectives:

- Develop a website dedicated to outdoor recreation opportunities in the bi-county area.
- Develop a consolidated marketing and promotional brochure with map that identifies resources and locations for recreation activities (coordinated with the County Chambers of Commerce and Convention and Visitors Bureaus).
- Partner with regional and local historic and cultural attractions to promote outdoor recreation opportunities.

CHAPTER 6

PLANNING PROCESS & RECOMMENDATIONS



Chapter 6: Planning Process & Recommendations

The value of open space is widely recognized both by those who want to expand it and those who want to develop it. Proximity to open space and access to the great outdoors makes the northeast region and the bi-county area in particular an attractive place to live, work, recreate, and retire. With a study area of over 1,400 square miles, it became apparent early in the planning process that a system for evaluating and prioritizing the diverse natural resources was necessary.

The importance of open space and greenways in the bi-county area and access to outdoor recreation opportunities is reflected in the Plan Vision, Goals and Objectives. This chapter discusses the overall importance of open space and greenways and explains the resource-based evaluation process that was utilized to create an interconnected system of open space, greenways and outdoor recreation opportunities.

The evaluation process resulted in the identification of Proposed Conservation Areas, as presented in Figures 6.8 and listed on Figures 6.9 and 6.10. Suitable outdoor recreation activities for each conservation area were identified as shown in Figures 6.12 and 6.13. To focus implementation efforts, top conservation areas in each county were identified as shown on Figures 6.14 and 6.15.

6.1 Resource-Based Evaluation Method and Process

The process of developing an evaluation system to identify potential conservation areas in the bi-county area began with an analysis of existing landscape features including ecological and natural resources as well as manmade features. Already protected resources such as State Game Lands, Conservation Easements, State Parks, Trails, etc., were treated as the existing open space system. The evaluation method and process builds upon the existing protected resources using a sound resource based approach that was consistently applied to the resources in each county. The principle idea behind the evaluation method is rooted in the goals of the plan and based on preserving and protecting water quality and ecologically sensitive areas.

A wealth of information relevant to this study was gathered from available sources and developed into an extensive geographic information system (GIS) database as described in Chapter 4. A list of the base GIS data that has been compiled as part of this planning effort is provided in Figure 3.4. The following terrestrial, ecological and hydrological resources from this database were selected as key variables and considered and evaluated in the process.

Figure 6.1 Evaluation Process - Resource Data

Terrestrial Features	Ecological Features	Hydrological Features
Steep Slopes	Natural Areas Inventory	Wetlands
Ridgelines		Streams
Farmland		Lakes
Mine lands		Watersheds
		Floodplains

Potential land conservation areas were identified using the following 4 step resource-based evaluation method:

- Step 1** **GIS Data Layer Analysis**
- Step 2** **Ecological Index Assignment**
- Step 3** **Size Criteria**
- Step 4** **Connectivity**

Step 1: GIS Data Layer Analysis

Terrestrial, hydrological and ecological data sets were evaluated and, in some cases as described below, further analyzed. Protecting the ridgelines and scenic quality of the area was achieved by using digital elevation model data and a buffering technique. Steep slopes were calculated, and any slope greater than 30% was considered as a potential open space areas. These areas are mostly located along the ridge lines and are typically not suitable for development. Ridge lines were delineated along the major ridges and surrounded by a 1000 ft. wide corridor.

Additional analyses were conducted to protect water quality resources. Stream corridors with a Strahler ranking greater than 2 were placed in a 500 ft. buffer. The Strahler ranking system describes the size of a stream where the smallest permanent streams are ranked with a 1. When two first order streams join, the segment becomes a 2, and so on.

Stream corridors, considered important for protecting water quality and providing plant and wildlife habitat, were also considered as potential greenways in Step 4. Using county-wide watershed data, sub-watersheds that provide or drain into drinking water resources for local municipalities were identified as Critical Sub-watersheds.

Step 2: Ecological Index Assignment

The data and output from Step 1 were assigned an ecological index value as listed in Figure 6.2. An ecological index system was necessary to prioritize the abundance of potential open space resources in the bi-county area for their value in maintaining a healthy environment for both humans and animals.

Figure 6.2 Ecological Index Assignment

	High	Medium	Low
Terrestrial Resource			
Steep Slope >30%		✓	
Ridgetop Corridors		✓	
Prime Agriculture Soil			✓
Reclamation Site			✓
Culm Bank/Refuse Area			✓
Abandoned Mineland			✓
Ecological Resource			
NAI Site – State Significance	✓		
NAI Site – Local Significance	✓		
Hydrological Resource			
Critical Subwatershed	✓		
NWI Wetland	✓		
100 Year Floodplain		✓	
High Quality Stream Corridor		✓	

A high ecological value, as directed by the OSRAC, is associated with sensitive resource areas that relate to protecting water quality, specifically drinking water supplies, or critical habitat areas. Areas identified as critical for plant and wildlife habitat in the county Natural Areas Inventories (NAI) at both the state and local level of significance were assigned a high value. Linear features (that potentially connect habitat areas or protect water quality) including ridge corridors, steep slopes, 100 year flood plains and stream corridors with an exceptional value or high quality ranking by PADEP Chapter 93 guidelines were assigned a medium value. Mining related lands and prime agricultural soils were assigned a low ecological value. The output of this second step of ranking the resource areas as high, medium, or low provides an understanding of where valuable resources exist. All high, medium and low areas should be considered as having important values worthy of preservation; however as explained in subsequent steps, an emphasis was placed on high and medium ranked resources.

The identification of prime agricultural soils was limited to the types of data available. Lackawanna County has available digital soils survey data; Luzerne County is in the final stages of having the county soil survey transferred to digital format. Therefore, in order to maintain consistency, the process uses U.S. Department of Agriculture state level soils data for both counties (STATSGO).

STATSGO level soil data is very generalized. Map units may contain up to 21 different soil components. This level of data is mapped at a very small scale (1 inch equals 4 miles) and is suitable for national and regional planning and protection of prime agricultural lands, but it should not be used to determine exact locations of prime agricultural areas. Because of this, it is recommended that when county soil data is completed for Luzerne County, the data for both

counties is incorporated into the GIS system and process. As discussed in Chapter 4, the Lackawanna Farmland Preservation Board has identified "Significant Agricultural Areas" within the County that are a focus for farmland preservation activities. These areas have a concentration of productive agricultural soils, large tracts of actively farmed lands, and limited urban infrastructure. Lackawanna County, along with local land trusts, should continue working with farmers and land owners in these areas, promoting best management practices, conservation programs and techniques, and the use of easements.

The major urban areas in each county were identified using available street coverage and development pattern data. Because parcel level data and building density data is not yet available at the county level, the urban areas coverage should be considered to be approximate and not precise. It is recommended the counties update the urban areas layer when more accurate information is available. Because these areas are already developed, any unique terrestrial, ecological or hydrological elements once located there are assumed to no longer be present. In terms of natural and ecological resources, they are considered developed and were therefore excluded from the high, medium and low priority areas. However, in some instances, urban areas do present opportunities for linkages and "hub" areas for trail networks and other activities. As plan recommendations are considered for implementation, urban areas should be evaluated for these potential connections.

Step 3: Size Criteria

The purpose for considering size as part of the evaluation process is based on three factors: the scale of the study area spans over two counties and 1,400 square miles; identifying large land areas will lead to a more contiguous system; and larger areas of land are typically more effective in preserving and maintaining habitat areas and ecological functions.

Using the ecological rating as a starting point, each potential open space area was evaluated for size and ranked in terms of priority. This plan recognizes that many local conservation and preservation efforts occur at a much smaller scale and on individual properties which are not included in this regional bi-county effort. This plan strongly supports the continued efforts of local conservation initiatives, both public and private, and encourages these to complement the recommendations in this Plan. Figure 6.3 shows the results of the priority classification with red being high priority, orange being medium priority and yellow being low priority. Although their importance is not diminished, to help focus priorities, areas with low ecological value and less than 100 acres were excluded.

Figure 6.3 Size Criteria

Ecological Rating	Size Criteria		
	Large > 500 acres	Medium 100-499 acres	Small < 100 acres
High	HL	HM	HS
Medium	ML	MM	MS
Low	LL	LM	LS

Open Space Priority by ecological value and size for each County is shown in Figures 6.4 and 6.5 below.

Figure 6.4 Potential Open Space Land in Lackawanna County

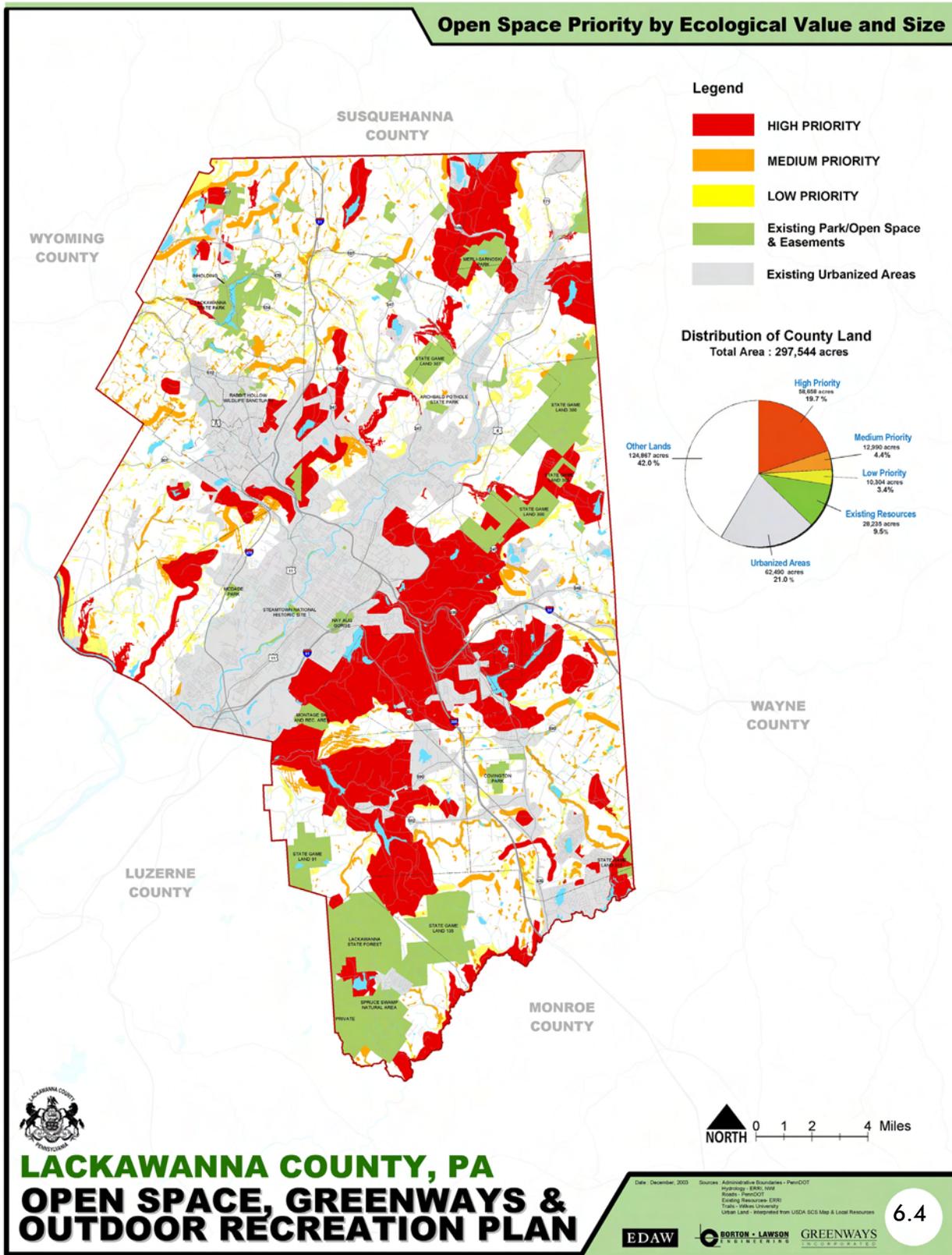
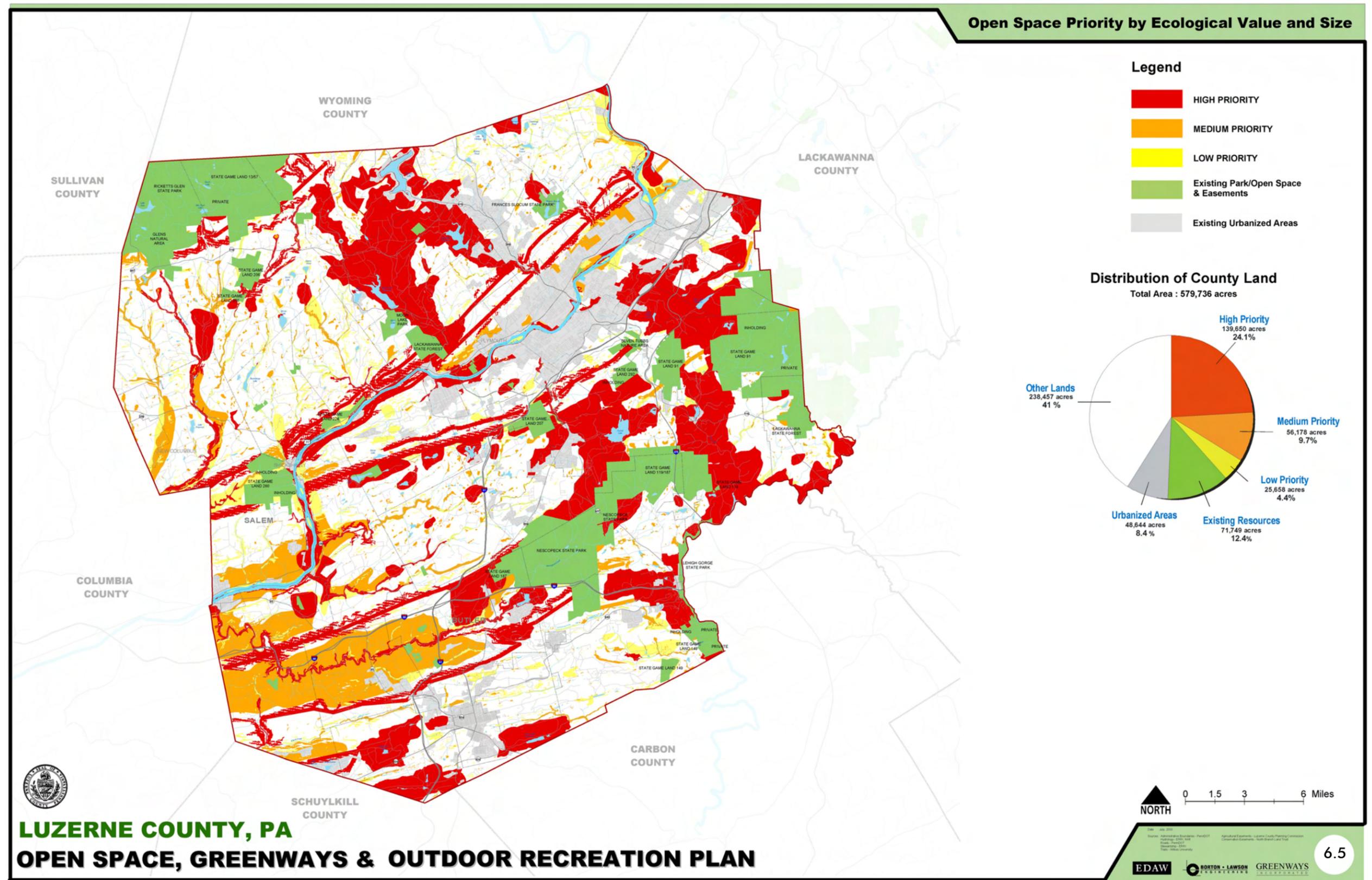
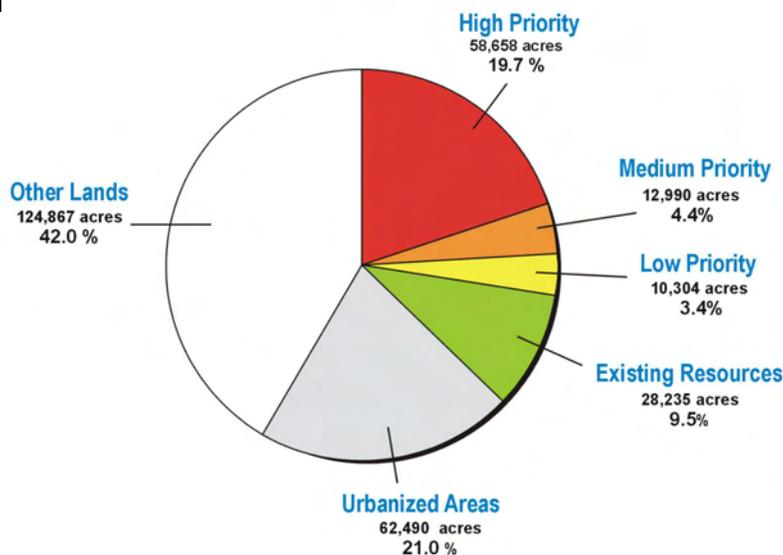


Figure 6.5 Potential Open Space Land in Luzerne County



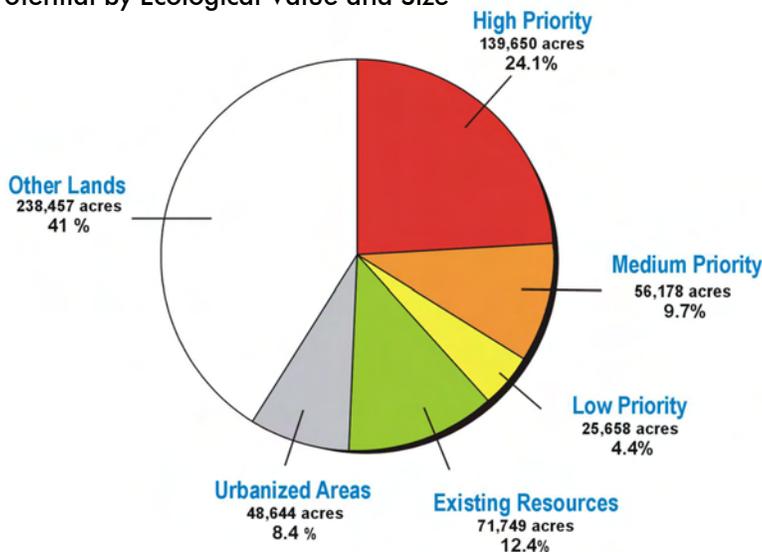
Figures 6.4 and 6.5 identify high, medium and low priority land that should be considered for potential open space conservation based on the evaluation criteria set forth in this Plan. In Lackawanna County, where a larger portion of the County's land is already urbanized, about 28,000 acres or 9% of the land is protected. The planning process identified about 82,000 acres as high, medium or low priority in Lackawanna County, accounting for an additional 28% of the County's land, shown in Figure 6.6. In summary, existing resources, high, medium and low priority areas account for about 37% of the total land area in Lackawanna County.

Figure 6.6 Lackawanna County Land Distribution - Open Space Potential by Ecological Value and Size



In Luzerne County, about 72,000 acres, or 12% of the landscape, is already protected in state parks, gamelands, forests, etc. The amount of land identified through this process as high, medium or low priority in Luzerne County accounts for about 221,000 potential acres, or an additional 38% of the total land area in the County, as shown in Figure 6.7. High, medium and low priority areas and existing protected resources account for about 50% of the Luzerne County's total land area.

Figure 6.7 Luzerne County Land Distribution Open Space Potential by Ecological Value and Size



Step 4: Connectivity Analysis

To ensure an interconnected system of open spaces, linear features including abandoned and active railroads, stream and river corridors (with Strahler rating greater than 2), and existing and proposed trails were considered for potential connectors, or greenways. Rail corridors in the bi-county area offer a unique opportunity for trail development and connectivity to existing urban centers. Many trail projects are already in progress in the bi-county area along active and inactive rail corridors. Utility corridors were determined to not be ideal greenways or open space connectors because of safety and insurance considerations and overall purpose.

Linear features were superimposed on the existing protected resources and potential open space lands in Figures 6.4 and 6.5 to determine potential greenways for conservation purposes. Overall, it was deemed more desirable to have connected resources than isolated pockets.

*“A connected system of parks and greenways is manifestly more complete and useful than a series of isolated parks.”
Frederick Law Olmstead, Jr.*

6.2 Proposed Conservation Areas

The results of the four step evaluation process described above were merged together into a final map entitled: Proposed Conservation Areas, as presented in Figure 6.8. The map incorporates existing protected resources, including existing and proposed trails and proposed conservation areas resulting from the GIS analysis included in this plan. Proposed conservation areas have been identified, named and classified as highlands, natural areas, agrarian lands or greenways. These areas have a mix of high, medium and low ecological values and vary in size.

Highlands are found mostly along ridges and undeveloped mountainous areas in the bi-county area. Many of these areas contain well known mountain ridges and forested areas that contribute to the scenic quality of the area. Development along ridges has led to increased awareness and desire for protection. Highlands characteristically have steep slopes and also present opportunities for improved habitat migration across the bi-county area.

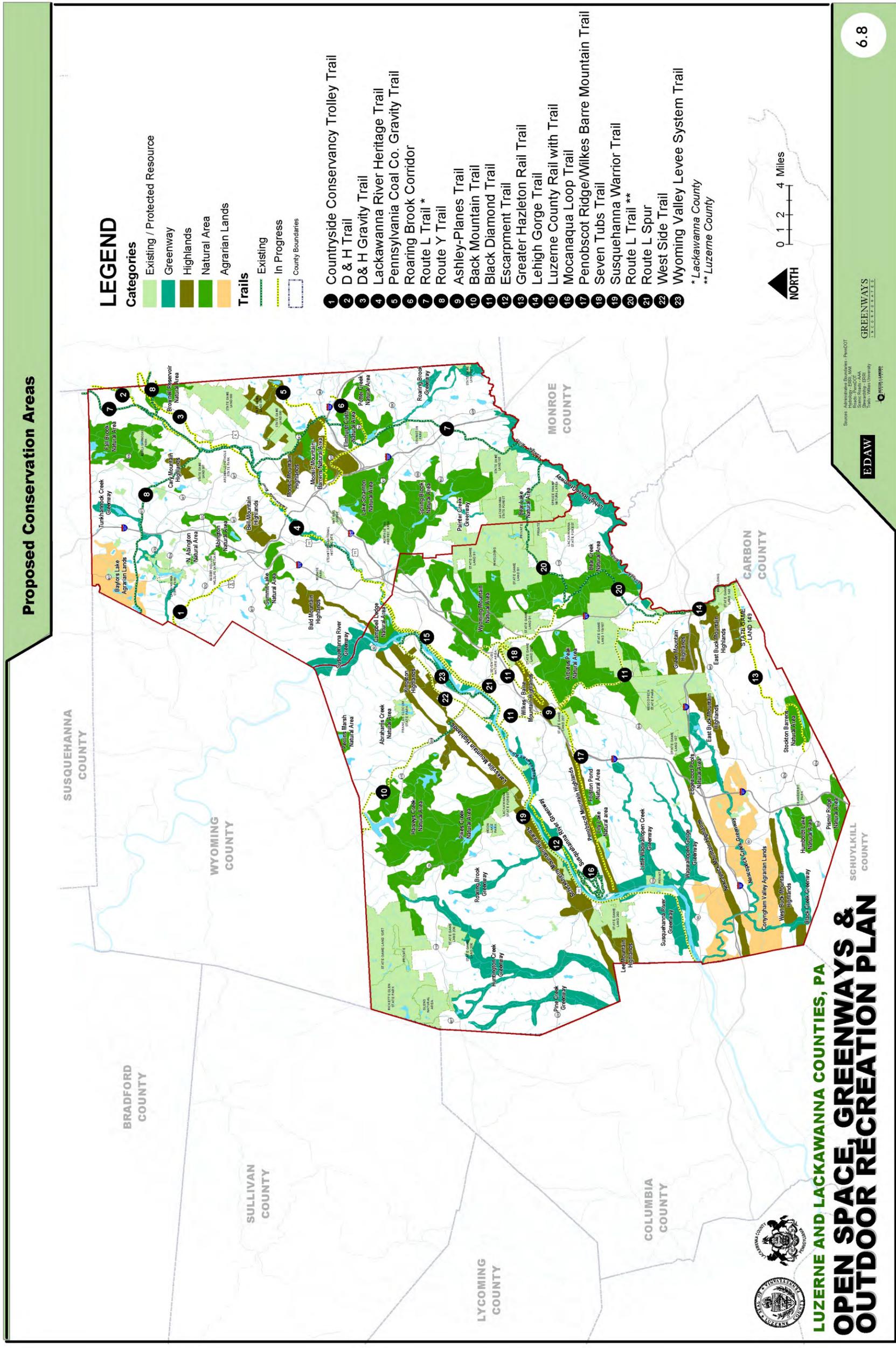
Natural areas contain unique ecological communities or critical watersheds and are found throughout the study area. Many areas identified as natural also have extensive forest cover, one or more streams or tributaries and floodplains and wetlands that aid in filtering pollutants from surface water. These areas are viewed as important for protecting water quality and providing habitat.

Agrarian lands are associated with prime farmland in the bi-county area. These areas have large tracts of land suitable for farming based on state level data (STATSGO). STATSGO level data is very generalized, as described earlier in this Chapter and in Chapter 4. Lackawanna County has identified significant agricultural areas as shown in Figure 4.2. Although not all of

these areas are identified specifically as agrarian land on Figure 6.8, it is strongly recommended that conservation efforts continue in areas identified as significant by the Lackawanna County Farmland Preservation Board. Furthermore, it is recommended the Farmland Preservation Programs in both counties continue to preserve more active farmland to protect this valuable resource.

Greenways link various conservation areas and may include existing or proposed trails. In most instances, greenways are present along important stream corridors or major rivers, including the Lackawanna, Susquehanna and Lehigh Rivers. Greenways are linear and extend through several jurisdictions; effective protection of greenways will require multi-municipal cooperation.

Figure 6.8 Proposed Conservation Areas



Due to the scale of the planning area and lack of electronic parcel level data, it is difficult to determine the exact boundaries of the proposed conservation areas. When each county has an operating GIS system, this information can be tied to parcel level data for a more accurate boundary representation. Until such an integrated system is available, database layers created during this process, including each of the maps, should be used during the development review process at the county and municipal level. It is recommended that each county and member jurisdictions use this map and plan as a guide for land use decisions.

It is important to note that the recommendations of this plan are based on the evaluation system and criteria described. Because the scale of this study does not provide for local analysis or municipal level detail, other studies are recommended at the local level. This plan provides a framework for municipal leaders in developing a regional system of open space and greenways that should be expanded upon at the local level through subsequent planning and implementation efforts. Municipal leaders are encouraged to pursue joint planning efforts and to work together on implementation.

The proposed conservation areas identified as agrarian, greenways, highlands or natural areas in Figure 6.8 account for over 250,000 acres of land in the bi-county area, excluding trails. This represents almost 85% of the lands identified as high, medium or low priority in Step 3 of the evaluation process. When combined with resources that are already protected (almost 100,000 acres), the proposed open space network encompasses about 350,000 acres in the bi-county area. Area calculations for Figure 6.8 should be viewed as generalized.

Within Lackawanna County, the majority of proposed conservation areas are found east of the Lackawanna River and the urbanized area of Scranton. Proposed conservation areas in Luzerne County are more evenly distributed. A substantial amount of already protected resources exist in the area of eastern Luzerne County and southern Lackawanna County, presenting a strong argument for additional protected resources in this area. Proposed conservation areas provide opportunities to link these resources, creating a connected corridor of open space extending through both counties, with linkages to the Lehigh River.

The overall proposed conservation area acreages for the bi-county area are identified in Figure 6.9. About 46% of the proposed conservation areas fall within natural areas.

Figure 6.9 Acreages of Proposed Conservation Areas

	Lackawanna County	Luzerne County	Total
Agrarian Lands	5,788	19,889	25,677
Greenways	11,348	48,556	59,904
Highlands	15,573	34,775	50,348
Natural Areas	42,623	75,216	117,839
Total Proposed Conservation Areas	75,332	178,436	253,768
Protected Resources	28,235	71,749	99,984
Total Open Space Network	103,567	250,185	353,752

Many of the natural areas are adjacent to already protected resources. Greenways are found along stream corridors, providing linkages between existing and proposed conservation areas. Major greenways are found along the Susquehanna and Lehigh Rivers as well as the Lackawanna River. In many cases, existing or in-progress trails are also co-located in the greenways, as in the case with the Lackawanna River Heritage Trail and portions of the Susquehanna Warrior Trail. Greenway calculations are very general and were calculated using GIS.

The largest portion of agrarian land is found along the Susquehanna River valley in the southern portion of Luzerne County. Additional significant agricultural areas in Lackawanna County are identified on Figure 4.2. Highland areas are distributed along the major ridges in each county. Figure 6.10 on the following page list the individual proposed conservation areas for each county, including trails.

Outdoor recreation for each conservation area was considered and is discussed in section 6.3. Prioritization of the proposed conservation areas is described in section 6.4.

Figure 6.10 Proposed Conservation Areas List

Lackawanna County	
Proposed Conservation Area	Acres
HIGHLANDS	
Bald Mtn. Highlands*	2,187
Cary Mtn. Highlands	890
Bell Mtn. Highlands	1,797
Moosic Mtn. Highlands	9,437
NATURAL AREAS	
Moosic Mtn Barrens Natural Area	2,363
Abington Natural Area	1,657
Bear Lake Natural Area	724
Elmhurst Custis Natural Area	5,526
Brownell Reservoir Natural Area	2,318
Fall Brook Natural Area	7,037
Lake Scranton Natural Area	8,559
North Abington Natural Area	238
Potter Creek Natural Area	1,145
Spring Brook Natural Area*	11,821
Summit Lake Natural Area	1,914
AGRARIAN LANDS	
Baylors Lake	5,788
GREENWAYS	
Lackawanna River Greenway	2,273
Lehigh River Greenway	2,202
Painter Creek Greenway	326
Roaring Brook Greenway	2,038
Tunkhannock Creek Greenway	2,180
Susquehanna River Greenway	2,378
TRAILS	
Countryside Conservancy Trolley Trail	10.0
D&H Rail Trail	36.0
D&H Gravity	18.0
O&W Rail Trail	10.0
Lackawanna River Heritage Trail	40.0
PA Coal Co Gravity Trail	12.0
Roaring Brook Corridor Trail	12.0
Route L Trail	44.0
Route Y Trail	30.0

Luzerne County	
Proposed Conservation Area	Acres
HIGHLANDS	
Bald Mtn. Highlands*	142
East Buck Mtn Highlands	4,571
Green Mtn. Highlands	3,150
Kingston Highlands	4,250
Larksville Highlands	3,229
Lee Mtn. Highlands	2,825
Nescopeck Mtn. Highlands	3,618
Penobscot Mtn. Highlands	2,944
Shickshinny Mtn. Highlands	4,896
West Buck Mtn Highlands	3,125
Wilkes Barre Mtn. Highlands	2,025
NATURAL AREAS	
Abrahams Creek Natural Area	518
Arbutus Peak Natural Area	12,985
Bear Creek Natural Area	10,483
Campbells Ledge Natural Area	1,000
Edgewood Pools Natural Area	2,873
Folston Pond Natural Area	510
Harvey's Creek Natural Area	12,707
Humboldt Lake Natural Area	2,753
Lily Lake Natural Area	704
Perrins Marsh Natural Area	608
Pikes Creek Natural Area	11,770
Pismir Ridge Natural Area	2,388
Spring Brook Natural Area*	1,418
Stockton Barrens Natural Area	2,361
Wyoming Mtn. Natural Area	12,141
AGRARIAN LANDS	
Conyngham Valley	20,019
GREENWAYS	
Black Creek Greenway	2,844
Huntington Creek Greenway	9,413
Lackawanna River Greenway*	131
Lehigh River Greenway	3,600
Little Wapwallopen Creek Greenway	2,431
Nescopeck Creek Greenway	3,618
Pine Creek Greenway	3,881
Roaring Brook Greenway	1,868
Susquehanna River Greenway	17,645
Wapwallopen Gorge Greenway	3,311
TRAILS	
Ashley Planes	2.6
Back Mountain Trail	14.0
Black Diamond Trail	15.0
Escarpment Trail	9.0
Greater Hazelton Rail w/Trail	16.2
Lehigh Gorge Trail	26.0
Luzerne County Rail w/Trail	11.6
Mocanaqua Loop Trail	8.0
Penobscot Ridge/Wilkes Barre Mtn.	21.0
Route L Trail	23.0
Route L Spur	22.0
Susquehanna Warrior Trail	18.5
Wyoming Valley Levee System	15.0
West Side Trail	9.0

Acres should be interpreted as approximate. Trail distances are in miles.

* Indicates a conservation area that spans both counties

6.3 Outdoor Recreation

Each proposed conservation area identified in Figure 6.8 has been evaluated for appropriate types of outdoor recreation. The types of outdoor recreation recommended in each conservation area are related to the types of resources present. Recreation was not recommended in areas known to have highly sensitive habitats or in farmland areas. However, it is recognized that the pastoral setting of farmland is often a preferred setting for walking, running, biking and other on and off-road activities. This plan encourages these activities but does not identify areas for on-road activities other than those that are part of an existing or proposed trail system.



Pennsylvania Environmental Council, 2003

Motorized sports are gaining in popularity.



EDAW, Inc., 2003

Fishing is permitted at Harvey's Lake in Luzerne County.

Proximity to existing protected resources and the types of activities permitted in those protected areas was considered in determining outdoor recreation opportunities that would be appropriate for the proposed conservation areas.

Figure 6.11 identifies the types of permitted outdoor recreation activities at existing protected resources in the bi-county area and Figures 6.12 and 6.13

identify outdoor recreation opportunities for each proposed conservation area. A variety of outdoor recreation opportunities are already enjoyed in the bi-county area, many which occur in areas not officially designated or marked for the activity. It is anticipated that several unofficial trails are located in both counties. These unofficial hiking, biking and off road vehicle trails travel through private property, making the activity a form of trespassing. Enforcement is difficult due to the expanse of land, limited resources and terrain. As outdoor recreation activities were considered for the proposed conservation areas, an effort was made to designate areas or trails where off road vehicles would be appropriate.

Furthermore, because the proposed conservation areas have a variety of ecological, hydrological and terrestrial resources located within them, appropriate outdoor recreation activities should be re-evaluated as more detailed information is available or when the area is being considered for inclusion in the bi-county open space network.

Figure 6.11 Bi-County Outdoor Recreation Opportunities at Protected Resources

LACKAWANNA COUNTY RECREATION OPPORTUNITIES - PROTECTED RESOURCES																										
Property Name	Owner	Acres	Back-packing	Bicycling	Boating, non motor	Boating, motor	Boat launch	Camping	Education (guided walks, etc.)	Fields, (Baseball, Soccer, etc.)	Fishing	Hiking	Horseback Riding	Hunting	Ice Skating	Off Road Vehicles	Picnicking	Rock Climbing	Scientific Observation	Skating, Cross Country	Sledding	Snow-mobiling	Swimming	Vistas or Overlooks	Wildlife Sanctuary	
Archbald Pothole State Park	DCNR	110										X		X			X		X							
Covington Park	County	400								X	X															
Lackawanna State Forest	DCNR	7,409	X	X	X			X			X	X	X	X	X	X	X		X	X	X			X		
Lackawanna State Park	DCNR	1,411	X	X			X	X	X		X	X	X	X	X	X	X		X	X	X		X			
McDade Park	County	126								X	X	X			X		X				X					
Merli-Sarnoski Park	County	840	X	X			X			X	X	X					X		X			X				
Montage Ski and Recreation Area	County	140	X							X					X		X		X	X	X					
Moosic Mountain	Nature Conservancy	1,200																						X	X	
Nay Aug Park/Gorge	City of Scranton	92	X									X					X		X			X	X			
Rabbit Hollow Wildlife Sanctuary	PPV	16																							X	
Spruce Swamp Natural Area	DCNR	305																	X							
State Game Land 91	PA Game Commission	2,200									X		X									X				
State Game Land 135	PA Game Commission	3,430									X		X									X				
State Game Land 300	PA Game Commission	5,709									X		X									X				
State Game Land 307	PA Game Commission	1,053									X		X									X				
State Game Land 312	PA Game Commission	190									X		X									X				
Lackawanna River Heritage Trail	LRCA, LHVA	4.5 miles	X	X								X								X						
Route L Trail	PennDOT	40 miles	X																							
Route Y Trail	PennDOT	30 miles	X																							
LUZERNE COUNTY RECREATION OPPORTUNITIES - PROTECTED RESOURCES																										
Frances Slocum State Park	DCNR	1,035			X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X		
Kirby Park Natural Area	Wilkes-Barre	65	X						X	X	X						X		X		X					
Lackawanna State Forest	DCNR	1,404	X	X	X			X			X	X	X	X	X	X	X		X	X	X			X		
Lehigh Gorge State Park	DCNR	4,548*	X	X			X				X	X	X	X					X		X					
Louis Schiavo Park	Tri-Area Joint Rec Authority	23							X								X									
Forty Fort Recreational Area	County	52	X						X								X				X					
Moon Lake Park	County	648		X			X	X	X	X	X	X	X				X				X		X			
Nescopeck State Park	DCNR	3,550						X		X	X	X	X	X	X	X	X		X							
Ricketts Glen State Park	DCNR	13,050		X	X	X	X	X			X	X	X	X	X	X	X		X		X	X				
Seven Tubs Natural Area	County	532	X								X						X	X								
State Game Land 57	PA Game Commission	8,263									X		X									X				
State Game Land 91	PA Game Commission	14,459									X		X									X				
State Game Land 119	PA Game Commission	7,967									X		X									X				
State Game Land 149	PA Game Commission	1,989									X		X									X				
State Game Land 187	PA Game Commission	8,186									X		X									X				
State Game Land 206	PA Game Commission	1,524									X		X									X				
State Game Land 207	PA Game Commission	2,073									X		X									X				
State Game Land 224	PA Game Commission	624									X		X									X				
State Game Land 260	PA Game Commission	3,116									X		X									X				
State Game Land 292	PA Game Commission	624									X		X									X				

* Area includes portions outside Luzerne County.

Note: McDade Park also offers a concert pavilion, swimming pool, tennis courts; Montage offers downhill skiing, amphitheater, swimming pool; Lackawanna State Park offers an amphitheater, swimming pool and overnight recreational vehicles; Frances Slocum offers an amphitheater, swimming pool and overnight recreational vehicles.

Figure 6.12 Lackawanna County Proposed Conservation Area Recreation Opportunities

Conservation Area	Acres	Back-packing	Bicycling	Boating, non motor	Boating, motor	Boat launch	Camping	Education (guided walks, etc.)	Fields, (Baseball, Soccer, etc.)	Fishing	Hiking	Horseback Riding	Hunting	Ice Skating	Off Road Vehicles	Picnicking	Rock Climbing	Scientific Observation	Skiing, Cross Country	Sledding	Snow-mobiling	Swimming	Views or Overlooks	Wildlife Sanctuary
HIGHLANDS																								
Bald Mtn. Highlands*	2,187									X	X		X								X		X	X
Cary Mtn. Highlands	890	X									X		X								X			
Bell Mtn. Highlands	1,797	X									X		X								X			
Moosic Mtn. Highlands	9,437						X				X		X				X						X	X
NATURAL AREAS																								
Moosic Mtn. Barrens Natural Area	2,363						X	X			X						X						X	X
Abington Natural Area	1,657	X	X				X				X					X			X	X				
Bear Lake Natural Area	724	X	X				X				X	X	X			X	X		X	X			X	
Brownell Reservoir Natural Area	2,318	X					X			X	X			X					X					
Elmhurst Custis Natural Area	5,526						X			X	X							X					X	X
Fall Brook Natural Area	7,037	X	X				X			X	X			X		X			X	X				
Lake Scranton Natural Area	8,559	X	X				X		X	X	X					X			X	X				
North Abington Natural Area	1,657		X							X	X													
Potter Creek Natural Area	1,145						X			X								X					X	X
Spring Brook Natural Area*	11,821	X	X				X			X	X	X		X	X	X		X	X	X	X	X	X	X
Summit Lake Natural Area	1,914	X	X				X			X						X		X	X					
AGRARIAN LANDS																								
Baylors Lake	5,788	NO RECREATIONAL COMPONENT																						
GREENWAYS																								
Lackawanna River Greenway	2,273	X	X								X								X					
Lehigh River Greenway	2,202	X	X				X				X								X					
Painter Creek Greenway	326									X	X								X					
Roaring Brook Greenway	2,038	X					X			X														
Tunkhannock Creek Greenway	2,180	X					X			X	X													
Susquehanna River Greenway	2,378	X	X	X	X	X	X			X	X								X					
TRAILS																								
Countryside Conservancy Trolley Trail	10.0	X	X								X								X					
D&H Rail Trail	36.0	X	X								X								X					
D&H Gravity Trail	18.0	X	X								X								X					
Lackawanna River Heritage Trail	40.0	X	X								X								X					
O&W Rail Trail	10.0	X	X								X								X					
PA Coal Co. Gravity Railroad Trail	12.0	X									X													
Roaring Brook Corridor Trail	12.0	X									X													

Acres should be interpreted as approximate. Trail distances are in miles.

* Indicates conservation area that spans both counties.

Figure 6.13 Luzerne County Proposed Conservation Area Recreation Opportunities

Conservation Area	Acres	Back-packing	Bicycling	Boating, non motor	Boating, motor	Boat launch	Camping	Education (guided walks, etc.)	Fields, (Baseball, Soccer, etc.)	Fishing	Hiking	Horseback Riding	Hunting	Ice Skating	Off Road Vehicles	Picnicking	Rock Climbing	Scientific Observation	Skating, Cross Country	Stedding	Snow-mobiling	Swimming	Vistas or Overlooks	Wildlife Sanctuary	
HIGHLANDS																									
Bald Mtn. Highlands*	142									X	X		X								X	X	X	X	
East Buck Mtn. Highlands	4,571									X	X		X		X						X	X			
Green Mtn. Highlands	3,150									X	X		X								X	X			
Kingston Highlands	3,827									X	X		X								X	X			
Larksville Highlands	3,117									X	X		X								X	X			
Lee Mtn. Highlands	2,825									X	X		X								X	X			
Nescopeck Mtn. Highlands	3,618									X	X		X									X	X		
Penobscot Mtn. Highlands	2,944									X	X		X										X	X	
Shickshiny Mtn. Highlands	4,896									X	X		X		X						X	X			
West Buck Mtn. Highlands	3,125									X	X		X								X	X			
Wilkes Barre Mtn. Highlands	2,025									X	X		X									X	X		
NATURAL AREAS																									
Abrahams Creek Natural Area	518		X				X			X	X				X					X	X				
Arbutus Peak Natural Area	12,985									X	X												X	X	
Bear Creek Natural Area	10,483									X	X		X								X				
Campbells Ledge Natural Area	1,000	X					X			X						X							X		
Edgewood Pools Natural Area	2,873									X	X												X	X	
Folston Pond Natural Area	510	NO RECREATIONAL COMPONENT																							
Harvey's Creek Natural Area	12,707	X	X	X	X	X	X			X	X	X	X	X	X	X					X	X			
Humboldt Lake Natural Area	2,753									X	X	X				X				X					
Lily Lake Natural Area	704					X																			
Perrins Marsh Natural Area	608	NO RECREATIONAL COMPONENT																							
Pikes Creek Natural Area	11,770	NO RECREATIONAL COMPONENT																							
Pismir Ridge Natural Area	2,388	X	X				X			X	X													X	
Spring Brook Natural Area*	1,418	X	X				X			X	X	X	X	X	X	X				X	X	X	X	X	
Stockton Barrens Natural Area	2,361			X						X	X														
Wyoming Mtn. Natural Area	12,141	X	X				X			X	X	X				X	X		X		X	X	X	X	
AGRARIAN LANDS																									
Conyngham Valley	20,019	NO RECREATIONAL COMPONENT																							
GREENWAYS																									
Black Creek Greenway	2,844																								
Huntington Creek Greenway	9,413							X		X	X														
Lackawanna River Greenway	131	X	X																		X				
Lehigh River Greenway	3,600	X	X	X	X	X	X			X	X										X				
Little Wapwallopen Creek Greenway	2,431							X		X	X														
Nescopeck Creek Greenway	3,508							X		X	X														
Pine Creek Greenway	3,881							X		X	X														
Roaring Brook Greenway	1,868							X		X	X														
Susquehanna River Greenway	17,645	X	X	X	X	X	X			X	X										X				
Wapwallopen Gorge Greenway	3,311							X		X	X														
TRAILS																									
Ashley Planes	2.6	X	X								X														
Back Mountain Trail	14.0	X	X								X										X				
Black Diamond Trail	15.0	X									X	X													
Escarpment Trail	9.0	X									X														
Greater Hazelton Rail w/Trail	16.2		X								X										X				
Mocanaqua Loop	8.0	X	X								X													X	
Luzerne County Rail w/Trail	11.6		X								X														
Penobscot Ridge/Wilkes Barre Mtn Trail	21.0	X	X								X				X										
Susquehanna Warrior	18.5	X	X								X										X				
West Side Trail	9.0		X								X														
Wyoming Valley Levee System	15.0		X								X														

Acres should be interpreted as approximate. Trail distances are in miles.
* Indicates conservation area that spans both counties.

6.4 Conservation Area Priorities

Achieving the recommendations of this plan will require an aggressive and targeted approach to implementation at both the county and local level. To focus implementation efforts, the OSRAC helped prioritize proposed conservation areas in each county. County priority areas were determined based on conservation area attributes (NAI) and the ability to create a connected network of open spaces and greenways. Trails received priority for being regional connectors.

The planning horizon of this plan is 20 years, therefore each proposed conservation area was assigned short term, mid term or long term priority, as follows:

Short term: 0-5 years

Mid term: 6-10 years

Long term: 11 years and beyond

Figures 6.14 and 6.15 identify the short, mid and long term priority areas for each county. Short term priorities are highlighted in light blue at the top of each figure and are grouped according to type; mid and long term priorities are also grouped into type and are listed below the short term priorities. Comments were included to help clarify the importance of each area and respective priority. Again, the recommendations and priorities in this plan should not deter on-going efforts in land conservation or outdoor recreation planning that is already underway. The short-term priority conservation areas recommended in this plan include the following:

Lackawanna County

- **Bald Mountain Highlands:** This is a top priority natural area identified in the Lackawanna County Area NAI study conducted by the Nature Conservancy (see section 3.3). It includes a high elevation ridge covered with Ridge top Dwarf-Tree Forest and Northern Appalachian Acidic Rocky Summit Natural Communities. It contains dramatic exposed rock ledges and rare plant species and has the potential for additional plant and lepidopteron (butterfly and moth) species. The ridgeline in this area is highly visible and defines the edge of the Lackawanna Valley south and west of Scranton.
- **Moosic Mountain Barrens Natural Area:** This is a top priority NAI area representing one of the most unique natural areas in the state. It includes approximately 2,500 acres of high quality barrens communities, including a recently discovered heath barrens plant community, which is the only one of its kind in the state. The Moosic Mountain Barrens Natural Area is connected to 1,200 acres of protected land owned by the Nature Conservancy and is surrounded by the Moosic Mountain Highlands. The area also contains several rare animal species and DEP-identified critical sub-watersheds.
- **Moosic Mountain Highlands:** The Moosic Mountain Highlands, surrounding the Moosic Mountain Barrens Natural Area, border State Gameland #300 and, if protected from development, would form a continuous natural area extending from these gamelands at the northwestern edge of the County southward to Interstate 84 and 380 in the center of

the County. This area also provides added protection to the Moosic Mountains Barrens Natural Area.

- **Bear Lake Natural Area:** This is also a top priority natural area identified in the County NAI study. It contains a good quality Acidic Glacial Lake Natural Community with several rare plant and animal species surrounding a large lake with excellent water quality. The area, if protected from development, would enhance and link an already extensive protected area in the southern portion of the County, including the Lackawanna State Forest (Thornhurst tract), Spruce Swamp State Forest Natural Area and State Gameland 135.
- **Lake Scranton Natural Area:** This area includes critical sub-watersheds lands, as well as some of the same unique vegetative communities found on Moosic Mountain Highlands described above. It also contains a top-ranked NAI site surrounding Bear Swamp that has unique wildlife habitat and several plant species of concern. The area also borders Moosic Mountain Highlands and other proposed conservation lands that, if protected, would form a large contiguous wildlife habitat and corridor.
- **Potter Creek Natural Area:** This is a top priority NAI area which contains a unique, largely undisturbed Kettlehole Bog Natural Community. The area has three plant species of special concern deserving protection.
- **Lackawanna River Greenway:** This is one of the most important natural resources in the County and already recognized for conservation by the Lackawanna River Corridor Association (LRCA). Trails already exist in portions of the greenway and easements for other portions are in development. The greenway would potentially extend from the northern portion of the County to the Susquehanna River in Luzerne County forming an important regional connector offering multiple land and water recreation activities.
- **Lehigh River Greenway:** This is a state-designated Scenic River offering multiple recreation opportunities. The recommended greenway would connect riverlands in Lackawanna County with other designated natural areas in Luzerne County and eventually to the Lehigh River State Park in Luzerne and Carbon Counties.
- **Susquehanna River Greenway:** A portion of the southwestern boundary of Lackawanna County borders the Susquehanna River, which extends southward to Luzerne County and southward. This river is a well-recognized natural asset of state-wide significance. The Susquehanna River Greenway in Lackawanna County extends and connects to the proposed greenway and existing protected riverlands in Luzerne County, forming an extensive linear naturalized area with regional significance. The Greenway would link the Luzerne and Lackawanna sections of the Greenway to Wyoming and Bradford counties to the north and Columbia and other counties to the south. Efforts to establish a Susquehanna River Greenway are already underway.
- **D&H Rail Trail:** This is an important regional connector extending from Lackawanna County eastward and northward to the New York state border (see section 4.7.2). Portions of the trail already exist and are maintained by the Northeast Rail Trail Council.

- **Lackawanna River Heritage Trail:** This is another important trail system with regional significance extending through the County and eventually connecting to the Delaware and Lehigh Trail in Luzerne County (see section 4.7.1). Portions already exist and easements for other portions are actively being pursued by the LHVA and the LRCA.
- **Countryside Conservancy Trolley Trail:** The Trolley Trail will provide local recreational opportunities in a portion of northwest Lackawanna County that is experiencing development pressures. The trail links several small towns and has the potential to link to other trail systems in Wyoming County. Countryside Conservancy is developing the 10 mile Trolley Trail that extends from Clarks Green to Factoryville with future connections to Lake Winola. The trail is currently in the Feasibility Stage under a grant from PA DCNR.

Luzerne County

- **Bald Mountain Highlands:** A portion of the Bald Mountain Highlands extends into Luzerne County connecting to the proposed Susquehanna Greenway. This area is described above.
- **Penobscot Mountain Highlands:** This ridgetop and steeply sloping area extends from near the Susquehanna River in the western portion of the Luzerne County to State Gameland 207 east of Interstate 81. This highland area borders two NAI-identified natural areas surrounding Lily Lake and Folstown Mud Pond and includes an Ephemeral/Fluctuating Pool Natural Community that provides good quality wildlife and plant habitat. The ridgeline is a distinctive feature in the County as it forms the eastern border of Wyoming Valley east of Wilkes-Barre.
- **Arbutus Peak Natural Area:** This is the top-ranked site in the County for biological diversity as identified by the Nature Conservancy in the Luzerne County NAI study. The area is a large oak barrens that contains numerous wetlands and unique vegetative communities and represents one of the best habitats for rare butterfly and moth species in the Northeast. Fifteen rare invertebrate species and four rare plant species have been found in the area. The Arbutus Peak Natural Area, as shown in this plan, borders the western edge of Crystal Lake and connects several existing protected areas, including State Gamelands 119 and 292 and Nescopeck State Park, forming an extensive contiguous natural area comprising thousands of acres in the east central part of the County.
- **Bear Creek Natural Area:** This is an extensive area that contains sub-critical watershed lands and several NAI sites with rare plant species. The area also connects two large protected areas including State Gamelands 91 and 119, potentially forming an extensive large wildlife and habitat corridor in the eastern portion of the County. The existing Route L Bicycle Trail also runs through this area.
- **Edgewood Pools Natural Area:** This is a top-ranked NAI site with an Ephemeral/Fluctuating Pool Natural Community and numerous wetlands formed by the last glaciations that covered the northern portions of the continent. The area contains rare plant and invertebrate species and unique wildlife habitat associated with the vernal pools. The

area also links the existing Nescopeck State Park to the proposed Nescopeck Greenway potentially forming an extensive wildlife corridor in the southern portion of the County.

- **Lackawanna River Greenway:** A small portion of this greenway is located in Luzerne County where the Lackawanna River merges with the Susquehanna River near Campbell's Ledge. This greenway is described above.
- **Lehigh River Greenway:** This greenway extends northward from the Lehigh River State Park up through Lackawanna County, as described above.
- **Nescopeck Creek Greenway:** This is a greenway bordering Nescopeck Creek extending from Nescopeck State Park in the south central portion of the County to the Susquehanna River in the western portion. The greenway borders several important NAI sites in the County and is the major water body traversing the existing farmlands in Conyngham Valley.
- **Back Mountain Trail:** This is an existing and proposed trail system connecting the Wilkes-Barre area to Harvey's Lake and other recreational resources in the northwestern portion of the County. This trail is under development by the Anthracite Scenic Trails Association (ASTA) and an important east-west connector through the County (see section 4.7.1).
- **Black Diamond Trail:** This is a continuation of the east-west trail connection through the County going from Wilkes-Barre eastward to the Lehigh River. The trail is also sponsored by ASTA (see section 4.7.2).
- **Greater Hazelton Rail with Trail:** This trail represents a potentially important recreational resource for the southern part of the County. It is already underway by the Greater Hazelton Joint Civic Partnership and connects a proposed natural area included in this plan (Stockton Barrens) with the Lehigh River State Park.
- **Susquehanna Warrior Trail:** This trail parallels the Susquehanna River and links a number of existing and proposed recreational resources adjacent to the river, as well as to the east-west trail systems discussed above. Easements have been secured for portions of the trail with construction planned to start in the next year. The Susquehanna Warrior Trail Council is sponsoring trail development (see section 4.7.2).

The total priority conservation areas in both counties include approximately 86,000 acres of proposed conservation areas and 150 miles of trails. The tools and methods for protecting these areas and putting this plan into action are described in Chapter 7. Chapter 7 also includes an implementation matrix listing each proposed conservation area including the acreage, preferred tool for management, preferred entity for ownership or management, Magnitude of costs have been estimated for short term priorities.

Figures 6.14 and 6.15 list the proposed conservation areas that correspond to the map Figure 6.8. Priority conservation areas are at the top of the list; remaining conservation areas are grouped by category. Acreages should be interpreted as approximate and trail distances are in miles. Proposed conservations areas that span both counties are identified with an asterisk.

Figure 6.14 Lackawanna County Proposed Conservation Area Priorities

Proposed Conservation Area	Acres	Comment	Priority
Moosic Mtn. Barrens Natural Area	2,363	Top ranked County NAI site; protection efforts underway	Short term
Moosic Mtn. Highlands	9,437	Surrounds critical Barrens area; Critical watershed area	Short term
Bald Mtn. Highlands*	2,187	Top ranked County NAI site	Short term
Bear Lake Natural Area	724	Top ranked County NAI site	Short term
Potter Creek Natural Area	1,145	Top ranked County NAI site; critical watershed area	Short term
Lake Scranton Natural Area	8,559	Critical watershed area; NAI locations	Short term
Lackawanna River Greenway*	2,273	Easements partially secured; regional connector; management entity in place	Short term
Lehigh River Greenway	2,202	State scenic river; Regional asset	Short term
Susquehanna River Greenway	2,378	Regional asset; Major river; floodplain	Short term
Countryside Conservancy Trolley Trail	10.0 mi	Potential for connecting trails to west; feasibility study underway	Short term
D&H Rail Trail	36.0 mi.	Regional connector to east and north; easements secured for portions; management entity in place	Short term
Lackawanna River Heritage Trail	40.0 mi	Easements partially secured; regional connector; management entity in place	Short term
HIGHLANDS			
Cary Mtn. Highlands	890	Adjacent to PA Game Lands	Long term
Bell Mtn. Highlands	1,797	Scenic value; potential to connect to PA Gamelands	Long term
NATURAL AREAS			
Abington Natural Area	1,657	Critical watershed area	Long term
Elmhurst Custis Natural Area	5,526	NAI locations; critical watershed area; regional trail connections	Long term
Brownell Reservoir Natural Area	2,318	Critical watershed area	Long term
Fall Brook Natural Area	7,037	Critical watershed area; adjacent to Merli Sarnoski Park	Mid term
North Abington Natural Area	238	Potential County Park; extend nearby conservation easements	Mid term
Spring Brook Natural Area*	11,821	Critical watershed area	Long term
Summit Lake Natural Area	1,914	Critical watershed area; NAI locations	Long term
AGRARIAN LANDS			
Baylors Lake	5,788	Agricultural producing lands; rural character	Long term
GREENWAYS			
Painter Creek Greenway	326	Stream buffer; connects gamelands and natural area; wild trout stream	Mid term
Roaring Brook Greenway	2,038	Stream buffer	Mid term
Tunkhannock Creek Greenway	2,180	Stream buffer	Mid term
TRAILS (miles)			
D&H Gravity Trail	18.0 mi	Potential links to regional trails; historic interpretation opportunities	Long term
O&W Rail Trail	10.0 mi	Regional connector to east and north	Mid term
PA Coal Co. Gravity Railroad	12.0 mi	Several groups interested in preservation	Long term
Roaring Brook Corridor	12.0 mi	Discussions underway; owned by County	Mid term
Route L Trail	44.0 mi	Statewide bicycle trail	N/A
Route Y Trail	30.0 mi	Statewide bicycle trail	N/A

Figure 6.15 Luzerne County Proposed Conservation Area Priorities

Proposed Conservation Area	Acres	Comments	Priority
Bald Mtn. Highlands*	142	Top ranked County NAI site	Short term
Penobscot Mtn. Highlands	2,944	Regional asset; Scenic value; Regional connector; habitat corridor; terminates at gamelands	Short term
Arbutus Peak Natural Area	12,985	Top ranked County NAI site	Short term
Bear Creek Natural Area	10,483	Connects State Gamelands; Regional connector	Short term
Edgewood Pools Natural Area	2,873	Top ranked County NAI site; adjacent to State Gamelands	Short term
Lackawanna River Greenway*	131	Easements partially secured; Regional connector; management entity in place	Short term
Lehigh River Greenway	3,600	State scenic river; Regional asset	Short term
Nescopeck Creek Greenway	3,508	Top ranked County NAI site	Short term
Susquehanna River Greenway	17,645	Regional asset; Major river; floodplain	Short term
Back Mountain Trail	14.0	Easements partially secured; Regional connector; management entity in place	Short term
Black Diamond Trail	15.0	Easements secured; Regional connector; management entity in place	Short term
Greater Hazelton Rail w/Trail	16.2	Easements partially secured; management entity in place	Short term
Susquehanna Warrior Trail	18.5	Easements secured; Regional connector; management entity in place;	Short term
HIGHLANDS			
East Buck Mtn Highlands	4,571	Adjacent to State Gamelands; scenic quality	Long term
Green Mtn. Highlands	3,150	Near State Park	Long term
Kingston Highlands	4,250	Scenic quality	Long term
Larksville Highlands	3,229	Scenic quality	Long term
Lee Mtn. Highlands	2,825	Adjacent to State Gamelands and regional trails	Long term
Nescopeck Mtn. Highlands	3,618	Scenic quality	Long term
Shickshinny Mtn. Highlands	4,896	Portions adjacent to State Gamelands and State Forest	Long term
West Buck Mtn Highlands	3,125	Scenic quality	Long term
Wilkes Barre Mtn. Highlands	2,025	Adjacent to State Gamelands; scenic quality	Long term
NATURAL AREAS			
Abrahams Creek Natural Area	518	Adjacent to State Park	Mid term
Campbells Ledge Natural Area	1,000	Near confluence of Lackawanna and Susquehanna Rivers; floodplains; NAI site locations	Mid term
Folston Pond Natural Area	510	NAI site locations	Mid term
Harvey's Creek Natural Area	12,707	NAI site locations; regional lake attraction;	Mid term
Humboldt Lake Natural Area	2,753	NAI site locations; in proximity to local recreation area	Long term
Lily Lake Natural Area	704	Near Fish and Boat Commission property	Long term
Perrins Marsh Natural Area	608	NAI site locations; wetlands	Long term
Pikes Creek Natural Area	11,770	Adjacent to Lackawanna State Forest, Moon Lake Park	Long term
Pismir Ridge Natural Area	2,388	Scenic quality	Long term
Spring Brook Natural Area*	1,418	Critical watershed area	Long term
Stockton Barrens Natural Area	2,361	Location of rail trail; NAI site locations	Long term
Wyoming Mtn. Natural Area	12,141	Critical watershed area; NAI site locations; adjacent to State Gamelands	Long term
AGRARIAN LANDS			
Conyngam Valley	20,019	Agricultural producing lands; rural character	Long term
GREENWAYS			
Black Creek Greenway	2,844	Stream buffer	Long term
Huntington Creek Greenway	9,413	Stream buffer	Long term
Little Wapwallopen Creek Greenway	2,431	Connection to Susquehanna; NAI locations	Mid term
Pine Creek Greenway	3,881	Stream buffer	Long term
Roaring Brook Greenway	1,868	Stream buffer	Mid term
Wapwallopen Gorge Greenway	3,311	Stream buffer	Mid term
TRAILS (miles)			
Ashley Planes	2.6 mi	Trail link into historic resource	Long term
Escarpment Trail	9.0 mi	Ridge trail	Mid term
Lehigh Gorge Trail	26.0 mi	Existing Trail	N/A
Luzerne County Rail w/Trail	11.6 mi	Easements secured	Mid term
Mocanaqua Loop Trail	8.0 mi	Existing Trail	N/A
Penobscot Ridge/Wilkes Barre Mountain	21.0 mi	Trail connection along ridgeline, with connections to regional trails	Long term
Route L Trail	23.0 mi	Existing Trail	N/A
Route L Spur	22.0 mi	Existing Trail	N/A
Wyoming Valley Levee System	15.0 mi	Existing Trail	N/A
West Side Trail	9.0 mi	Easements partially secured	Mid term

CHAPTER 7

IMPLEMENTATION STRATEGY



7.0 Implementation Strategy

There are four specific strategies that should be implemented in order to protect open space resources throughout Luzerne and Lackawanna Counties, these include:

- 1) Establishing a management structure for open space protection;
- 2) Developing a targeted open space protection strategy;
- 3) Defining a stable and recurring source of funding;
- 4) Instituting an open space stewardship program.

These strategies are further defined and described in the following pages of this Chapter. Successful implementation of the recommendations set forth in this Plan will require collaboration and cooperation among state, county and local leaders, non-profits, buy-in from the public and support from volunteers.

This Chapter is organized to provide information on a recommended management approach to implementing the plan. It includes a discussion about land conservation tools ranging from voluntary easements to acquisition and also provides detailed information about the economic benefits of open space and available funding sources at the federal, state and local level that can provide assistance.

7.1 Management Approach

The recommended approach for creating an organization to champion the Lackawanna and Luzerne Counties Open Space, Greenways and Outdoor Recreation program is described below. Recommendations include both short term and long term strategies for implementation and management of this plan. Overall, the roles and responsibilities of this organization should include:

- Advocate, promote, and encourage implementation of open space and greenways
- Engage and educate citizens as to benefits of open space and greenways
- Assist in raising money for implementation
- Help to organize volunteers to assist with implementation and management
- Sponsor or co-sponsor open space and greenway events
- Serve as champion for open space implementation
- Advise local governments on specific elements of the open space program
- Assist in local government efforts to create and implement municipal and multi-municipal open space plans
- Advocate, promote and encourage the adoption of sound and consistent subdivision and land development ordinances at all levels of government that support the recommendations in this Plan
- Facilitate cooperation among jurisdictions for open space implementation

- Promote the use of consistency and uniform standards for open space and greenway facilities

7.1.1 Short-Term: Partners in Open Space

In the short term, Luzerne and Lackawanna Counties should work cooperatively with each other and with local governments within each County to implement the recommendations of this plan. To accomplish this, existing organizations and agencies within each County will need to assume responsibilities for implementing plan recommendations. For example, Parks and Recreation in each County should be evaluated to accommodate lead roles in acquiring properties and developing trails or other recreation facilities. The planning agencies in each County should continue to oversee implementation of other key recommendations, including GIS mapping, meeting facilitation and program governance. At the same time, a core group of bi-county officials and citizens should continue to explore the long-term implementation recommendation of this plan, most importantly the formation of a proposed Open Space, Greenway and Outdoor Recreation Authority.

The current Open Space, Greenways and Recreation Advisory Committee should continue its work on plan implementation. The OSRAC should be subdivided into a Luzerne County committee and Lackawanna County committee, similar to the existing Metropolitan Planning Organization. Additionally, the counties need to continue to work in partnership with local governments, private sector organizations, non-profits and civic groups to accomplish the goals of the program.

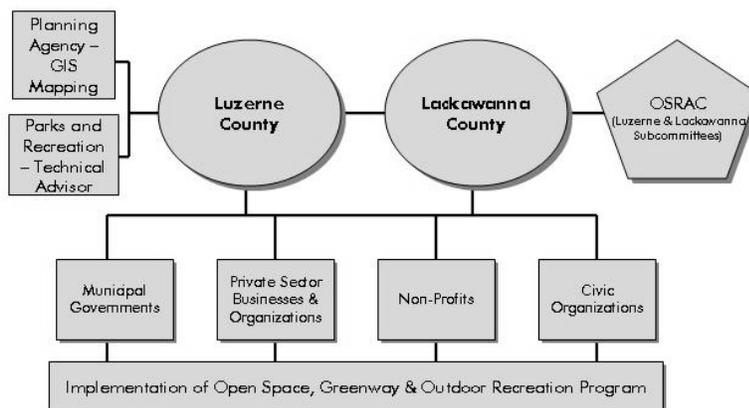


Members of the OSRAC should continue to play a role in implementation.

EDAW, Inc., 2003

Organizational Framework

Utilizing the existing framework of County government, the open space, greenway and outdoor recreation program could be implemented and managed by existing agencies. The following offers some general guidelines for how this might occur.



Role of County Government

Each County would be vested with the responsibility for implementing the open space and greenways program. Each County would partner with municipalities and the private sector to carry out the objectives of the Plan. The Counties would also assist local governments' efforts to create and implement municipal and multi-municipal open space plans. The County Commissioners will establish appropriate budgets and define annual goals for the program. Respective department staff will be responsible for implementing various aspects of the open space, greenways and outdoor recreation program, under the direction of the County Commissioners. The Planning Commission and Park and Recreation programs within each County will shoulder the primary burden for implementing the program. To accomplish this, it is recommended that each County establish two new staff positions during this period, one in planning and the other in conservation, park and recreation to oversee the implementation of the key recommendations of this Plan. The planning staff should have experience and expertise in GIS mapping and will be responsible for maintaining the GIS system derived from this Plan. The conservation, parks and recreation staff person will serve as technical advisor to municipal governments for land protection, funding and stewardship.

Role of OSRAC

The Open Space, Greenways and Outdoor Recreation Advisory Committee will continue to play a valuable role in the implementation of this Plan. It is recommended that OSRAC continue to meet as a committee of the whole, and also divide into two subcommittees in order to represent the interests of each County. OSRAC should continue to be a principal advocate and champion for the Plan and work in conjunction with both counties to encourage the full implementation of the Plan. OSRAC should continue to hold regular meetings and work cooperatively with other partners defined herein to ensure that projects move from concept to reality. As advisors to the counties, OSRAC can help secure funding for projects, work with citizen groups and businesses to explain the benefits of open space and greenway projects, and host or co-host events to promote the Plan.

First, OSRAC should divide into a core group that would continue to meet on a regular basis and champion the implementation of this Plan. The full Committee should meet at least four times a year for the next two years to receive updates and progress reports. The core group would be tasked with continued advocacy and implementation of the recommendations provided in this Plan. The core group would accomplish this by partnering with County and municipal governments.

Second, OSRAC needs to appoint a chair and secretary that will serve in a leadership capacity for the Committee. The chair will be responsible for organizing and facilitating meetings of the entire Committee and the Core Group. The secretary will compile minutes of meetings, distribute these to all members of the Committee and provide notification of meetings to all

members. OSRAC will need the continued financial support and staff assistance from each County in order to carry out its mission and objectives.

Third, OSRAC should file an annual report of its activities with each County at the close of the calendar year. This report should highlight the accomplishments of the Open Space program and provide an update of activities that are related to open space protection, implementation and stewardship.

Fourth, OSRAC should work with each County to support the future management structure recommended in this Plan. To accomplish this, OSRAC should assist each County in promoting the establishment of a bi-county open space authority and provide support for passage of a bond referendum that is recommended in this Plan.

Role of Municipal Governments

Local governments within each County play a very valuable role in the future open space, greenways and outdoor recreation program. As partners with the counties, each municipal government should assist in the protection, acquisition and management of land for the open space system and the physical development and maintenance of facilities. The specific level of participation will vary with each project and its location. Municipal governments can greatly assist the counties with implementation by following the guidelines contained within the **Community Audit** section of this plan, found in the Appendix, and by creating and implementing their own Open Space Plans. As such, zoning and land development codes should be updated to support land conservation practices. Municipalities can also partner with County agencies to support future management and operation of open space and greenway facilities. These duties and responsibilities are further described the following sections of this Chapter.

As part of this planning effort, six local governments volunteered to have their zoning, subdivision, and land development ordinances evaluated through a “community audit.” These evaluations focused on how the effectiveness of existing codes balances growth management and natural resource protection. At the end of the evaluation, a set of recommendations and proposed amendments were offered to each of the six communities. The recommendations focused on ensuring that 1) the need to conserve natural resources was appropriately articulated in each document, 2) flexibility had been built into the codes so that land developers can more easily find ways to balance protection and development needs, and 3) an overall system to include conservation into everyday land development decisions was in place.

The next steps are for these six local governments to start making the recommended changes to their codes and for the other local governments in the bi-county planning area to participate in similar types of audit procedures. Neighboring Monroe County is involved in a similar process of auditing its ordinances and codes. Their experiences should be helpful to the Luzerne and Lackawanna efforts. To effectively implement this Plan, it will be important for the other

communities in the area to examine how their land management documents affect the balance of natural resource protection and land development.

Local governments should also consider establishing a permanent municipal body, such as an environmental advisory council (EAC) to assist with ongoing implementation efforts involving outreach to property owners and acquisitions. An EAC is a group of three to seven community residents, appointed by the municipality's elected officials, which advises local officials, the planning commission and the park and recreation board on the protection, conservation, management, promotion and use of natural resources within the municipality. EACs exist to assist elected and appointed officials in protecting the environment. Municipalities are authorized to establish EACs through Act 148 of 1973. Because they are made up of community residents, EACs are a vehicle to harness resident energy and to channel public opinion. EAC members can be charged with all steps of open space protection, including planning, fundraising, campaigning and managing land. Because an EAC is advisory rather than regulatory, members can approach landowners in a non-threatening way to discuss open space goals and concerns. Additionally, EACs can prepare funding applications, and in the event of a referendum for open space funding, they can champion the effort and interact with community residents as an official representative of local government.

Role of Non-Profits

Non-profit organizations are very important partners in the future implementation of the open space, greenways and outdoor recreation system. Land trusts will be some of the most valued partners to the counties as they can be on the front lines working with landowners and citizens to define the benefits of the program and leverage funds for purchase or management of land. Other non-profit organizations can help each County with coordinating and sponsoring events and programs, assist in the evaluation of resources and recruit other private sector partners to join the effort. Non-profits can also help to plan for and build sections of the greenway system and they can also provide volunteer support for maintenance and operation of the system.

Role of Private Sector

The private sector, including businesses, organizations and individuals, should play an important role in the development and management of the open space, greenways and outdoor recreation program. Private sector groups and businesses can sponsor open space and greenway projects, donate land to the program and sponsor events that raise funds. The private sector can also play an important role in the management of open space and greenway lands and facilities. This can all be accomplished through term-limited executed agreements that define specific roles and responsibilities.

Funding Formula

Funding the short-term management approach will require cooperation among the local governments in Luzerne and Lackawanna Counties. The most likely funding scenario is to have

each County provide line item funding for the open space, greenways and outdoor recreation program throughout the short-term duration (two years). For the two-year period, a minimum of \$100,000 annually is needed within each County to successfully operate the program. Most of these funds would be used to support the additional staff needed in the two departments of each County.

Each County should also explore the long-term ramification of a bond referendum. Successful bond measures for open space, greenways and recreation have been passed in other Pennsylvania counties, including Monroe, Montgomery, Lehigh, Northampton, Chester, and Cambria Counties. A bond measure between \$25 and \$30 million should be considered in order to fund the long term operations of the program proposed within this Plan.

Duration

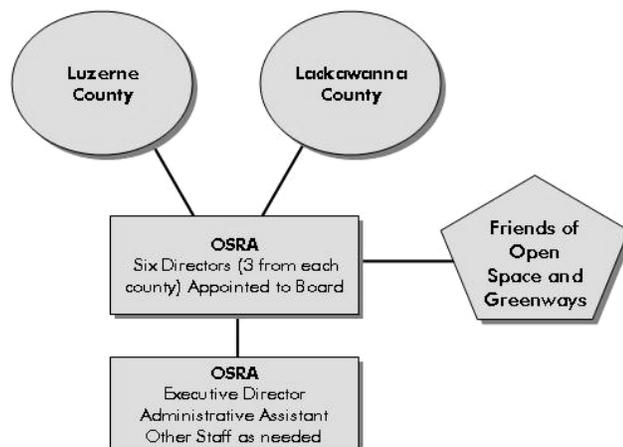
The short-term management approach should extend for approximately two full years from the date that the Plan is adopted by each County. This will give the counties sufficient time to establish the long-term, bi-county authority that is necessary to manage the program.

7.1.2 Long term: Bi-County Regional Open Space, Greenways and Outdoor Recreation Authority

For the long-term, a bi-county regional open space, greenways and outdoor recreation authority should be established. This authority would assume most of the daily management responsibilities described within this report. The authority could be established through a two-stage process. During the first stage, each County could consider establishing a separate authority. The individual authorities would operate under separate jurisdiction for a specified period of time. The long-term goal would be to merge the separate authorities into a regional authority to maximize their capacity and operations. Another option would be to establish the bi-county authority immediately and begin working jointly to implement plan recommendations.

Organizational Framework

Based on similar regional authorities that are in place and active in other parts of the United States, it is recommended that Luzerne and Lackawanna Counties establish the Luzerne-Lackawanna Regional Open Space, Greenways and Outdoor Recreation Authority (OSRA). The authority would be governed by a Board of Directors appointed from each County. One suggestion, at right, would be to have three members appointed from each County to serve as the Directors. The authority would employ its own administrative staff. The



current OSRAC would be transformed into a Friends of Open Space and Greenways organization and would continue to assist the Authority with advocacy and implementation.

The bi-county authority is similar in structure to the Cambria County Conservation and Recreation Authority. The new authority would be comprised of six (6) representatives from Luzerne and Lackawanna Counties. Nominations should be evaluated by receipt of resumes on the person's knowledge or experience, ability to serve, and interest in the activities of the authority. Assuming three members per County, the 6-member board would be appointed by each governing body and would have staggered terms. A chair and vice-chair would be elected from within the organization. Standing committees would also be established and would focus on Finance and Fund Raising, Planning and Project Development, and Promotion and Marketing.

The bullets below define the purpose and function of the authority. A minimum of three staff: an executive director, an assistant director for development, and a secretary would be needed to effectively run the organization. This is based on an examination of other similar authority models. Funding for staff would initially come from local and/or state government funding. Friends of Open Space and Greenways would be a subset of the authority and would be membership based.

Bi-County Regional Open Space, Greenways and Outdoor Recreation Authority

- Champion for implementing open space, greenways and outdoor recreation program
- Advise local governments on development of a county-wide program and encourage the creation and implementation of municipal and multi-municipal open space plans that are consistent with the County program and Plan.
- Facilitate cooperation among jurisdictions for implementation of program
- Define and recommend sources of funding for program
- Implement uniform standards for open space and greenways facilities
- Coordinate efforts to create a unified open space and greenways system
- Coordinate efforts with adjacent counties
- Update key components of this plan via addendum
- Ensure GIS data and mapping is updated to reflect changes in the data subsets for maximum accuracy and effectiveness
- Monitor progress of plan implementation

Friends of Open Space and Greenways

- Subset of authority
- Membership organization
- Advocate, promote, encourage development of open space and greenways
- Educate citizens as to benefits of open space and greenways
- Assist authority in raising money for implementation

- Help to organize volunteers to assist with implementation and management
- Sponsor or co-sponsor open space and greenway events

Duties and Activities

The principal activities and duties of the authority would be to champion the full implementation of the Open Space, Greenways and Outdoor Recreation Master Plan. To accomplish this, the authority will need to establish a detailed work plan and ensure that this work plan is followed. The authority should assist local governments in raising funds, coordinating efforts between local governments or with other public or private sector groups, and assist with development activities where appropriate. The authority should publish an annual report that provides the community with an update of its progress. The authority should also steward a new bi-county GIS mapping system and keep this up-to-date. The authority will want to launch and maintain a web site that provides up-to-date information about the open space and greenways system, as well as a library of completed projects.

The activities and duties of Friends would be principally oriented toward communication, event programming and outreach/education. Friends should at a minimum host an annual meeting of its membership and this event should be held at an open space/greenway facility/project. The authority staff would publish a newsletter and distribute this to its membership. Friends would sponsor events and programs such as a Speaker's Bureau, education and outreach programs and technical programs for municipal officials, landowners, businesses and educators. Friends would raise funds for open space and greenway facility development from private sector sources and would also sponsor events that promote revenue generation for the authority.

Funding Formula

The authority will need initial seed money to begin operations, and it will need to generate long-term financial support for its future operations. To establish the authority, an initial pool of resources would be required. The funds should be raised from a combination of public and private sources. Both counties would be asked to make a contribution, and private sector organizations would also need to contribute resources. An initial budget of \$250,000 would allow the authority to employ staff and launch programs. This money could come from the passage of a bond measure within each County. It is recommended that each County consider introducing a bond measure of between \$25 to \$30 million to fund the operation of the authority and implementation of the plan recommendations.

During its first year, staff of the authority would generate annual funding to support the operating budget. Events, potential membership dues, grants and other funding opportunities would be defined by the administrative staff.

Figure 7.1 below provides a comparison of the advantages and disadvantages of different governance models. Examples of successful management organizations in Pennsylvania are also included below for reference; examples from other parts of the United States are included in Section 4.0 of the Appendix.

Figure 7.1 Advantages and Disadvantages of Different Governance Models

Organization Model	Example	Advantages	Disadvantages
Single Agency	Luzerne and Lackawanna County Park and Recreation Programs or Planning Commissions	One-stop shop, fits traditional government role, consistent with other local government pursuits and implementation practices, a known quantity to citizens	Overloading of single agency, limited funding, limited staff resources, dependent annual budget allocations
Multi-Agency	Monroe County Open Space Program	Diverse funding can be shared among two or more agencies, shared burden of responsibility, fits traditional government models	Problems with coordination, different directions causes friction among agencies, consistent application of resources to program
Partnership Public-Private	Roanoke Valley Greenway Commission	Private sector funding, shared burden of responsibility among public and private sectors, speed of accomplishments	Accountability to voters/residents, coordination, consistency, staying power, dependent on private funding
Regional Authority	Cambria County Conservation and Recreation Authority, the Northern Virginia Regional Park Authority and the East Bay Regional Park District	Autonomy from local governments, ability to raise own revenues outside of local governments, coordination of large scale endeavors, consistent application to mission and objectives	Autonomy from local governments, not a known entity among citizens, confusion for citizens, dependent on generating revenue outside of traditional government funding, requires additional "tax" on local resources

Cambria County Conservation and Recreation Authority, PA

The Cambria County Conservation and Recreation Authority was established in 1993 under the Pennsylvania Municipalities Authority Act of 1945 to address the lack of recreation facilities in the County and resolve acid mine drainage polluting waterways in the County. The specific mission of the authority is *“To acquire, construct, maintain, and operate recreation, conservation and environmental remediation facilities to conserve our resources for the benefit of Cambria County’s residents and visitors.”* The authority has a term limit of 50 years and is governed by a 15 member board that was established with staggered terms. Appointments to the authority are made by the Cambria County Board of Commissioners. All board members must be residents of the County. The board has four officers, a chair, vice-chair, secretary and treasurer that serve to conduct the business of the board. The board holds an annual meeting on the 3rd Monday in January of each year, and conducts regular meetings in accordance with state laws. Eight members must be present in order to provide for a quorum. The board publishes an annual report on its activities.

The authority is staffed with a full-time Executive Director, Solicitor and Administrative Specialist. The authority also works in partnership with the Cambria County Conservation District to accomplish its work and mission. The authority operates as an extension of County government. It is covered under the County's general liability insurance policy. Operating costs for the authority are provided through a unique approach, in which the authority utilizes a system memorialized by separate agreement on each grant, where all grant payments and receipts are turned over to the County in dedicated funds. This way, the existing County controller's staff handles issues of documentation and payment. This allows advance payment of expenses on projects that have signed binding grant agreements. The authority receives a general appropriation from the County Commissioners every January on which it draws and deposits in its own account to pay certain administrative procedures. On a monthly basis, the authority approves an "Officer's Warrant" containing a list of checks to be drawn by the County Controller.

The authority has completed several projects during its 10-year history, most of which have been oriented toward mine clean-up and restoration, greenway and trail construction. Among the greenway projects is the Ghost Town Trail Network, a 16-mile trail in both Indiana and Cambria Counties that is accessible to a wide range of users groups. Other projects include:

- Bear Rock Run Acid Mine Drainage Remediation - Washington Township
- Gray Run Acid Mine Drainage Remediation - Lower Yoder Township
- Sulfur Creek Acid Mine Drainage Remediation - Adams Township
- Webster Mine Remediation - Nanty Glo Borough - Blacklick Creek
- St. Michael Pump Storage / Water Treatment Project - Adams Township
- Mainline Trail Planning Study - Cresson Borough to South Fork Borough
- Path of Flood Trail - South Fork Borough to Franklin Borough
- National Park Service map of the route of the 1889 Johnstown Flood
- Recreational Use of area Reservoirs
- Candi Trail (and Ebensburg Extension)
- James Mayer River Walk Trail
- Upper West Branch Susquehanna River Conservation Plan

For more information visit the Cambria County Conservation and Recreation Authority website at <http://www.ctcnet.net/cccca/>.

Monroe County Open Space Program, PA

The Monroe County Open Space Program was established in June 2001 as a component of the Monroe 2020 Plan (comprehensive growth management plan). Two key elements led to the preparation of the open space plan, the first was passage of an open space bond referendum in the spring of 1998 and the second was the adoption of Monroe 2020 Plan in 1999. The open space plan was developed by an Open Space Advisory Board that was

comprised of citizens from the County. The open space plan provides a specific set of action steps that are to be undertaken by the community in order to meet the objectives defined within the plan.

The vision of the plan is to “Create an open space system with a network of interrelated preserved lands and trails protected through various actions. Land suitable for public access will be acquired through various acquisition strategies. Other lands will be protected through land use controls or other non-acquisition techniques. These non-acquisition controls will be established through a partnership between the County, municipalities, and landowners.”

The County was successful in passage of a \$25 million bond referendum that supports the mission and objectives of the program. One of the important elements of the open space plan was to develop guidelines for the future allocation of funds that would serve to support open space protection and preservation. The plan recommended creating a marketing program, named “Forever Green.” This program would contain three subset programs: a county-wide greenways program, a heritage preservation program and a county-wide parks program. The County Planning Commission would spearhead the implementation efforts.

A formula was developed for the distribution of the bond funds in support of these programs. The County would allocate 40% of the bond funds in the form of grants to municipalities to protect open space, 30% of the funds would be used to develop greenway and park connections, 16% of the funds would be used for agricultural preservation, 10% of funds would be used for recreation and family fitness programs and facilities, and the final 4% of funding would support planning, studies and educational pursuits. The County established as a goal the acquisition of 10,500 acres of open space land through this program.

Governance of the program largely is vested with three existing organizations, the County Planning Commission, Parks and Recreation Department and Resource Conservation District. The Open Space Advisory Board continues to serve in an advisory and monitoring capacity. The Planning Commission maintains the county-wide GIS mapping program for open space. Parks and Recreation takes on the added responsibility of trail planning, design and construction. The Resource Conservation District is responsible for managing natural lands that are not open for public use. The Planning Commission has added the position of Open Space Coordinator to its staff.

Municipalities throughout the area also encouraged to develop their own open space and greenway plans, and to work cooperatively with the County and other municipal governments to acquire land and implement park and greenway improvements. The Township of Stroud and Boroughs of Stroudsburg and East Stroudsburg completed a joint regional open space plan in July 2001. Hamilton, Jackson and Pocono Townships are currently preparing a joint open space and recreation plan.

For more information contact the Monroe County Open Space Program website at <http://www.co.monroe.pa.us/recreation>.

7.2 Land Conservation Strategies and Tools

A variety of methods, other than outright purchase of land, can be employed to protect the open spaces, greenways, and outdoor recreation areas that have been defined for protection within this Plan. A comprehensive list of techniques and methods most commonly used for protection, conservation and preservation is provided below. In all cases, municipal and county strategies should ultimately strive to create a connected network of protected resources. Recommended land conservation tools for each proposed conservation area are listed in Figures 7.2 and 7.3.

7.2.1 Acquisition of Land through Management

Management is a method of conserving the resources of a specific open space parcel through either an established set of policies called Management Plans, or through negotiated agreements or easements with private property owners.

Management Plans

Management plans are prepared for publicly owned lands. Management plans should identify valuable resources; determine compatible uses for the parcel; determine administrative needs of the parcel, such as maintenance, security and funding requirements; and recommend short-term and long-term action plans for the treatment and protection of the resources.

7.2.2 Acquisition of Land through Regulation

A second method of protecting land is through government regulation. Regulation is defined as the government's ability to control the use and development of land through legislative powers. Regulation of land is not regarded as permanent protection and should be coupled with the other protection measures. The following types of development ordinances are regulatory tools that can meet the challenges of projected suburban growth and development while conserving and protecting open space resources.

Dedication/Density Transfers

Also known as incentive zoning, this mechanism allows open spaces to be dedicated to the Municipality/County for density transfers on the development of a property. The potential for improving or subdividing part or all of a parcel of real property, as permitted by county land use development laws, can be expressed in dwelling unit equivalents or other measures of development density or intensity. Known as density transfers, these dwelling unit equivalents may be relocated to other portions of the same parcel or to contiguous land that is part of a common development plan. Dedicated density transfers can also be conveyed to subsequent holders if properly noted in transfer deeds.

Transfer of Development Rights (TDR)

A Transfer of Development Rights program provides communities with a potentially powerful tool for redirecting growth from one area of a community to another. Under a TDR program, a community or regulatory agency regulates site densities by allowing higher densities on some parcels in exchange for lower densities on other parcels. A community identifies an area within its boundaries which it would like to see protected from development (the sending zone) and another area where the community desires more dense development (the receiving zone). Landowners in the sending zone are allocated a number of development credits which can be sold to developers, speculators, or the community itself. In return for selling their development credits, the landowner in the sending zone agrees to place a permanent conservation easement on his or her land. Meanwhile, the purchaser of the development credits can apply them to develop at a higher density than otherwise allowed on property within the receiving zone. TDR programs must be combined with strong comprehensive planning and local controls in order to be successful (<http://www.1000fom.org/lctools5.htm>).

Negotiated Dedications

The Municipal/County may ask a landowner to enter into negotiations for certain parcels of land that are deemed beneficial to the protection and preservation of specific stream corridors. The Municipal/County may ask for the dedication of land for open spaces when landowners subdivide property (a minimum size would be determined). Such dedications would be proportionate to the relationship between the impact of the subdivision on community services and the percentage of land required for dedication (as defined by the US Supreme Court in *Dolan v Tigard*).

Fee-in-Lieu

To complement negotiated dedications, a fee-in-lieu program may be necessary to serve as a funding source for other land acquisition pursuits of the Plan. Based on the density of development, this allows a developer the alternative of paying money for the development/protection of open spaces in lieu of dedicating land for open spaces. This money is then used to implement open space management programs or acquire additional lands.

Reservation of Land

A reservation of land does not involve any transfer of property rights but simply constitutes an obligation to keep property free from development for a stated period of time. Reservations are normally subject to a specified period of time, such as 6 or 12 months. At the end of this period, if an agreement has not already been reached to transfer certain property rights, the reservation expires.

Buffer/Transition Zones

This mechanism recognizes the problem of reconciling different, potentially incompatible land uses by preserving open spaces that function as buffers or transition zones between uses. Care

must be taken to ensure that use of this mechanism is reasonable and will not destroy the value of a property.

Overlay Zones

An overlay zone and its regulations are established in addition to the zoning classification and regulations already in place.

Subdivision Exactions

An exaction is a condition of development approval that requires a developer to provide or contribute to the financing of public facilities at his own expense. For example, a developer may be required to build a park or reserve open space on-site as a condition of developing a certain number of units because the development will create need for new parks or will harm existing parks due to overuse. The mechanism can be used to protect or preserve open space which is then dedicated to the Municipality/County. Consideration should be given to including open space development in future exaction programs.

7.2.3 Protection of Open Space through Acquisition

A third method of protecting open spaces is through the acquisition of property. A variety of methods can be used to acquire property for open space purposes.

Donation/Tax Incentives

The Municipal/County agrees to receive full title to a parcel of land at virtually no cost. In most cases, the donor is eligible to receive federal and state deductions on personal income, as described under conservation easements. In addition, property owners may be able to avoid inheritance taxes, capital gains taxes and recurring property taxes.

Fee Simple Purchase

This is a common method of acquisition where a local government agency or private open space manager purchases property outright. Fee simple ownership conveys full title to the land and the entire "bundle" of property rights including the right to possess land, to exclude others, to use land, and to alienate or sell land.

Easements

Easements are the conveyance of property rights in which the Municipality/County receives less than full interest in a parcel of land in order to protect a valuable resource. The purpose of these agreements is to establish legally binding contracts or a mutual understanding of the specific use, treatment and protection that these open space lands will receive. Property owners who grant easements retain all rights to the property except those which have been granted by the easement. The property owner is responsible for all taxes associated with the property, though the taxes can be lower because the value of the property will be lower without the right to develop. Easements are generally restricted to certain portions of property, although in

certain cases, an easement can be applied to an entire parcel of land. Easements are transferable through title transactions, thus the easement remains in effect in perpetuity. Three types of easements are:

Conservation Easements

This type of easement generally establishes permanent limits on the use and development of land to protect the natural resources of that land. Dedicated conservation easements can qualify for both federal income tax deductions and state tax credits. Tax deductions are allowed by the Federal government for donations of certain conservation easements. The donations may reduce the donor's taxable income.

Preservation Easements

This type of easement is intended to protect the historical integrity of a structure or important elements of the landscape by sound management practices. Preservation easements may qualify for the same federal income tax deductions and state tax credits as conservation easements.

Public Access Easements

Right of public access easements provide the general public with the right to get to and use a specific parcel of property. Both conservation easements and preservation easements may contain clauses for the right of public access and still be eligible for tax incentives.

Easement Purchase

This mechanism is the fee simple purchase of an easement. Full title to the land is not purchased, only those rights granted in the easement agreement. Therefore the easement purchase price is less than full title value.

Purchase of Development Rights

A voluntary Purchase of Development Rights (PDR) program could be established and could be used to protect agricultural lands. PDR involves purchasing the development rights from a private property owner at a fair market value. The landowner retains all ownership rights under current use, but exchanges the right to develop the property for cash payment.

Purchase/Lease Back

The Municipality/County or private land conservation organization can purchase a piece of land and then lease it back to the seller for a specified period of time. The lease may contain restrictions regarding the use and development of the property.

Bargain Sale

A property owner can sell property at a price less than the appraised fair market value of the land. Sometimes the seller can derive the same benefits as if the property were donated.

Bargain Sale is attractive to sellers when the seller wants cash for the property, the seller paid a low cash price and thus is not liable for high capital gains tax, and/or the seller has a fairly high current income and could benefit from a donation of the property as an income tax deduction.

Option/First Right of Refusal

A local government agency or private organization establishes an agreement with a public agency or private property owner to provide the right of first refusal on a parcel of land that is scheduled to be sold. This form of agreement can be used in conjunction with other techniques, such as an easement, to protect the land in the short term. An option would provide the agency with sufficient time to obtain capital to purchase the property or successfully negotiate some other means of conserving the open space resource.

Condemnation

The practice of condemning private land for use as open spaces is viewed as a last resort policy. Using condemnation to acquire property or property rights can be avoided if sufficient private and public support is present. Condemnation is seldom used for the purpose of dealing with an unwilling property owner. In most cases, condemnation for open space purposes has been exercised when there has been absentee property ownership, when title to the property is not clear, or when it becomes apparent that obtaining the consent for purchase will be difficult because there are numerous heirs located in other parts of the United States, or in different countries.

7.3 Implementation Matrix

Implementing this Plan will require a creative use of the many conservation strategies and tools available, as described above. There is not one solution for creating an open space and greenways network that works for all areas; rather careful thought must be placed in the determining the appropriate conservation strategy for each area. Land acquisition, the most costly, is often not the best answer for all the parties involved. Property owners and developers may be more amenable to practicing land conservation techniques and maintaining ownership rather than selling or donating property. Furthermore, open space resources and greenways, including trails, require maintenance, operation and management, which are paramount considerations when considering the long term life of a project.

Local governments can enact more conservation-based codes and policies that promote the goals of this Plan, as well as of the goals of their communities. In order to establish a pilot program with a long term goal of consistency of effort by all 116 communities in the bi-county area, the planning process included community audits of zoning and subdivision ordinances of six participating communities. The fundamental goals of the process were to assess how existing trends are shaping growth and open space protection in the communities and to offer recommendations on ways to balance growth and natural resource protection. South Abington, Scott, and Madison Townships in Lackawanna County and Wright and Kingston Townships as

well as Luzerne County, participated in the audit process. The detailed audit process is covered in section 3 of the Appendix.

Public private partnerships (PPV) that are structured between two or more entities, whether it is public, private or not-for-profit, are viewed as an appropriate management entity for several of the conservation lands identified in this plan. A partnership allows for the leveraging of funds, revenue pooling, and the sharing of both human and financial resources to provide management and operation needs. Although federal and state agencies including the U.S. Department of Interior, U.S. Bureau of Fish and Wildlife Service, Pennsylvania State Game Commission, Bureau of Forests, and Bureau of Parks, have limited funds available for acquisition, they do offer opportunities for management and operation of resources. Land conservation organizations like local land trusts identified in Section 4.6, the Nature Conservancy, the Conservation Fund and others, can provide technical and sometimes financial assistance in conservation efforts as well. Likewise, private corporations in the bi-county area, such as PPL, are already involved in successful conservation efforts and may be interested in pursuing additional interests in this area. It is recommended that the Friends of Open Space and the OSRAC engage major land owners and corporations in efforts to help in implementing the Plan.

Figures 7.2 and 7.3 identify the recommended conservation strategy or tool and potential management entity for all proposed conservation areas including trails. In addition, potential magnitude costs for short term priority conservation areas and trails have been identified. Please note that in the case of trails, the cost refers to the entire trail distance, not only the portion within the bi-county area. These costs are difficult to estimate and could vary tremendously based on several local factors including location, development suitability (wetlands, steep slopes, soils, floodplain, etc.), appraisals, and ownership. They have been developed as a range to provide a rough estimate of per acre costs for initial purchase of open space or construction of trails and are useful for long range planning and estimation purposes only. They do not reflect market-based appraisals and should not be used for property negotiation purposes or for specific acquisition processes. Potential magnitude costs, however, are helpful to understand the potential long range costs for implementation. They do not include management costs associated with open space or trails, which could be impacted by volunteer capacity and include regular maintenance and upkeep and associated labor for such activities. Additional costs may also be required for design, engineering (cut/fill), cleaning or grubbing of trail areas, as well as contingency costs.

Not all conservation areas are identified for fee simple purchase, therefore magnitude costs will vary depending on the type of land conservation tool utilized. A per acre cost range of \$350 to \$5,000 per acre has been used to estimate land costs for priority natural areas, greenways and highlands. Trail costs vary between \$100,000 per linear mile for stone or unfinished surface to

\$250,000 per linear mile for a paved asphalt surface. Again, trail costs will vary depending on engineering and design requirements, volunteer contributions and miscellaneous fees.

Funding sources for these projects will vary tremendously as a multitude of resources are available from Federal, State, local, non-profit and private resources. Potential funding sources are addressed in section 7.5.

Figure 7.2 Lackawanna County Implementation Matrix

Proposed Conservation Area	Acres	Priority	Preferred Land Conservation Tool	Preferred Management Entity	Potential Magnitude Costs
Moosic Mtn. Barrens Natural Area	2,363	Short term	Fee Simple Purchase	Public/Private Partnership; NPS; USFS, US Dept. of Interior; USDA; PA Game Commission; DCNR; PennDOT; LHVA; County	\$708,900 - \$8,270,500
Moosic Mtn. Highlands	9,437	Short term	Fee Simple Purchase	Public/Private Partnership; NPS; USFS, US Dept. of Interior; USDA; PA Game Commission; DCNR; PennDOT; LHVA; County	\$2,831,100 - \$33,029,500
Bald Mtn. Highlands	2,187	Short term	Fee Simple Purchase	Private/Public Partnership	\$656,100 - \$7,654,500
Bear Lake Natural Area	724	Short term	Fee Simple Purchase	PA Bureau of Forests; DCNR; USFS	\$217,200 - \$2,534,000
Potter Creek Natural Area	1,145	Short term	Fee Simple Purchase	Private/Public Partnership	\$343,500 - \$4,007,500
Lake Scranton Natural Area	8,559	Short term	Easements; Negotiated Dedications; Zoning	Public/Private Partnership; DCNR; PA Bureau of Forests; Local Recreation Clubs	\$2,567,700 - \$29,956,500
Lackawanna River Greenway	2,273	Short term	Easements; Negotiated Dedications; Zoning	LRCA, LHVA, Local Conservation Groups; DCNR; County	\$681,900 - \$7,955,500
Lehigh River Greenway	2,202	Short term	Easements; Negotiated Dedications; Zoning	Private/Public Partnership	\$660,600 - \$7,707,000
Susquehanna River Greenway	2,378	Short term	Easements; Negotiated Dedications; Zoning	Private/Public Partnership	\$713,400 - \$8,323,000
Countryside Conservancy Trolley Trail	10.0 mi	Short term	Easements; Fee Simple Purchase	Local governments; Countryside Conservancy	\$ 2,500,000
D&H Rail Trail	36.0 mi.	Short term	Easements; Fee Simple Purchase	Rail Trail Council NE PA	\$ 9,000,000
Lackawanna River Heritage Trail	40.0 mi	Short term	Easements; Fee Simple Purchase	LRCA, LHVA, Local Conservation Groups; DCNR; County	\$ 10,000,000
HIGHLANDS					
Cary Mtn. Highlands	890	Long term	Fee Simple Purchase	Public/Private Partnership; PA Game Commission	
Bell Mtn. Highlands	1,797	Long term	Land Management Plan; Easements; Fee Simple Purchase	Public/Private Partnership; PA Game Commission	
NATURAL AREAS					
Abington Natural Area	1,657	Long term	Easements; Negotiated Dedications; Zoning; Density Transfers;	Local government; Private landowners; County Conservation District	
Elmhurst Custis Natural Area	5,526	Long term	Fee Simple Purchase	Private/Public Partnership	
Brownell Reservoir Natural Area	2,318	Long term	Easements; Negotiated Dedications; Zoning; Density Transfers;	County-Local	
Fall Brook Natural Area	7,037	Mid term	Easements; Negotiated Dedications; Zoning; Density Transfers;	Private/Public Partnership; DCNR; PA Bureau of Forests; Local Recreation Clubs	
North Abington Natural Area	238	Mid term	Easements; Negotiated Dedications; Zoning; Fee Simple Purchase	County; Local government; Private landowners	
Spring Brook Natural Area	11,821	Long term	Easements; Negotiated Dedications; Zoning; Density Transfers;	Private/Public Partnership; DCNR; PA Bureau of Forests; Local Recreation Clubs	
Summit Lake Natural Area	1,914	Long term	Easements; Negotiated Dedications; Zoning; Density Transfers;	Local government; Private landowners; County Conservation District	
AGRARIAN LANDS					
Baylor's Lake	5,788	Long term	Easements; Agricultural Land Preservation; Density Transfers; Purchase Development Rights; Negotiated Dedication; Zoning	Private landowners; County Conservation District	
GREENWAYS					
Painter Creek Greenway	326	Mid term	Fee Simple Purchase	PA Bureau of Forests; DCNR; USFS	
Roaring Brook Greenway	2,038	Mid term	Easements; Negotiated Dedications; Zoning	Local Conservation Groups; Local Governments; DCNR; County	
Tunkhannock Creek Greenway	2,180	Mid term	Easements; Negotiated Dedications; Zoning	Local Conservation Groups; Local Governments; DCNR; County	
TRAILS (miles)					
D&H Gravity Trail	18.0 mi	Long term	Easements; Construction Funding: state and federal grants, private business, partnership, volunteers	Rail Trail Council NE PA	
O&W Rail Trail	10.0 mi	Mid term	Easements; Construction Funding: state and federal grants, private business, partnership, volunteers	Rail Trail Council NE PA	
PA Coal Co. Gravity Railroad	12.0 mi	Long term	Easements; Construction Funding: state and federal grants, private business, partnership, volunteers	Historical Preservation Society; LHVA, LRCA; Local Community Groups	
Roaring Brook Corridor	12.0 mi	Mid term	Easements; Construction Funding: state and federal grants, private business, partnership, volunteers	LRCA, LHVA, Local Conservation Groups; DCNR; County; Community Groups	
Route L Trail	44.0 mi	N/A	N/A	PennDOT	
Route Y Trail	30.0 mi	N/A	N/A	PennDOT	

Figure 7.3 Luzerne County Implementation Matrix

Proposed Conservation Area	Acres	Priority	Preferred Land Conservation Tool	Preferred Management Entity	Potential Magnitude Costs
Bald Mtn. Highlands	142	Short term	Fee Simple Purchase	Public/Private Partnership; NPS; USFS, US Dept. of Interior; USDA; PA Game Commission; DCNR; PennDOT; County	\$42,600 - \$497,000
Penobscot Mtn. Highlands	2,944	Short term	Fee Simple Purchase	Public/Private Partnership; NPS; USFS, US Dept. of Interior; USDA; PA Game Commission; DCNR; PennDOT; County	\$883,200 - \$10,304,000
Arbutus Peak Natural Area	12,985	Short term	Fee Simple Purchase	Public/Private Partnership; NPS; USFS, US Dept. of Interior; USDA; PA Game Commission; DCNR; PennDOT; County	\$3,895,500 - \$45,447,500
Bear Creek Natural Area	10,483	Short term	Fee Simple Purchase	Private/Public Partnership; PA Game Commission	\$3,144,900 - \$36,690,500
Edgewood Pools Natural Area	2,873	Short term	Fee Simple Purchase	Private/Public Partnership; PA Game Commission	\$861,900 - \$10,055,500
Lackawanna River Greenway	131	Short term	Easements; Negotiated Dedications; Zoning	LRCA, LHVA, Local Conservation Groups; DCNR; County	\$39,300 - \$458,500
Lehigh River Greenway	3,600	Short term	Easements; Negotiated Dedications; Zoning	Private/Public Partnership	\$1,080,000 - \$12,600,000
Nescopeck Creek Greenway	3,508	Short term	Easements; Negotiated Dedications; Zoning	PA Game Commission; PA Bureau of Forests; DCNR; Public/Private Partnership	\$1,052,400 - \$12,278,000
Susquehanna River Greenway	17,645	Short term	Easements; Negotiated Dedications; Zoning	Private/Public Partnership	\$5,293,500 - \$61,757,500
Back Mountain Trail	14.0	Short term	Easements; Construction Funding: state and federal grants, private business, partnership, volunteers	ASTA	\$ 1,400,000
Black Diamond Trail	15.0	Short term	Easements; Construction Funding: state and federal grants, private business, partnership, volunteers	ASTA/D&L Corridor	\$ 1,500,000
Greater Hazelton Rail w/Trail	16.2	Short term	Easements secured; Construction Funding: state and federal grants, private business, partnership, volunteers	Greater Hazelton Civic Partshp.	\$ 4,050,000
Susquehanna Warrior Trail	18.5	Short term	Easements secured; Construction Funding: state and federal grants, private business, partnership, volunteers	Susquehanna Warrior Trail Council	\$ 1,850,000
HIGHLANDS					
East Buck Mtn Highlands	4,571	Long term	Land Management Plan; Easements; Zoning; Fee Simple Purchase	PA Game Commission; DCNR; PA Bureau of Forests; Public/Private Partnership	
Green Mtn. Highlands	3,150	Long term	Land Management Plan; Easements; Zoning; Fee Simple Purchase	PA Game Commission; DCNR; PA Bureau of Forests; Public/Private Partnership	
Kingston Highlands	4,250	Long term	Land Management Plan; Zoning; Easements	Private/Public Partnership; Local government; Private landowners;	
Larksville Highlands	3,229	Long term	Land Management Plan; Zoning; Easements	Private/Public Partnership; Local government; Private landowners;	
Lee Mtn. Highlands	2,825	Long term	Land Management Plan; Zoning; Easements	Private/Public Partnership; PA Game Commission	
Nescopeck Mtn. Highlands	3,618	Long term	Land Management Plan; Fee Simple Purchase; Zoning; Easements	PA Game Commission; PA Bureau of Forests; Public/Private Partnership	
Shickshinny Mtn.Highlands	4,896	Long term	Land Management Plan; Easements; Zoning; Fee Simple Purchase	PA Game Commission; PA Bureau of Forests; Public/Private Partnership; Local Recreation Clubs	
West Buck Mtn Highlands	3,125	Long term	Land Management Plan; Zoning; Easements	Private/Public Partnership	
Wilkes Barre Mtn. Highlands	2,025	Long term	Land Management Plan; Zoning; Easements	Private/Public Partnership	
NATURAL AREAS					
Abrahams Creek Natural Area	518	Mid term	Fee Simple Purchase	PA State Parks; Frances Slocum	
Campbells Ledge Natural Area	1,000	Mid term	Easements; Negotiated Dedications; Zoning	Private/Public Partnership	
Folston Pond Natural Area	510	Mid term	Easements; Negotiated Dedications; Zoning	Local Government; Private Landowners; County Conservation District	
Harvey's Creek Natural Area	12,707	Mid term	Easements; Negotiated Dedications; Zoning	Local Government; Private Landowners; County Conservation District	
Humboldt Lake Natural Area	2,753	Long term	Easements; Negotiated Dedications; Zoning	Local Government; Private Landowners; County Conservation District	

Figure 7.3 Luzerne County Implementation Matrix (continued)

Proposed Conservation Area	Acres	Priority	Preferred Land Conservation Tool	Preferred Management Entity	Potential Magnitude Costs
Lily Lake Natural Area	704	Long term	Easements; Negotiated Dedications; Fee Simple Purchase; Zoning	Fish and Boat Commission	
Perrins Marsh Natural Area	608	Long term	Easements; Negotiated Dedications; Fee Simple Purchase; Zoning	Local Government; Private Landowners; County Conservation District	
Pikes Creek Natural Area	11,770	Long term	Land Management Plan; Easements; Fee Simple Purchase	PA Bureau of Forests; County	
Pismir Ridge Natural Area	2,388	Long term	Easements; Zoning	Local Government; Private Landowners; County Conservation District; Public/Private Partnership	
Spring Brook Natural Area	1,418	Long term	Easements; Negotiated Dedications; Zoning; Density Transfers	Public/Private Partnership; DCNR; PA Bureau of Forests; Local Recreation Clubs	
Stockton Barrens Natural Area	2,361	Long term	Easements; Negotiated Dedications; Zoning	Public/Private Partnership; DCNR; Local Recreation Clubs	
Wyoming Mtn. Natural Area	12,141	Long term	Easements; Negotiated Dedications; Zoning	Public/Private Partnership; DCNR; Local Recreation Clubs	
AGRARIAN LANDS					
Conyngham Valley	20,019	Long term	Easements; Agricultural Land Preservation; Density Transfers; Purchase Development Rights; Negotiated Dedication; Zoning	Private landowners; County Conservation District	
GREENWAYS					
Black Creek Greenway	2,844	Long term	Easements; Negotiated Dedications; Zoning	Local Conservation Groups; Local Governments; DCNR; County	
Huntington Creek Greenway	9,413	Long term	Easements; Negotiated Dedications; Zoning	Local Conservation Groups; Local Governments; DCNR; County	
Little Wapwallopen Creek Greenway	2,431	Mid term	Easements; Negotiated Dedications; Zoning	Local Conservation Groups; Local Governments; DCNR; County	
Pine Creek Greenway	3,881	Long term	Easements; Negotiated Dedications; Zoning	Local Conservation Groups; Local Governments; DCNR; County	
Roaring Brook Greenway	1,868	Mid term	Easements; Negotiated Dedications; Zoning	Local Conservation Groups; Local Governments; DCNR; County	
Wapwallopen Gorge Greenway	3,311	Mid term	Easements; Negotiated Dedications; Zoning	Local Conservation Groups; Local Governments; DCNR; County	
TRAILS (miles)					
Ashley Planes	2.6 mi	Long term	Easements	Earth Conservancy; Public/Private Partnership	
Escarpment Trail	9.0 mi	Mid term	Easements	Earth Conservancy/Public Private Partnership/PA Game Commission	
Lehigh Gorge Trail	26.0 mi	N/A	N/A	DCNR	
Luzerne County Rail w/Trail	11.6 mi	Mid term	Easements; Construction Funding: state and federal grants, private business, partnership, volunteers	County	
Mocanaqua Loop Trail	8.0 mi	N/A	N/A	Earth Conservancy	
Penobscot Ridge/Wilkes Barre Mountain	21.0 mi	Long term	Easements; Construction Funding: state and federal grants, private business, partnership, volunteers	Earth Conservancy/Public Private Partnership/PA Game Commission	
Route L Trail	23.0 mi	N/A	N/A	PennDOT	
Route L Spur	22.0 mi	N/A	N/A	PennDOT	
Wyoming Valley Levee System	15.0 mi	N/A	N/A	County	
West Side Trail	9.0 mi	Mid term	Easements; Construction Funding: state and federal grants, private business, partnership, volunteers	Local governments; Public/Private Partnerships	

7.4 Create a Funding Quilt

Achieving the vision that is defined within this Plan will require, among other things, a stable and recurring source of funding. Communities, regional governments and states that have successfully engaged in open space, greenways and outdoor recreation programs have increasingly relied on multiple funding sources to achieve their programmatic goals. The same will be required within Luzerne and Lackawanna Counties. No single source of funding will meet the goals and objectives defined for a bi-county open space, greenways and outdoor recreation program. Instead, the counties will need to work cooperatively with each other and with many other local, state and federal partners to generate funds sufficient to implement the program.

One critical element of funding that all successful open space and greenways programs share is the ability of local governments to establish a recurring source of funding. This locally generated funding is then often times used to leverage supplemental dollars from other sources. The ability of any local government to generate a source of funding for open space and greenways depends on a variety of factors, such as taxing capacity, budgetary resources, voter preferences, and political will. It is very important that Luzerne County and Lackawanna County explore, both individually and collectively, the ability to establish a stable and recurring source of revenue for open space and greenways. Other models within each County, such as the airport authority, can be emulated, including the tax that is used to support this existing bi-county authority.

Of the many funding options that are defined within this Chapter and in Section 6.0 of the Appendix, three strategies emerge as recommendations for Luzerne and Lackawanna Counties. These strategies would provide a local, recurring source of revenue that the counties can use to launch and maintain an open space program for years to come.

- 1) **New Bond Referendum for Open Space:** Building on the success that other Pennsylvania counties have had, Luzerne and Lackawanna Counties should immediately work to pursue a bond referendum for open space protection. This referendum should request of between \$25 to \$30 million in support of open space protection, acquisition and management.
- 2) **Recurring Source of Revenue for Open Space:** Luzerne and Lackawanna Counties should also identify and institute a recurring source of revenue that would serve to support open space protection and management strategies, including the future development of facilities such as greenways and trails. The counties will need to partner with municipal governments to enact a revenue model that can be implemented uniformly in all local jurisdictions. The goal of this program would be to generate sufficient source of funding to support the long-term objectives that are defined within this Plan. Three areas that could be explored in support of a

recurring revenue source including a sales tax, property tax or excise tax. The counties and municipal governments should explore each of these sources to determine which single or combined source would best suit the future interests of the open space program.

- 3) **Institute a Utility Fee Program:** A future county-wide or bi-county utility fee program could greatly aid open space protection and management efforts. Through such a program, open space would become a subset of efforts to improve stormwater management, and could be institutionalized as a “Best Management Practice.” A utility fee would be collected by a designated County or bi-county agency/authority and spent in accordance with the objectives of the specific utility program. Other communities throughout the nation have successfully used this model to fund public health, safety and welfare benefit programs.

Both Luzerne and Lackawanna Counties may want to engage a financing strategist and polling firm (such as the Trust for Public Land) to further explore the feasibility, public acceptability, and potential real returns before implementing a specific funding mechanism or strategy. Careful consideration should be given to the implementation of financing techniques that require voter approval. To implement most voter-approved taxing/borrowing options, a three-step approach is recommended: feasibility research, public opinion polling, and measure design.

First, a jurisdiction’s financing capacity and the potential revenues that could be raised via different financing options are determined. This research will help local leaders estimate how much revenue different options would raise and the potential impact on residents.

Scientific public opinion polling should then be conducted to assess voter preferences (their willingness to fund open space and greenways in relation to other public needs) and how much they are willing to spend. Polling will gauge the public’s local conservation priorities and help determine the preferred type and size of financing measure. If the research and polling indicates a favorable response, a ballot measure can then be designed to reflect public priorities and implement the community’s conservation objectives.

There are several potential sources of funding at the local, state and federal level that are currently available to support open space and greenways implementation. The use of any of these funding sources is best determined on a case-by-case, or project-by-project basis. For example, the acquisition of a desired parcel of open spaced land may depend on a collection of funding sources that would differ from those used to build a greenway trail. In the following section, local government funding sources are addressed in detail with examples of how other communities have used various programs to fund open space and greenways implementation. State and Federal funding sources are listed in bullet style with more information provided in Section 6.1 and 6.2 of the Appendix.

7.4.1 Local Government Funding Sources

Nationally, most local governments have been severely strapped for cash, especially when it comes to implementing open space and greenways programs. Many local governments have turned to innovative programs that combine the goals of open space and greenways implementation with other public service programs, such as stormwater management, transportation, education and health and wellness. The following sources of funding address how these programs have been successfully co-mingled to support open space and greenway endeavors.

General Obligation Bonds

Cities, counties, and service districts generally are able to issue general obligation (G.O.) bonds that are secured by the full faith and credit of the entity. In this case, the local government issuing the bonds pledges to raise its property taxes, or use any other sources of revenue, to generate sufficient revenues to make the debt service payments on the bonds. A general obligation pledge is stronger than a revenue pledge, and thus may carry a lower interest rate than a revenue bond. Frequently, when local governments issue G.O. bonds for public enterprise improvements, the public enterprise will make the debt service payments on the G.O. bonds with revenues generated through the public entity's rates and charges. However, if those rate revenues are insufficient to make the debt payment, the local government is obligated to raise taxes or use other sources of revenue to make the payments. G.O. bonds distribute the costs of open space acquisition and makes funds available for immediate purchases. Voter approval is required.

Monroe County, PA passed a \$25 million open space bond in 1998 to fund the acquisition of land and implementation of the county-wide open space and greenways program. The passage of this bond has led local governments within Monroe County to develop their own open space and greenways programs. Several other counties in Pennsylvania have also recently passed open space bonds, including Chester, Bucks, Berks, Lehigh, Northampton, Montgomery and Schuylkill. Together, these counties have bonded an estimated \$384 million in support of open space and greenways initiatives since 1993.

Stormwater Utility Fees

Stormwater utility fees are becoming popular sources for funding open space programs. Stormwater charges are typically based on an estimate of the amount of impervious surface on a user's property. Impervious surfaces (such as rooftops and paved areas) increase both the amount and rate of stormwater runoff compared to natural conditions; such surfaces cause runoff that directly or indirectly discharges into public storm drainage facilities and creates a need for stormwater management services. Thus, users with more impervious surface are charged more for stormwater service than users with less impervious surface.

The stormwater utility fee-structures frequently relate non-residential customer charges to an equivalent residential user (ERU), or the typical charges incurred by a single-family residential unit. Thus, a commercial business with 10 times the amount of impervious area as a typical residential property would pay for 10 ERUs or 10 times the amount that a residential customer would be charged. Single-family residential customers are typically charged a uniform monthly fee per ERU, although some communities do vary the charges based on the footprint of the home. Multifamily users may be charged the same rate per dwelling unit as a single-family user, charged a fraction of the single-family rate per dwelling unit, or charged based on the measured impervious surface of their building.

The rates, fees, and charges collected for stormwater management services may not exceed the costs incurred to provide these services. The costs that may be recovered through the stormwater rates, fees, and charges includes any costs necessary to assure that all aspects of stormwater quality and quantity are managed in accordance with federal and state laws, regulations, and rules. Open space may be purchased with stormwater fees, if the property in question is used to mitigate floodwater or filter pollutants.

The City of Lenexa, Kansas has a “Rain to Recreation” program designed to connect park-like detention basins that process stormwater and meet recreation needs. The system uses natural filtration processes to improve water quality. Stream buffers along the connecting corridors provide recreational opportunities in the form of trails. The program is expected to cost \$82.6 million over 10 years compared to the \$99 million estimated to maintain the current, traditional stormwater system. In 2000, voters approved a 1/8-cent sales tax for stormwater/recreation improvements. This tax will cost residents about \$20 per year. Additionally, the city levy’s a stormwater utility fee of \$30 per household. Commercial and industrial utility charges are based upon the amount of impervious surface on the property (\$2.50 per 2,750 square feet per month).

Impact Fees

Impact fees, which are also known as capital contributions, facilities fees, or system development charges, are typically collected from developers or property owners at the time of building permit issuance to pay for capital improvements that provide capacity to serve new growth. The intent of these fees is to avoid burdening existing customers with the costs of providing capacity to serve new growth (“growth pays its own way”). Open space impact fees are designed to reflect the costs incurred to provide sufficient capacity in the system to meet the additional needs. These charges are set in a fee schedule applied uniformly to all new development. Utilities strive to ensure that impact fees reflect customers’ demands on the system. Communities that institute impact fees must develop a sound financial model that enables policy makers to justify fee levels for different user groups, and to ensure that revenues generated meet (but do not exceed) the needs of development. Factors used to determine an

appropriate impact fee amount can include: lot size, number of occupants, types of subdivision improvements, and other applicable measures.

If Luzerne and Lackawanna Counties are interested in pursuing the collection of impact fees for open space acquisition, it will require enabling legislation to authorize the collection of these fees.

Developer Dedications

A developer dedication requires new subdivisions to set aside a portion of the site as open space. Development approval is conditional upon the site plan preserving the requisite amount of undeveloped space. The use of dedications assures that a specific amount of land is preserved, however it is difficult to ensure that the land will meet the intended needs.

Offentimes, the land set-aside as a dedication includes wetlands, steep slopes or other features that render the set-aside land as unbuildable anyway. Protecting these lands is consistent with the goals of open space preservation, because they tend to be ecologically sensitive and their protection frequently has water quality benefits. However, ecologically sensitive lands are not always suitable for passive recreation and their protection may fall short of offsetting the anticipated need for increased recreational space.

In-Lieu-Of Fees

As an alternative to requiring developers to dedicate open space that would serve their development, some communities provide developers a choice of paying a front-end charge for off-site open space protection, as opposed to requiring the developer to dedicate the open space on-site. Payment is a condition of development approval. A payment recovers the cost of the off-site open space acquisition or the development's proportionate share of the cost of a regional parcel serving a larger area. Some communities prefer in-lieu-of fees. This alternative allows community staff to purchase land worthy of protection rather than accept marginal land that meets the quantitative requirements of a developer dedication.

Mitigation Banking

Mitigation banking presents another opportunity for furthering the objectives of the Open Space, Greenways and Outdoor Recreation Program. Developers are required by local governments to mitigate the impacts of their development on wetlands, streams, or animal habitat. For every acre of wetlands, streambed, or habitat that their development destroys, the developer is typically required to create other wetlands, habitats, or waterways to mitigate the impact of the development. Developers can mitigate these impacts on the site of their development or nearby.

If a mitigation bank were available, developers could also satisfy this requirement by purchasing credits from a mitigation bank. Mitigation banks are created by property owners who restore and/or preserve their land in its natural condition. Such banks have been developed by public,

nonprofit, and private entities. In exchange for preserving the land, the “bankers” get permission from the state (or the Army Corps of Engineers or other appropriate Federal agency) to sell mitigation banking credits to developers wanting to mitigate the impacts of their proposed development. By purchasing the mitigation bank credits, the developer avoids having to mitigate the impacts of their development on site. Public and nonprofit mitigation banks generally use the funds generated from the sale of the credits to fund the purchase of additional land for preservation and/or for the restoration of the lands to a natural state.

Taxes are used to fund activities that do not provide a specific benefit, rather a more general benefit, to the community, whereas assessments must show a benefit to the property owned by the user. The various forms of common taxes are described below. It is important to note that while taxes can create a solid funding base that can be used to fund annual capital and operating costs, there is often political pressure to keep taxes low and the natural conflict of setting tax-supported priorities.

Sales Tax

Pennsylvania communities have used a variety of sales tax mechanisms to generate revenues for open space and greenway programs. Dedicated sales taxes can generate considerable sums of money, are easily administered, and tap tourism expenditures. Objections to the sales tax generally revolve around the regressive nature of the tax and the reduction of funds in an economic slowdown. Objections can be alleviated by exempting basic necessity items such as food and drugs. By exempting basic necessity items, the sales tax becomes a consumptive tax.

Property Tax

Property taxes are assessments charged to real property owners based on a percentage (millage rate) of the assessed property value. These taxes generally support a significant portion of a county’s or municipality’s non-public enterprise activities. However, the revenues from property taxes can also be used for public enterprise projects and to pay debt service on general obligation bonds issued to finance open space system acquisitions. Because communities are limited in the total level of the millage rate, use of property taxes to fund open space could limit the county’s or a municipality’s ability to raise funds for other activities. Property taxes can provide a steady stream of financing while broadly distributing the tax burden. In other parts of the country, this mechanism has been popular with voters as long as the increase is restricted to parks and open space. Note, other public agencies compete vigorously for these funds, and taxpayers are generally concerned about high property tax rates.

Excise Taxes

Excise taxes are taxes on specific goods and services. These taxes require special legislation and the use of the funds generated through the tax are limited to specific uses. Examples include lodging, food, and beverage taxes that generate funds for promotion of tourism, and the gas tax that generates revenues for transportation related activities.

Bonds and loans can be used to finance capital improvements. The cost of the improvements is borrowed through the issuance of bonds or a loan and the costs of repayment are spread into the future for current and future beneficiaries to bear. However, financing charges are accrued and voter approval is usually required. There must be a source of funding (for the payment of the resulting debt service on the loan or bonds) tied to the issuance of a bond or loan.

Revenue Bonds

Revenue bonds are bonds that are secured by a pledge of the revenues of the public enterprise or local government. The entity issuing bonds pledges to generate sufficient revenue annually to cover the program's operating costs, plus meet the annual debt service requirements (principal and interest payment) times a factor, termed the coverage factor, which is designed to provide additional protection to the bondholders. The coverage factor generally ranges from 110 to 150 percent of the utility's annual or maximum annual debt service requirement in the current or any future year. Revenue bonds are not constrained by the debt ceilings of general obligation bonds, but they are more expensive than general obligation bonds.

Installment Purchase Financing

As an alternative to debt financing of capital improvements, communities can execute installment/lease purchase contracts for improvements. This type of financing is typically used for relatively small projects that the seller or a financial institution is willing to finance or when upfront funds are unavailable. In a lease purchase contract the community leases the property or improvement from the seller or financial institution. The lease is paid in installments that include principal, interest, and associated costs. Upon completion of the lease period, the community owns the property or improvement. While lease purchase contracts are similar to a bond, this arrangement allows the community to acquire the property or improvement without issuing debt. These instruments, however, are more costly than issuing debt.

7.4.2 State of Pennsylvania Funding Sources

The State of Pennsylvania offers multiple funding resources in support of open space and greenways implementation. Due to the large amount of state funding sources and programs, a list has been provided in this section and more detailed information about each funding source is provided in Section 6.1 of the Appendix.

- PENNDOT
- The Community Conservation Partnership Program
- Heritage Park Grants
- Land Trust Grants
- Rails-to-Trails Grants
- Urban and Community Forestry Grants

- The Recreational Trails Program (DCNR)
- Rivers Conservation Program
- Department of Community and Economic Development
 - Community Revitalization Program
 - State Planning Assistance Grant
 - Small Communities Planning Assistance
 - Communities of Opportunity Program
 - Community Development Block Grants
 - Main Street Program
- Keystone Historic Preservation Grants
- Certified Local Government Grants
- DEP Growing Greener
- Stormwater Planning and Management Grants
- Nonpoint Source Management Section 319 Grants
- Environmental Fund for Pennsylvania
- Environmental Education Grants
- Land Recycling Grants Program

7.4.3 Federal Sources of Funding

The United States Government offers a variety of programs that can be used to fund open space and greenways implementation. Federal programs are listed below, with more detail information provided in Section 6.2 of the Appendix.

- Community Development Block Grant Program
- Conservation and Reinvestment Act (CARA)
- Conservation Reserve Program
- Environmental Quality Incentive Program (EQUIP)
- Farmland Protection Program
- Hazardous Mitigation Grant Program
- Land and Water Conservation Fund
- Nonpoint Source Implementation Grants (319 Program)
- Pittman-Robertson Act
- Transportation and Community and System Preservation Pilot Program (TCSP)
- Transportation Equity Act for the 21st Century Funding Programs
- Watershed Protection and Flood Prevention (Small Watersheds) Grants
- Wetlands Reserve Program

APPENDIX



Appendix

1.0 Stakeholder Interviews

This information briefly summarizes the results of the stakeholder interviews that were conducted during the planning process. Over 80 people were invited to participate. Members of the OSRAC were also welcome to attend. Invited stakeholders represented the following interests:

- Tourist promotion
- Habitat
- Outdoor recreation (motorized & non-motorized)
- Open space
- Watershed protection
- Youth and seniors
- Sportsmen
- Businesses
- Local colleges and universities
- Local governments

The following questions were asked:

1. What is your role/interest in this project?
2. What are the major issues/concerns from your group's perspective?
3. What additional open space/greenway resources are needed in each county?
4. What funding methods/measures would you, your organization, or the public support to implement the recommendations of the plan?
5. Are there any previous or on-going studies that can help this effort?
6. How should we encourage participation at meetings?

The following issues and/or concerns were discussed:

- The ridgetops should be protected Limited river and water access
- Private ownership issues create obstacles for trail development along the ridgelines
- Public access and liability (insurance) are major issues
- Fracturing of land impacts wildlife migration
- Loss of rural heritage and quality of life
- Mine drainage -contamination of water resources
- Large number of property owners in high quality watershed areas
- Maintenance and operation funding is major concern.
- Development pressure and unplanned growth, sprawl
- Rural areas lack comprehensive plans and an understanding of resources
- Municipalities are not educated on cost/benefits of smart growth
- Increased demand for services is driving the costs of services higher
- Land speculation, especially in the north Pocono area

- Separate primitive camping from recreational vehicle camping
- Lack of legal riding areas for motorized vehicles (both private and public)
- Location of legal ATV/motorized facility is critical
- Liability and policing issues concerning motorized sports
- Separate motorized and non-motorized sports (on trails)

Additional Resources

- A conservation planner at the regional level (bi-county)
- An agency dedicated to implementing the plan that is also involved in ownership and maintenance
- Coordinate and extend hours of cultural facilities – to attract more visitors
- Link existing trails around the Seven Tubs area to new Luzerne County Visitors Center
- Equestrian-friendly trails
- The old trolley line near Harvey's Lake
- Recreational vehicle services
- More greenways that are in public hands
- Consider having facility for snowmobile racing in winter and ATV in summer
- Allow motorized recreation on damaged lands
- Education program (safety) for motorized sports users
- Establish an umbrella group for ATV groups to coordinate proposals
- Transfer of Development Rights (TDR) and Purchase of Development Rights (PDR)

A variety of funding and implementation methods were discussed including:

- Referendum - as a broad based effort
- Use bond for operation and maintenance
- Billboard tax
- User tax/fees
- Additional tourism tax
- Establish an authority to float a bond
- Look at Lackawanna library tax example
- Must demonstrate benefit - elderly residents will most likely not support additional taxes
- Establish agreements to share operation and maintenance costs between counties and municipalities
- Pocono Downs example – slot machines to bring in revenue – dedicate a portion to open space, greenways and recreation
- Permit conditions
- Impact fees for developers
- Grant programs
- Maintenance and operation of motorized tracks/facilities could be shared between municipality and user groups (clubs).
- Incentive programs for maintenance – require upkeep duties as part of membership

Participants offered the following recommendations regarding public participation:

- Involve the universities and local colleges
- Take people out to see the resources that need protecting
- Evening meetings with public in neutral locations
- Involve economic, social, educational institutions
- Coordinate press coverage with papers and television stations

1.2 Stakeholder Interview Participants

Sportsmans Groups

1. Steve Smithonic; PA Game Commission
2. Bernie McGurl; LRCA
3. Nicholas Lylo; PA DCNR-Bureau of Forestry

Business

1. Mike Dziak; Earth Conservancy
2. Kevin O'Donnell; CAN DO, Inc.
3. Donna Palermo; The Greater Hazleton Chamber

Education

1. Rita Boyle; King's College
2. Marian Montoro; Marywood University

Local Government

1. Ellen Ferretti; PEC
2. Bernie McGurl; LRCA
3. William Higgs; Rice Township
4. Jerome Yatsko; Wright Township
5. Rich Zimmerman; Wright Township

Watershed Protection

1. Bill Tomayko; PA DEP
2. Bill McDonnell; PA DEP
3. Jody Brogna; PADEP
4. Bernie McGurl; LRCA
5. Mike Dziak; Earth Conservancy

Tourist Promotion

1. Merle Mackin; Luzerne County Tourist Promotion Agency

Open Space

1. Linda Thoma; NorthBranch Land Trust
2. Josh Longmore; NorthBranch Land Trust
3. Bernie McGurl; LRCA
4. Walter Chamberlain; Luzerne Conservation District

Motorized Outdoor Recreation

1. Bradley Elison; PA DCNR-Bureau of Forestry
2. Bob Connor; Back Mountain Eudoro Riders

Non-Motorized Outdoor Recreation

1. Dave Madl; PA DCNR-Bureau of State Parks
2. Brad Elison; PA DCNR-Bureau of Forestry
3. Bernie McGurl; LRCA
4. John Charles; Luzerne County Recreation
5. Dave Sutton; Back Mountain Recreation
6. Tilly Weaver; PA Equine Council
7. Gary Baker; BMR
8. Judy Rimple; ASTA

2.0 GIS Natural Resources Database (layers)

CATEGORY	RESOURCE	DATA	DESCRIPTION OR COMMENT
EXISTING OPEN SPACE AND RECREATIONAL RESOURCES	Managed Lands	National Parks Federal Forests State Parks State Forests State Gamelands County Parks Rails to Trails Existing Trails Fishing/Boating Access Areas Quads DOQQ	National Parks in PA DEP Compendium National Forests in PA DEP Compendium State Parks in PA DEP Compendium State Forest Areas DEP Compendium State Gameland Areas DEP Compendium County Park Areas DEP Compendium Lackawanna River Corridor Association Long Range Transportation Plan for Lackawanna-Luzerne Transportation Study Area (Wilkes University) Hard Copy map from PA Fish & Boat Commission (Approximately 30-35 areas) USGS Quads USGS DOQQ Borton-Lawson Engineering List from North Branch Land Trust, Luzerne County (digitized) Lackawanna - have table
	Farming Easements Conservation Easements	Pennsylvania Conservation Stewardship	Federal, State, County and Privately Owned Lands Including National and State Parks, Wildlife Refuges and Forests, County Parks, and Private Conservancy Lands
ECOLOGICAL AND NATURAL RESOURCES	Wildlife Habitats	Greenway Corridors Natural Area Inventories PA Natural Diversity Index GAP Data PA Ecoregions T&E Species Habitats	SEDACOG Natural areas delineated by Nature Conservancy for each county Database that is queried after location is determined (Not a Coverage) Numerous Data from GAP Analysis Project - delineates habitat areas (30 Meter) Level 3 Ecoregions DCNR Suitable habitats for threatened and endangered bird and mammal species historically occurring in two counties
	Ridgetops/Slopes	Ridgetops DRG Steep Slopes	Use Watershed Boundaries to Delineate - Act167 DEP Compendium Use Contours from Quad County-wide National Elevation Database (NED) from USGS 10 M (Carbondale and Wilkes-Barre West not available)
	Prime Agricultural Soils	USDA Soil Survey STATSGO	Lackawanna County only, Luzerne will not be ready until Spring
	Vegetation/Land Cover	Forests DOQQ Vegetative Landcover PA Landcover National Land Cover Characterization 2000	State Soil Geographic Database (both counties, at generalized level of detail) Forested Areas from GAP Project - Grid Coverage Mostly 1994, newer ones can be acquired from USGS 30 Meter Resolution based on Landsat 30 Meter Resolution based on Landsat
			Landsats 7 and 5 EROS

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WATER RELATED RESOURCES	Water Resources	Ordered Streams Lakes and Reservoirs Wetlands Floodplains Ordered Watersheds Act 167 Watersheds	Ordered streams (ERRI) Delineated from NWI Quads NWI Quads Floodplains FEMA Q3 PA Ordered Watersheds (ERRI) Act 167 Watersheds DEP Compendium
MAN-MADE RESOURCES	Man-Made Corridors	Local Roads State Roads Interstate Highways Inactive Railroads Utilities Major Pipelines Active Railroads Urban Areas Industrial Parks Projects of Regional Significance	PENN DOT Local Roads PENN DOT State Roads PENN DOT Interstates Inactive Railroads DEP Compendium Office of Pipeline Safety PipeNet - Indiana University of PA Railroads DEP Compendium TIGER Urban Areas Long Range Transportation Plan for Lackawanna-Luzerne Transportation Study Area (Wilkes University) Long Range Transportation Plan for Lackawanna-Luzerne Transportation Study Area (Wilkes University)
	Restorative Sites	Power Lines Keystone Opportunity Zones Brownfield Addresses Mine-scarred Lands Strip Mines Culm Banks Other Mining Data	Partial sent from IUP, matched TIGER Misc Transport Long Range Transportation Plan for Lackawanna-Luzerne Transportation Study Area (Wilkes University) Website of PA Brownfield Listings (searchable by county) Wilkes University Wilkes University Wilkes University DEP Bureau of Abandoned Mine Reclamation
	Transportation Support Facilities	Airports Bus Stations Bus Routes Railroad Stations Average Daily Traffic Park and Ride Areas Levees Existing Trails	Long Range Transportation Plan for Lackawanna-Luzerne Transportation Study Area (Wilkes University) Long Range Transportation Plan for Lackawanna-Luzerne Transportation Study Area (Wilkes University) Long Range Transportation Plan for Lackawanna-Luzerne Transportation Study Area (Wilkes University) Long Range Transportation Plan for Lackawanna-Luzerne Transportation Study Area (Wilkes University) Long Range Transportation Plan for Lackawanna-Luzerne Transportation Study Area (Wilkes University) Long Range Transportation Plan for Lackawanna-Luzerne Transportation Study Area (Wilkes University) Long Range Transportation Plan for Lackawanna-Luzerne Transportation Study Area (Wilkes University) Long Range Transportation Plan for Lackawanna-Luzerne Transportation Study Area (Wilkes University)
	Scenic Views, Vistas	USGS DEM Scenic Overlooks Scenic Roadways	County-wide National Elevation Database (NED) from USGS 10 M (<i>Carbondale and Wilkes-Barre West not available</i>) Received paper maps of two areas (Scranton, Carbondale) AAA designated Scenic Highways from paper map
	Future Development Areas		Long Range Transportation Plan for Lackawanna-Luzerne Transportation Study Area (Wilkes University)
BASE MAP DATA	Boundaries	State Boundary County School Districts Municipalities Boroughs Townships Cities and Towns	Pennsylvania Boundary DEP Luzerne and Lackawanna County Boundaries DEP School Districts (ERRI) Municipalities (PENN DOT) Boroughs (PENN DOT) Townships (PENN DOT) Pennsylvania's city municipal boundaries as delineated for Penn DOT Type 10 general highway maps
	Other	Historical Register Sites Major Historical Sites	58 sites found in Historical Register Database Map from PA Fish & Boat Commission includes largest sites

3.0 Community Audits

Over the last few hundred years, communities across the United States have individually and collectively created a history of planning for development and land uses, and for a degree of public and private influence on the use of land. Some of the earliest towns were laid out based on grid patterns that determined where government buildings would go, where community open spaces would be, and where residential and commercial interests would be located. As times changed, so did the power structures that influence urban form. Municipalities lost some of their power to plan for their own design in favor of state level control of planning concerns. Over time, municipalities have slowly re-gained the necessary permissions to shape their own growth.

Along the way, the intentional separation of land uses was accepted as a legitimate government activity, and it was decided that local governments should have the ability to affect the dimensions and scale of new structures. Today, these commonly accepted government powers are generally represented in communities' zoning and subdivision ordinances. The authority to have such influence over land uses and construction projects is based on the governments' responsibility to provide for a safe and stimulating environment for its residents.

However, as the population grows in our communities, as we become increasingly urban, and as we change the ways we use and interact with the land, our regulations, rules, codes, and ordinances must change as well. New ideas about the right balance between development and natural resources protection have been boiling up over the last few decades. In the last 10 years or so, new models for land development (often based on old ideas) have been developed which help maintain quality of life in a community by shaping the design and layout of new development in a way that respects community character, culture, values, and needs for open spaces. To maintain flexibility in accommodating these new ideas, communities often need to adjust the regulatory framework they use to shape development. The community audit process offers a set of new ideas that can be included in local zoning ordinances and subdivision regulations to facilitate a more modern and more effective approach at balancing growth and protection.

Types of Tools

The idea of accommodating development interests while protecting natural resources has spawned a series of conservation-based tools that can be included in local documents and processes. While often similar in impact, the terms are quite varied and include: conservation subdivision ordinances, stream corridor protection ordinances, comprehensive environmental ordinances, and cluster development ordinances. They also include new zoning options such as conservation overlay districts, open space zoning, conservation zoning, and agricultural area zoning. Other tools include: Low Impact Development (LID) design, alternative stormwater

management systems, tree ordinances, neo-traditional development design, transit oriented development (TOD) design, Planned Unit Developments (PUDs), and performance based rules rather than dimension or density oriented options.

Section 7.2 of the Plan discusses some of these options more fully. It also offers additional information about sets of tools available to local governments interested in protecting land. All of these tools provide alternatives for communities but also may involve some degree of risk. In the end, each individual community determines for itself which tools are best for them and how creative they wish to be in implementing their strategies.

Audit Scope and Process

As part of the Luzerne and Lackawanna Open Space, Greenways, and Outdoor Recreation Master Plan, six communities were invited to participate in an audit of their zoning and subdivision ordinances. The fundamental goals of the process were to assess how existing trends are shaping growth and open space protection in the communities and to offer individualized consultation regarding new ways to balance growth and natural resource protection. Three townships from Lackawanna County volunteered for this exercise: South Abington, Scott, and Madison. From Luzerne County, Wright and Kingston Townships as well as the county itself, participated.

The audit process followed a two-step evaluation process:

- Step 1: Trend Evaluation – This was a fairly simple process of evaluating available data on current and projected growth trends and making basic determinations of how continuation of those trends will affect the land use patterns and open space availability 20 years into the future. The intention of this step was to understand the baseline status and how existing trends will appear on the landscape when extrapolated over 20 years. To complete this step, the consultants held informal conversations with representatives from the communities and gathered available documents and maps that related to these matters.
- Step 2: Document Evaluation - While developing a general understanding of future growth expectations, the zoning and subdivision ordinances in each of the six participating local governments were assessed. General, community-wide recommendations, as well as more specific, individualized recommendations were developed regarding new or amended language that could be included in the ordinances to help the community achieve its vision of balanced growth and open space protection.

Findings and Recommendations

The remainder of this section is dedicated to the presentation of the findings and recommendations of the audit process. A summary of the findings from Step 1 of the process (Trend Evaluation) is presented first, followed by findings from the Document Evaluation step. The material related to step 2 makes up the majority of this section and is, itself, divided into

two sections: an overall report on the entire two-county area and then a set of township specific recommendations.

Trend Evaluation

Process and Community Overview

In order to complete this portion of the audit process, information related to population change and density, rate of development, and community goals and values were solicited from the participant communities. Three of the six communities contributed information to assist with this process. The findings below are an extrapolation of these pieces of data for the entire set of six communities. The three communities that responded to our data request include large and small townships with varying degrees of urban area influence. This range allowed for a reasonable understanding of the big picture of growth, population change, and public reaction to growth among the six communities.

The data collected was limited and in some cases a bit outdated for use in current trend evaluation. The analysis presented below is therefore not scientifically accurate and the analysis process was not particularly rigorous. Rather, it simply represents what appear to be the general circumstances at present and how current conditions might be affected in the future under continuing development scenarios.

The six townships have a number of commonalities and generally speaking, will be affected by future growth in similar manners. Much of the six community area was agricultural in the very recent past, with established town centers that provide a mix of commercial, residential, and in some cases, industrial uses. The town centers tend to still be surrounded by agricultural lands or conservation lands that are being changed slowly by the influence of new growth. Primary concerns among the residents are that new growth will alter the sense of community, will cause greater traffic congestion, will disrupt the nearby natural or agricultural scenery, and will generally alter the way of life and the feel of the community that people enjoy. At the same time, the economic benefits that new growth can bring are valued and sought after. The new shopping opportunities, new recreational opportunities, and new income growing opportunities that can come from an expanded population base and therefore expanded tax base would be welcomed.

Growth Trends and Their Expected Effects

Of the communities that returned information about their historic growth rates, the range was roughly between 5% to 15% annual growth rate. Given the populations of these communities, that means a rough net population growth of between 20-45 people in each township per year.

The simplest way to consider the open space implications of this population change is to assume that 20-45 people will be looking for new houses and new jobs in each township per year. Over the years, many of the new residents have been accommodated by simply adding a

few new single-family homes to the area and expanding or adding a few local businesses. In more recent years, additional apartment homes have been built and areas that were mostly undeveloped have been converted to developed areas. In essence, the communities have generally reached a point where new growth cannot simply be added into the existing communities with little or no impact. The townships have reached a point where new growth can have substantial effects on the community feel, and most important to this document, the green infrastructure of the community.

Under current growth trends and current codes and ordinances, much of the remaining agricultural land, scenic areas, steep slopes and environmentally sensitive areas are under a minor, but constant threat. The open land in the bi-county area is sufficiently vast and the number of new residents sufficiently small - so while impacts will be seen and noticed from new development, the ecological integrity and commercial viability of the natural areas and open spaces should remain intact. However, in 10-15 years, this will likely not be the case. Now is the time for investing in updated codes and ordinances that will insure a development pattern that is sustainable over the next 30-40 years. The communities currently have a several year buffer to start putting this in place. However, this opportunity will not last and communities will likely be forced into a much more urgent open space protection situation in the coming years if they do not choose to act now.

The traditional developments that occur today on the landscape, and which follow existing codes and ordinances, do not go far enough to protect the waterways and forests over the long term. Small changes in the regulatory framework will force greater protection of the still existing forests and farmland, and the quality of the water. These incremental changes will allow the townships to grow over time, with less effect on the natural landscape, and in the end, less negative impact on the quality of life and sense of place in the communities.

Document Evaluation: Overall Report

The transition from traditional language used in local government zoning and subdivision ordinances to more modern language that seeks to increase the degree of protection for an area's natural resources is best described as a phased process. Communities in the US tend to work through these phases in three steps:

1. Acknowledging the value of conservation in their documents.
2. Building in flexibility options for those who are looking for new ways to blend development and conservation.
3. Ensuring that the overall system of everyday land use management protects natural resources.

The first phase involves adding or amending goals, objectives, and policies within the document to more effectively state the community's lasting commitment to natural resources protection

and the provision of adequate outdoor recreational opportunities. A goal statement at the beginning of a document puts the reader on notice about what to expect. Clear, descriptive, detailed statements regarding how the local government intends to balance development and natural resource protection goals sets the tone for deliberations with all potential land developers. It helps readers understand what is expected and it can lead to a faster, more efficient, and cheaper development review process for compliant development proposals.

All six of the participant communities have engaged, to some degree, in phase 1 activities. Those that have done so most effectively include clear goals for natural area protection at the beginning of their documents or within designated natural area sections in the documents. An example of one of the more effective lists is shown below. It was excerpted from a three-page list of objectives including separate sections for Community Development, Social, Environmental, Housing, and Governmental. Additional examples are cited among the set of model language examples found at the end of this chapter.

Example of strong goal statements:

- 1) Wright Township seeks to preserve and enhance environmental characteristics of the Township through the creation of an Environmental Advisory Council.
- 2) Wright Township seeks to identify and preserve rural areas and vistas within the Township through the development on an Environmental Resources Inventory
- 3) Wright Township seeks to preserve areas of natural drainage, wetlands and stream beds through their incorporation into an open space designation
- 4) Wright Township seeks to preserve woodlands and other environmentally sensitive areas in the context of best management practices.
- 5) In order to prevent unsightly urban sprawl, the Township seeks to control the use of land in a prudent manner for accommodating residential, commercial, industrial, and public and semi-public uses.
- 6) Wright Township seeks to discourage development on steep slopes and environmentally sensitive areas, such as flood prone areas and wetlands.
- 7) Wright Township seeks to incorporate conservation measures into this Chapter and the Subdivision and Land Development Ordinance [Chapter 131] designed to conserve permanent open space.

Source: Wright Township, Zoning Ordinance

The communities that have engaged in goal setting to a lesser degree typically mention the importance of natural area protection and recreational opportunity maximization in the document but in a less bold manner – noting it as one of many competing goals in specific subsections of the documents. An example of this sort of statement is below. This is excerpted from a list of four overall community goals.

Example of more common environmental goal statements:

1. To recognize the constraints of the Township's physical environment by restricting or prohibiting development on poor soils.
2. To provide open space to meet future recreation and water supply and other community needs.

Source: Scott Township, Zoning Ordinance

In general goal development is an exercise in expectation setting. A zoning or subdivision ordinance that clearly articulates, up-front, that natural areas protection is a primary goal of the community is likely to have a stronger hand in its interactions with those interested in developing land.

In the second phase of ordinance amendment, communities move from stating their environmental intentions to building flexibility into the rules, guidelines, and design options so conservation goals can be achieved. The Pennsylvania Municipalities Planning Code (PA MPC) authorizes a number of flexibility options which some participating communities have utilized. These include: Planned Residential Developments, Clustering Options, and Conservation Subdivision Design. Most of the communities' are in this second phase of ordinance revision. All have incorporated at least some of the flexibility options into their codes/ordinances. Communities in this phase are in the mainstream of American communities where growth pressures and natural resource protection interests are being balanced. They are looking for new language and new options for those land developers who want to do a better job of conservation as they convert property to uses for new homes, businesses, and highways.

Phase three occurs when communities find ways to build conservation into everyday planning and development decisions. In this phase, some of the conservation options become requirements, and conservation goals shape design standards such as setback requirements, road width, and width of stream buffers. In this phase, conservation goes from an option to a standard practice in everyday land use decisions. Creating an Open Space, Greenways, and Outdoor Recreation Master Plan is a great first step. Blending this Plan's recommendations and findings into local codes is the next step. In phase 3, protection of a community's green infrastructure becomes an essential part of growth and development, just as the establishment of water lines, sewer lines, and other utility corridors is now. In this phase, communities first establish their protection goals and then adapt the rest of their policies to ensure that the quality of life that comes from a healthy natural environment will be protected.

General Recommendations

After studying the ordinances of the six communities, comparing them with other communities in the state and nation, and blending in the goals and objectives that have been articulated as part of this Plan, a number of general recommendations are provided:

- It is recommended that the six communities lead an effort in the two counties to build regional consistency among the various zoning and subdivision codes regarding the level of protection established for natural resources and conservation areas.
- It is recommended that an environment of continued collaboration be facilitated so that strong language from individual documents and similar experiences regarding conservation and land development can be better shared across jurisdictions in the community.

A new spirit of multi-jurisdictional collaboration (recently addressed in the PA MPC) will help the six communities grow together in their efforts towards growing greener. Many examples of new and useful language exist in the current zoning and subdivision documentation of the participant communities. Through multi-jurisdictional collaboration and cooperation, these examples can be shared. Hopefully through these interactions, regional partnerships and an understanding of the opportunities that can come from regional level planning can be fostered. Other communities elsewhere in PA have also been thinking through these same ideas for a number of years and have good examples of policies, ordinances, and codes that can be useful to these six communities. Their experiences should be explored and brought into regional conversations about how to adapt local codes to achieve local community goals.

- It is recommended that each of the communities amend their codes and ordinances to require consistency with the goals and objectives of the bi-county Open Space, Greenways, and Outdoor Recreation Master Plan. This is similar to existing requirements for consistency with comprehensive plans and stormwater management plans.
- It is recommended that each community include the map of the proposed conservation land areas from this document as reference material in all of its development review and subdivision review processes.

The best way to insure that the new Open Space, Greenways, and Outdoor Recreation Master Plan becomes an effective tool for shaping regional conservation is to link it to the rules and regulations that govern growth, land subdivision, and land development. By using the plan as a resource inventory and checking development proposals against its maps, the communities will be able to guide development in a way that allows for regional open space protection, corridor connectivity, water resources protection, and, in the end, a good quality of life.

- It is recommended that each community establish a single zone or district that covers all of the Proposed Conservation Areas in the Plan.

In addition to just using the Plan's maps as a reference, it would be particularly useful for long-term, coordinated conservation efforts if the Proposed Conservation Areas that are described in the Plan were developed into a conservation overlay district, a separate conservation zone, or a two-tier designation as primary and secondary conservation areas – depending on the community priorities. All development in these conservation zones, districts, and areas would

be guided by special rules sections that are added to the existing zoning and subdivision ordinances. More information about how each community might approach this task is presented later in this section.

Document Evaluation: Community Specific Recommendations

The individual sections that follow are specifically written for each of the 6 participant communities. However, it is highly recommend that each community read through all of the individual assessments. In this way, comparisons can be made and a better understanding of the full set of codes and ordinances that shape the two-county area can be developed.

In June 2003, the consultant team presented initial audit findings to representatives from the communities. At these presentations, participants were asked about problems and concerns they would like addressed during the audit process. Water quality protection and tree protection were two of the top concerns. These two issues are addressed in each of the six, individual write-ups that follow.

South Abington Township, Lackawanna County

South Abington Township is more actively updating its ordinances than many of the other six communities. This township also has gone a bit further than some of the others in protecting wetlands and streams. In fact, this township was the only one of the six that had a wetland buffer in place in the ordinance language.

Phase 1: Acknowledging the Value of Conservation

This community falls right in the middle of the range regarding its conservation and natural resource protection goals – it has more completely stated goals than some of the communities, but less thorough statement than others. §1.209 and §1.210 (zoning) are particularly strong and have been placed in the list of example language, included at the end of this Chapter. Goal 1.208 states that the Zoning Ordinance will be used to attain the community development objectives outlined in the Comprehensive Plan. We were not able to review a copy of that document, so cannot comment on the degree to which those goals also reflect a commitment to natural resource conservation and the provision of recreational opportunities.

The introductory portion of §6.718 also includes some excellent goal statements. This section is the conservation development option and is therefore a fitting place for those statements. However, repeating some of this same language at the beginning of the ordinance helps the municipality make the statement that natural resource protection is important across the board, not just in a handful of cases.

- It is recommended that some of the §6.718 (as amended) goal statements at the beginning of the Zoning Ordinance document be repeated to add additional weight to conservation interests.

- It is recommended that South Abington Township look over the example goal statements provided at the back of this Chapter, and determine which community resource protection goals have not been adequately represented in their own documents. Necessary amendments to add the additional, needed language should be developed.

Phase 2: Building Flexibility

South Abington has taken advantage of new authorizations in the Pennsylvania Municipalities Planning Code to include Planned Residential Developments (PRD) (Zoning, 6.718) and then amended that section in 1998 to include a Multi-Family Dwellings classification that replaced and expanded the PRD classification. The Township's options expansion through this amendment put it ahead of some of the other participating communities in defining the conservation options included in its ordinances. The new provisions are based on the Natural Lands Trust's *Growing Greener* and include a required site assessment and preliminary sketch plan for new conservation developments. They also define more detailed open space and design standards. Other communities participating in this audit process can find a reference to South Abington's language at the end of this chapter and can include it in their own zoning ordinances.

The provision of new options is necessary to keep South Abington's Zoning Ordinance up-to-date. In 1999, the PA DCNR worked with The Natural Lands Trust and the Pennsylvania State University Co-operative Extension office to create the document: *Growing Greener: A Conservation Planning Workbook for Municipal Officials in Pennsylvania*. In addition to other concepts about how to plan for conservation, the document details a menu of development options based on different densities, percentages of protected open space, lot size, and conservation needs. These design options included: a Village Design with Greenbelt, larger "Country Properties", Estate Lots, and two other options that traded off density credits for enhanced conservation. The document includes model ordinance language that can be reviewed, modified, and amended into the existing Township ordinances.

The overall idea is that one-size-fits-all conservation is no better a fit than one-size-fits-all development. If the goal is to better partner with the developers of land to find new ways to balance growth and conservation interests, than offering a broader set of conservation options that are based on a set of density rewards for greater conservation efforts is a good step forward.

- It is recommended that South Abington Township expand the options it provides to the land development community by allowing the types of projects defined in Section 6.718 to occur in any of the residential zones.
- It is recommended that South Abington Township include a broader menu of development options, consistent with the strategy presented in *Growing Greener: A Conservation Planning Workbook for Municipal Officials in Pennsylvania* (Chapter 4).

Phase 3: Everyday Conservation

The recommendations under this section are fairly numerous and are based on updating the ordinance documents to better incorporate conservation and provision of recreational resources into everyday land development decisions. These tend to be recommendations that either streamline conservation options for developers or that add additional conservation requirements all around.

The first recommendation sets the stage for most of the following ones.

- It is recommended that the township amend its Zoning Ordinance to include a conservation overlay district which would include all of the recommended protection areas from the bi-county Open Space, Greenways, and Outdoor Recreation Plan.

Within this district, conservation design principles would be required and a menu of design options would be available. Density would remain consistent with the rules of the underlying zoning, but new subdivisions would only be allowed to achieve this net density if the necessary conservation measures were built in. Traditional development designs would be allowed, but only at reduced densities. In this case, South Abington's option for Multi-Dwelling units can then be placed back into the category of principal permitted use along with the other traditional uses.

Many of the S-1 (Conservation and Forestry) zoning districts border R-1 and R-2 zones. Building conservation opportunities in those zones through the use of a Conservation Overlay District will help blend protection and development needs.

- It is recommended that to achieve full density in the overlay conservation areas, development proposals must protect at least 40% of the open space on the site. Increased Density options for additional conservation set-aside, or decrease density options for less conservation set aside would also be available and would be tailored to the underlying R-1, R-2, and R-3 zoning.

This process requires several steps:

- 1) Replace 6.718 Multi-Family Dwelling units with 6.718 – Reserved
- 2) Create a new section 6.800 – Conservation Overlay District, based on the model text presented at the end of this chapter.
- 3) Create new sections 6.801 – Village/Hamlet design, 6.802 – Multi-family dwellings, 6.803 – Enhanced Density and Conservation, 6.804 – Conservation Subdivision, 6.805 Country Lots, 6.806 Estate Design
- 4) Amend Table 1 in Article 6 to show the above new options as conditional uses in the appropriate zones.
- 5) Amend Glossary section to include definitions of these types of development options.

Tree/Woodland Protection

South Abington adopted language for its Zoning Ordinance in March 1999 (ordinance#151, new §6.400) that amended the landscaping requirements for land development projects. The amendments greatly enhanced their tree protection efforts and made a clear statement that the community wants to curtail clear-cutting practices on land that currently supports large trees or valuable forested areas. South Abington Township has addressed this more thoroughly than the other communities and parts of their ordinance have been referenced in the model language section later in this chapter.

While the ordinance uses strong language to make its intentions clear, the supporting requirements are not sufficiently developed. To strengthen this ordinance:

- Adopt more specific language found in model tree protection ordinances from around the country (referenced at the end of this section).

Wetlands

South Abington is the only community of the six that has a wetland protection ordinance (#168 of 2002, adding a new §6.72 Buffer for Wetlands). The ordinance requires a 25' buffer around all water bodies, including wetlands. A reference to this ordinance can be found at the end of the chapter.

Agricultural Lands Protection

Though this Township is mostly urbanized and does not support large agricultural communities, agricultural land uses are allowed in the S-1 zoning districts that are sprinkled throughout the Township. The continuation of existing agricultural operations is generally threatened by increasing density at their borders and encroaching residential development. Loss of remaining small-scale agricultural operations can often lead to loss of scenic or open areas that help define a community's character and mark its history.

- It is recommended that the Township examine how its continued growth could cause future complications for existing agricultural operations and how the loss of agricultural areas could affect the culture and feel of the Township.

If local residents feel that protection of agricultural areas is important for the community, than additional goal statements should be added to the ordinances to reflect this interest and the agricultural area preservation tools mentioned at the end of this section should be assessed for their potential applicability to South Abington Township. One quick amendment could be to add E.10 under §7.1000.4 of the Zoning Ordinance (factors to be considered when special exception applications are submitted). E.10 would read "impact on existing and future agricultural operations."

Wright Township, Luzerne County

Wright Township has spent a lot of time in recent years thinking about ways to reduce the impact of development on the natural environment. Their recently updated comprehensive plan makes strong policy recommendations to use conservation subdivisions more commonly as an option in several of its zoning districts. The recently updated Zoning Ordinance and subdivision ordinance reflect those policy suggestions. The ordinances include extensive sections on conservation zoning, conservation subdivisions and the details of how those options can be used in their R-1A and Conservation zoning districts.

Phase 1: Acknowledging the Value of Conservation

This community is perhaps the strongest of the six in this area. Wright Township's Zoning Ordinance makes a strong statement in §145-103D, listing goals such as preserving and enhancing environmental characteristics, identifying and preserving rural areas, and preserving woodlands and environmentally sensitive areas. In addition, Chapter 8 of the Comprehensive Plan includes clear arguments for the need for conservation zoning (Part B), Rural Character Preservation (Part D), and Conservation Subdivisions (Part F). To maintain the strength of its commitments, Wright Township should continue to keep these goal sections updated so that they continue to represent the goals of the community

- It is recommended that a new goal statement (§145-103 D8) be added regarding the townships commitment to protect a regional network of greenways and open spaces through its use of the Greenways, Open Space and Outdoor Recreation Master Plan.

Phase 2: Building Flexibility

Wright Township has added important flexibility options to its ordinances over the years. They maintain a Planned Residential Development option (§145-716) which is a conditional use that trades off some additional density for at least 20% protection of open space in the R-1, R1-A, R-1B, and C-1 zoning districts. The community has also added a Conservation Subdivision option (Article 11 of the Subdivision and Land Development section of the Code) that provides a density neutral clustering option in two of the zoning districts. The conservation subdivision option requires 50% open space and has separate design guidelines that allow for smaller lot setbacks. Similar to other communities that have adopted conservation subdivision options, the process for designing and securing approval for these types of development are based on the Natural Lands Trust's *Growing Greener* book and include a required site assessment and a preliminary sketch plan.

The provision of new options is necessary to keep Wright Township's Code up-to-date. In 1999, the PA Department of Conservation and Natural Resources worked with The Natural Lands Trust and the Pennsylvania State University Co-operative Extension office to create the document: *Growing Greener: A Conservation Planning Workbook for Municipal Officials in Pennsylvania*. In addition to other concepts about how to plan for conservation, the document details a menu of development options based on different densities, percentages of protected

open space, lot size, and conservation needs. These design options included: a Village Design with Greenbelt, larger “Country Properties”, Estate Lots, and two other options that traded off density credits for enhanced conservation. The document includes model ordinance language that can be reviewed, modified, and amended into the existing Township ordinances.

The overall idea is that one-size-fits-all conservation is no better a fit than one-size-fits-all development. If the goal is to better partner with the developers of land to find new ways to balance growth and conservation interests, than offering a broader set of conservation options that are based on a set of density rewards for greater conservation efforts is a good step forward.

- It is recommended that Wright Township include an even broader menu of development options, consistent with the strategy presented in *Growing Greener: A Conservation Planning Workbook for Municipal Officials in Pennsylvania* (Chapter 4).

This step would involve adding these additional options to the list of conditional uses associated with individual zoning districts. This could be done by lightly amending the zoning code to add a new section under article 7 of the planning code (§145-719 – Conservation Development Options). The model code from the appendix of the *Growing Greener* document listed above would be tailored to fit into this space. Finally, adjustments would have to be made to the list of conditional uses allowed in the individual zoning districts to allow for these new options where they are appropriate.

- It is recommended that a new section §145-1125 be added to the Street and Parking section of the zoning code that allows for narrower streets and alternative parking schemes that lower total impervious surface for developers who choose conservation subdivisions.

Phase 3: Everyday Conservation

The recommendations under this section are fairly numerous and are based on updating the ordinance documents to better incorporate conservation and provision of recreational resources into everyday land development decisions. These tend to be recommendations that either streamline conservation options for developers or that add additional conservation requirements all around.

The first recommendation sets the stage for most of the following ones.

- The township should amend its Zoning Ordinance to include a conservation overlay district that would include all of the recommended protection areas from the bi-county Open Space, Greenways, and Outdoor Recreation Master Plan.

Within this district, conservation design principles would be required and a menu of design options would be available. Density would remain consistent with the rules of the underlying zoning, but new subdivisions would only be allowed to achieve this net density if the necessary

conservation measures were built in. Traditional development designs would be allowed, but only at reduced densities.

- To achieve full density in these conservation areas, it is recommended that development proposals protect at least 40% of the open space on the site. Increased density options for additional conservation set-aside, or decreased density options for less conservation set aside would also be available and would be tailored to the underlying R-1, R-1A, R-1B, R-2, and C-1 zoning districts.

This process of creating the conservation overlay district and its associated requirements and uses should be done in conjunction with the changes proposed in Stage 2, since language from one model ordinance is used in both of these recommendations.

Tree/Woodland Protection

Most of the specific language about the protection of natural features is packaged neatly in §131-614 of the Subdivision and Land Development Document. Tree protection is addressed in this section, but could stand to be strengthened.

- It is recommended that the language from the model tree ordinances referenced at the end of this chapter be examined and included in the existing Tree preservation section. Special consideration should be given to the process of setting aside clusters of trees and to the process of delineating tree protection areas. The term “Wherever possible” at the beginning of §131-614 A, should be deleted and substituted with a clause that allows the zoning board to dismiss requirements when they provide undue hardship. Example language for this clause is provided at the end of the chapter.

Wetlands

Wright Township does not have any particular wording in its code that establishes special protection for wetland areas. A 20’ buffer is established for streams and lakes.

- Wetlands should be added to the list of buffered elements in §131-614D2.

Open Space Protection

While several sections in the code refer to how many acres of Open space must be protected under certain development options, there is insufficient mention of the types, nature, and amount of open space that the community in general strives to protect. Sections 131-614 and 131-615 provide an opportunity to add additional statements about the quality and other general characteristics about the types of open space the community is trying to protect. Specifically, there should be mention in these sections of the new Bi-county Open space, Greenways, and Outdoor Recreation Master Plan.

- Amending language in §145-717. B.1 to include consistency with the Bi-county Greenways, Open Space, and Outdoor Recreation Plan is recommended. Reference to this plan should also be made in other appropriate sections of the zoning and subdivision ordinances.

Agricultural Lands Protection

There is not yet a section in the code that relates to the specific conservation needs of agricultural lands. While the goal of preserving rural areas is articulated in the goal statements at the beginning of the Zoning Ordinance, no additional language has been included that would help achieve this goal.

- It is recommended that Wright Township include in Article 6 of the Subdivision and Land Development Section, a section on protecting and supporting rural systems and land uses.

Scott Township, Lackawanna County

Scott Township's Zoning and Subdivision Ordinances are less complicated than those in many of the other communities. This is due, in part, because they do not have provisions for Planned Residential Developments or Conservation subdivisions as some of the other communities do. However, it is also because they have done a good job of keeping potentially complex concepts simple. The code includes statements that simply call for developments to be respectful of and consistent with existing natural features and then reserves the right for the Township to make changes to applications that do not adhere to this rule. This can be both positive and negative. If the community is confident that conservation minded site plan reviewers will regularly demand strong conservation practices on development sites, than this type of code can be a simple and elegant way of balancing development and conservation interests. If, on the other hand, the site plan reviewers are not quick to push for site designs that respect the natural harmony of a property, than this type of code can easily lead to development patterns that will slowly erode away the natural bounty, and rural heritage of the community.

Phase 1: Acknowledging the Value of Conservation

The protection of open space, water supply, and recreation areas is noted as a goal at the beginning of the zoning document. There is no specific mention however of the need to protect important species habitat, wooded areas, scenic viewsheds, etc.

- Additional goal statements related to the protection of the natural environment and of regional networks of open space should be included in the goal statements at the beginning of the Zoning ordinance.

This may be done in one or two simple statements that continue along the same lines as the existing goal statements. While this may seem like a minor detail, a clear, bold statement of the importance of conservation to the community can be effective for letting potential land developers know that their proposals should adhere to this concept.

Noting regularly throughout the document that all land development projects and minor and major subdivisions must be consistent with the goals and objectives of the Bi-county Greenways, Open Space, and Outdoor Recreation Plan, is another way to build up the sense that

conservation is an important factor in decisions that relate to how this community grows and develops.

- In all areas where reference is made to the need for consistency with the comprehensive plan, amendments should be made to include consistency with the Greenways, Open Space and Outdoor Recreation Master Plan as well.

Phase 2: Building Flexibility

This is not an area where Scott Township is particularly strong. The Zoning Ordinance does have the provision for clustered development, but there are no other formal options to the traditional land development practices. In order to provide more opportunities for land developers to find an acceptable balance between their land development interests and the community's natural resource protection responsibilities, it is necessary to provide additional options to the development community.

The Municipalities Planning Code of Pennsylvania authorizes communities to provide flexibility in its development options so that developments can appropriately respect and conserve natural resources and scenic areas. To that end, they provided an option for planned residential developments which (like Scott Township's cluster option) allow for increases in local density of development projects in exchange for the permanent protection of open space. Scott Township does not presently have a Planned Residential Unit option in its list of permitted or conditional uses.

- It is recommended that the Township explore the adoption of a PRD development option for use in its residential, rural, neighborhood business, and development districts. Example language is available from the State of PA or from the codes and ordinances of some of the neighboring communities that are participating in this audit process.

In 1999, the PA Department of Conservation and Natural Resources worked with The Natural Lands Trust and the Pennsylvania State University Co-operative Extension office to create the document: *Growing Greener: A Conservation Planning Workbook for Municipal Officials in Pennsylvania*. In addition to other concepts about how to plan for conservation, the document details a menu of development options based on different densities, percentages of protected open space, lot size, and conservation needs. These design options included: a Village Design with Greenbelt, larger "Country Properties", Estate Lots, and two other options that traded off density credits for enhanced conservation. The document includes model ordinance language that can be reviewed, modified, and amended into the existing Township ordinances.

- Scott Township should include a broader menu of development options, consistent with the strategy presented in *Growing Greener: A Conservation Planning Workbook for Municipal Officials in Pennsylvania* (Chapter 4). These options should be available in both the residential and the rural districts.

Phase 3: Everyday Conservation

Scott Township already has included a floodplain overlay district in its zoning code (§ 302.2A). To facilitate more complete protection of natural areas, potential parks and greenways, farmland, streams and rivers, and ridgetops in everyday development review situations, the consultant recommends the addition of a second overlay district:

- It is recommended the township amend its Zoning Ordinance to include §302.2B Conservation Overlay District, which would include all the recommended protection areas from the Open Space, Greenways, and Outdoor Recreation Master Plan.

Within this district, conservation design principles would be required and a menu of design options would be available. Density would remain consistent with the rules of the underlying zoning, but new minor and major subdivisions would only be allowed to achieve this net density if the necessary conservation measures were built in. Traditional development designs would be allowed, but only at reduced densities.

- To achieve full density in these conservation areas, it is recommended that development proposals protect at least 40% of the open space on the site. Increased Density options for additional conservation set-aside, or decrease density options for less conservation set aside would also be available and would be tailored to the underlying RR/RU, RD, NB, and DD districts.

Natural Areas Protection

Scott Township includes a series of general statements in the design guidelines of its Subdivision Ordinance (Article 5) which give it the township flexibility in shaping individual development proposals. Examples include: “In all subdivisions, care shall be taken to preserve natural features such as trees, water courses, views, and historical features which add attractiveness and value to the remainder of the land.” (§501H) and “Buildings shall be well-related to the natural topography, existing desirable vegetation, bodies of water, views within and beyond the site, and exposure to the sun and other existing and proposed buildings.” (§525B2).

There is not, however, much specific language to guide developers or site plan reviewers regarding to what degree the natural resources should be protected. There are several recommendations in the following paragraphs that will help to strengthen and clarify the code in these matters.

Tree/Woodland Protection

- New language related to preserving existing woodland areas should be added to §525G1. This language would set up a definition for “tree protection area” and would describe how protection efforts should be undertaken prior to any clearing of the site. New language regarding the protection of specific types and sizes of trees should also be included. This would complement the specifications offered in §402B(2).

Streams, Lakes, and Wetlands

- An amendment to the Design Standards section of the Subdivision Ordinance (Article 5) that establishes a required buffer of at least 25 feet on all streams, lakes, and wetlands is recommended.

Agricultural Lands Protection

The Subdivision Ordinance includes in §530B4, language on the protection of agricultural areas. While it is only a brief statement it is a good foundation for developing broader efforts to protect agricultural communities from the potential disruptions that can come from development projects that are inconsistent with these traditional land uses. It may be necessary for Scott Township to develop a more comprehensive protection program for its agricultural areas.

- It is recommended that the citizens of Scott Township examine the cumulative and projected effects that development is having on its agricultural communities. Then determine whether additional agricultural protection policies are warranted.

Farmland protection efforts in Pennsylvania are strong and a number of communities have long histories and extensive experience in this area. This is primarily because the conversion of farmland and forestland in Pennsylvania has been so great. As the community examines its farmland particulars, it should refer to the model farmland protection ordinances referenced at the end of this chapter and should be in communication with some of the more experienced communities in this area. The County Soil and Water Conservation Districts and Pennsylvania State University Cooperative Extension will be useful sources of information.

Madison Township, Lackawanna County

Madison Township does not have Zoning. This issue plays a factor in the types of recommendations that are presented and in how those recommendations are structured. While some may consider this a major stumbling block in the language enhancement process, it needn't be. In fact, a recommendation regarding whether the Township needs or does not need zoning is not included; that decision is best suited for the local residents.

Recommendations about how conservation zoning should be structured if the Township does decide to approve zoning districts in the future are provided. In general, recommendations were tailored to a situation where no zoning exists.

Phase 1: Acknowledging the Value of Conservation

Madison Township has done a fairly good job of including a conservation ethic in the language of its Subdivision Ordinance. They have been especially good at stating and re-stating the importance of protecting a site's natural vegetation. This commitment however is not stated in the goals at the beginning of the document which would strengthen the document.

Articulating a community's general goals and values at the beginning of a regulatory document helps developers and plan reviewers understand the framework within which decisions and proposals should be made. This format leads to a better understanding among the participants in the decision process and in the end, leads to a more efficient and predictable development review process.

- Madison Township should examine the goal language referenced at the end of the section and amend its goals section to follow a similar format.

Phase 2: Building Flexibility

Without the individualized requirements that zoning districts establish, flexibility issues become less of a concern. In Madison Township, clustering, conservation subdivision design, and planned residential developments do not need authorization as conditional uses and are not forbidden in certain zones. In this regard, the lack of zoning affords developers who wish to minimize their impacts on the land and water a good deal of flexibility.

Even without zoning however, Madison Township has developed baseline lot sizes (1 acre lots, according to §6.12.5). In some cases it may be desirable to trade off higher density (.5 acre lots for example) in exchange for a higher than normal percentage of protected open space on a site. It appears that the Township has accommodated this potential situation by using PRDs and cluster development. The PRD option is included in §7.65.3 and requires that 25% of the total land area be set aside. It is presumed that density in this case would be increased, however the degree to which it may be increased is not specified.

- An addition to §7.65.3 that states the maximum residential density that would be permissible if a PRD is recommended. Example text is available at the end of this chapter.

A cluster option is not referenced by name in the main text of the Subdivision Ordinance, but a diagram of such a design pattern is presented as an appendix item. Again, because Madison Township lacks zoning, the only hurdle in the way of approving this sort of development design is the required 1 acre lots. It may be useful for the township to add some additional language that describes the density/protected land trade-off that is acceptable to the township for individuals choosing a cluster option.

Phase 3: Everyday Conservation

To facilitate additional protection of important open spaces in the every day planning decisions of Madison Township, we recommend a mechanism for formally linking the subdivision regulations with the new Open Space, Greenways, and Outdoor Recreation Master Plan. Because Madison Township lacks zoning, the creation of an overlay district is inappropriate. In this case, we recommend adding a new section, §7.65.4, to the existing text under the Public Grounds and Open Space heading. The section should state that all of the Proposed Conservation Areas noted in the Plan will be considered secondary conservation areas and as

such will only be developable under the following development models: §7.65.4.A – Conservation subdivision, §7.65.4.B – Estate lots, etc.

Primary conservation lands can also be set aside in the design standards section of the Subdivision Ordinance. An example is included at the end of this chapter.

If Madison Township chooses to institute zoning, another option for the protection of the primary conservation areas would be to create a conservation district similar to that of Kingston Township's, where steep slopes, and buffers along water channels are set aside as conservation districts and permitted uses do not include the construction of residential or commercial structures.

Open Space Protection

§7.65 Public Grounds and Open Space is a fairly lengthy section of the subdivision that addresses the dedication of public open spaces during the planning and review process of new development proposals. This section states that areas shown on the comprehensive plan of the County or Township shall be set aside for these purposes.

- Additional language should be crafted for this section which directs land developers to consider key properties in the new Open Space, Greenways, and Outdoor Recreation Master Plan for dedication.

Trees

Madison Township's Subdivision Ordinance makes the point in a number of locations that the existing forests and natural vegetation should be disrupted as little as possible. Examples include §7.63.4 (A-C) which are the performance standards for the erosion and sedimentation section, and in Article 6 (design standards) §6.10.12, where vegetation conservation is given its own section.

To further strengthen these statements on vegetation protection, it may be appropriate to add additional language in the design standards section that details the minimum circumference of trees to be protected, how protection should occur, and how tree masses or larger forested areas should be treated. Model language is included at the end of this chapter.

Stream, Lake and Wetland Buffers

Other than §6.23, where basic requirements are defined regarding following the Army Corps of Engineers guidelines for wetland delineation and permitting, there is no language that relates to establishing buffers for all streams, lakes, and wetland areas. An opportunity to include stronger language that would define set buffer areas is available.

- It is recommended that §6.10.15 Stream, Lake, and Wetland Buffers is added that states the required buffer area around all water courses and wetland areas. Example language is included at the end of the chapter.

Agricultural Lands Protection

Protecting a community's agricultural capacity is often approached by targeting specific, existing farms. A more effective approach (in communities where this is still feasible) can be to protect entire agricultural communities before they are seriously threatened. The first step in this process for Madison Township is to make sure intact agricultural communities are identified. Delineation of these communities is generally based on the existence of large, adjoining, actively farmed properties as well as an awareness of the service providers they depend on and the market areas where their products are delivered.

Once agricultural communities are identified and the community has determined that some degree of protection is desirable, the Subdivision Ordinance can be amended to support the protection interests. To start, it is important for plan reviewers to understand a subdivision's potential impact on a particular agricultural community. This can be accomplished by requiring that agricultural communities within X miles of a proposed subdivision be noted on plan proposals. §5.401.D, and other sections are good places to insert this requirement.

It is also recommended that §6.10.15 Agricultural Communities, be added to the Design Standards section of the Subdivision Ordinance, and that this section be used to establish guidelines for protecting intactness in existing agricultural communities and buffer areas that help minimize future nuisance issues that can arise between new subdivisions and existing agricultural operations.

Kingston Township, Luzerne County

Phase 1: Acknowledging the Value of Conservation

Kingston Township has a fairly detailed set of beginning statements regarding the purposes of the Zoning Ordinance. Like some other communities, these are broken up into categories such as appearance, education, pollution, etc. In general, this set of statements presents a clear picture of how the community intends to use the document to guide its land development activities. However, some additional language regarding water quality, natural area, or wildlife habitat protection would be appropriate.

- Adding new language under §103 of the Zoning Ordinance that reflects the community's commitments to water quality protection, natural area protection, and wildlife habitat protection is recommended. This can be done by amending the current language, or by adding additional goal statements.
- It is recommended that Kingston Township amend §103K to be titled "Existing Plans" and then add reference to the Open Space, Greenways, and Outdoor Recreation Master Plan.

The goal statements at the beginning of the Subdivision Ordinance are fairly strong and should be referenced when new goal statements are developed for the Zoning Ordinance.

Phase 2: Building Flexibility

With the very recent addition of their new 50/50 Conservation Subdivision Option (§512 of the Zoning Ordinance), Kingston Township has added another option beyond their existing Planned Residential Development option (§511 of the Zoning Ordinance) and has created a good base set of options for developers wishing to include a greater conservation ethic in their developments. The 50/50 ordinance has been referenced at the end of this chapter as model language for other communities to examine. Of particular note is its description of open space requirements in CSDs (e.g. must be at least 3 acres in size, length:width not to exceed 4:1).

The PRD section however could use some updating as it does not establish a required percent of open space set aside for developers choosing the option. Nor does it specify a maximum residential density for the PRD.

- Adding §511.1.E – Density and Open Space Standards is recommended. This section should set a maximum acceptable density for any PRD and should establish a minimum level of required open space dedication. Example language is available at the end of the chapter.

Phase 3: Everyday Conservation

The township's C-1 (conservation) zoning district is one of the strictest districts for limiting uses in any of the 6 communities. No commercial, residential, or industrial construction is allowed in this district (other than infrastructure to support existing agricultural uses). It is essentially a delineation of the unbuildable areas, or the primary conservation areas mentioned in many of the 6 communities' CSD ordinances. By establishing a zoning district where the most sensitive natural resources tend to occur, any development in the area is subject to special review. This type of conservation zoning is more effective as an everyday protection tool than many of the other conservation zones in the other communities that continue to permit residential construction.

There is also fairly good language scattered throughout the zoning and subdivision ordinances that can be used to shape development proposals. One example is in § 510 which holds a number of the regulations related to open space and natural areas protection. § 510.A states, "... Terms of approval of a plat may be subject to the manner in which the layout and design of the plan has preserved existing natural features . . ." This is the type of phrasing that is needed by site plan reviewers to justify their requests for better natural area protection on new development sites. However, it is only as strong as the user wants to make it. Individuals not particularly interested in conservation can easily approve proposals that include inadequate protection measures. It is important to adjust the actual language of the code so that the degree of protection that is desired is specified clearly and not left to subjective determinations.

One way to add a bit of strength is to simply add language that requires compatibility with the Open Space, Greenways, and Outdoor Recreation Plan.

- Amending § 502.D so that it reads, “. . . to the Township Zoning Ordinance and be consistent with the goals and objectives established in the Open Space, Greenways, and Outdoor Recreation Plan.”

As with the other communities participating in the audit, the concept of a conservation overlay district to help facilitate everyday conservation in the land development processes is favored. In the case of Kingston Township,

- It is recommended that the conservation zoning district continue to serve as the protection of the primary conservation areas.

To supplement that level of conservation, we would like to see the Township adopt a secondary conservation overlay area, based on the concepts from *Growing Greener: A Conservation Planning Workbook for Municipal Officials in Pennsylvania*, which was produced by the PA Department of Conservation and Natural Resources, The Natural Lands Trust, and the Pennsylvania State University Co-operative Extension Office in 1999.

In addition to other concepts about how to plan for conservation, the document details a menu of development options based on different densities, percentages of protected open space, lot size, and conservation needs. These design options included: a Village Design with Greenbelt, larger “Country Properties”, Estate Lots, and two other options that traded off density credits for enhanced conservation. The document includes model ordinance language that can be reviewed, modified, and amended into the existing township ordinances.

This process would involve two primary steps for Kingston Township:

- 1) Adding § 401.100 Overlay Districts. This would contain § 401.100.A Secondary Conservation Area Overlay.
- 2) Adding § 513 Estate Lots, §514 Country lots, etc. (according to Chapter 4 of the *Growing Greener* document).

Stream Protection

Some of the communities have created updated language that adds additional protection to streams, wetlands, and water bodies. These are generally listed among the design standards or in sections on environmental protection requirements. Kingston Township’s requirement is found in its description of its conservation zoning district. § 501.3 (zoning) defines conservation areas as 35’ on both sides of stream beds, 40’ from the shore of lakes, ponds, and wetlands, and all slopes > 20%. These conservation areas make up the core of the conservation districts. However, this does not provide the protection that a stated buffer regulation would provide. The conservation areas can still be used for agricultural purposes and forestry

operations according to the text of the existing code. In order to provide the additional protection needed so that Non-Point Source pollutants can be adequately filtered, stream corridors can maintain appropriate shade levels and vegetated habitat areas can be sustained, the community needs a stated buffer where no disturbing activities should take place.

- Establishing a stream buffer ordinance in the general design principles section of the Subdivision Ordinance is recommended. § 510.J could be created for this purpose using model text from some of the sources listed at the end of this section.

Trees

There are several areas in the text of the codes that call for the protection of trees and tree masses. These are general statements about making sure that development fits with local topography, environmental realities, etc. However, the current code does not contain specific, measurable requirements for which trees and tree masses must stay. If the Township feels that the current development practices are not sufficiently protecting the existing forested land cover, then we recommend that it include in §510.C updated language that specifies dimensions for trees that must be protected. Model language is available at the end of the section.

Agricultural Areas

While there is an Agricultural District established for Kingston Township, there is little protection in place to make sure that agricultural lands remain agricultural. The greatest threat to these areas is that they will be developed just as the existing code allows them to be – into 2.5 acre house lots. In order to facilitate greater protection of the agricultural areas in Kingston Township, it is recommended that the community consider the designation of agricultural communities, designed around large, adjacent tracts of currently farmed lands and their associated farm service providers and community centers.

These Agricultural Communities could be described in new sections of existing codes and additional provisions could be included to manage development in these areas so that large tracts remain intact and existing agricultural operations are appropriately buffered from encroaching development.

Luzerne County

It is clear from reading through Luzerne County's zoning and subdivision ordinance that they are taking a very different approach than most of the other communities. Rather than managing the shape and character of a municipal area, the County plan is responsible for making sure that all the non-municipal lands within the county are being used in a manner that is safe, and non-disruptive to other land users. The codes are much more focused on managing mining and large scale agricultural operations. Little emphasis is put on managing land development from an ecological or natural area perspective.

Phase 1: Acknowledging the Value of Conservation

The goals statement at the beginning of the Zoning Ordinance is well thought out, detailed, and fairly comprehensive. Similar to Wright Township, it lists the goals in topical areas such as economy, health, and housing. Conspicuously absent however is any mention of protecting the natural areas such as streams, forests, or wildlife habitat. The Zoning Ordinance goals are said to be representative of the goals presented in the community plan, so perhaps there is, likewise, little mention in that document of the need to protect critical natural areas. (We were not able to review that document so cannot compare the goals of the ordinances with those of the comprehensive plan). Reference to protection of streams, lakes, forests is also absent from the introductory parts of the Subdivision Ordinance.

- It is recommended that Luzerne County add language to the goals statement at the beginning of the Zoning Ordinance that reflects interest in maintaining the ecological integrity of the landscape. Sample language can be found at the end of this chapter or may be available in the Luzerne County Comprehensive Plan.

While these individual community audit reports do not generally examine the way the codes and ordinances shape road width, street design, and impervious surface standards, these are important factors in determining the degree of protection a community has for its open spaces. Luzerne County was the only participant community that listed, “the avoidance of excessive roads,” as a goal of their Subdivision Ordinance. This is an important goal that many communities could copy for their own use. By avoiding superfluous grading for roads and paved roadways, the intactness of a community’s open space network is better maintained and sedimentation and runoff in waterways can be reduced. Their goal statement has been listed as an example in the model language section at the end of this chapter.

Phase 2: Building Flexibility

In Phase 2, communities build flexibility into their codes and ordinances so that land developers who wish to develop land in an environmentally sensitive way, may do so. Luzerne County, like each of the other communities has adopted a Planned Residential Development (PRD) option, as allowed under Pennsylvania’s Municipalities Planning Code. This section of the Luzerne Zoning Ordinance is found in §6.15 Planned Building Groups, Planned Residential Developments. The Town has made a move in the direction of adding flexibility by adding this option to its zoning. However, as it is written, the PRD section does not adequately address density requirements or open space protection requirements.

- Amending §6.15 Planned Building Groups, Planned Residential Developments, D, Open Space, (2nd paragraph) so that it includes a requirement for a certain percentage of the buildable portion of the lot to be placed under permanent protection as open space is recommended. Example language is available at the end of this chapter.
- Amending §6.15 Planned Building Groups, Planned Residential Developments, D, Density and Intensity of Land Use, so that a maximum dwelling unit per acre standard is set for PRDs is recommended. Example text can be found at the end of this chapter.

At present the individual zoning districts, including the Conservation District (C-1), and the Agricultural District (A-1), are fairly permissive regarding the types of uses allowed in the zoning district. For example, single family residential is currently allowed in the conservation district and the agricultural district on 2 acre and 1 acre lots, respectively. Under the PRD option, lot sizes can be reduced to, roughly, 1 acre and .5 acre, respectively. Adding an additional conservation subdivision option for general use in these areas may or may not be desirable or effective at increasing the degree to which open spaces are protected (although a CSD option is discussed in the next phase as part of the conservation overlay district).

The current focus for phase 2 should be, actually, to strengthen the PRD option so that the community has in place a clear regular zoning option and a clear alternative option for increasing the density in certain areas of a residential or mixed use development in exchange for a certain percentage of protected open space for farming, natural area protection, recreation, or scenic area protection.

Phase 3: Everyday Conservation

Because Luzerne County's documents have so little reference to the consideration of natural area needs, there is little in place that would lead to increased conservation or ecological sensitivity in everyday land subdivision and land development activities. Several changes are necessary if the County wishes to increase the status of conservation among its other stated goals.

- Additional language in the Subdivision Ordinance, Section 7, Plan Requirements is recommended. This language would require land development proposals to show streams, wetlands, ponds, water bodies on the maps that are submitted for review. A separate clause would state that large trees and forested areas should appear on these maps. Finally, it may also be appropriate to ask that the conservation lands proposed in the Open Space, Greenways, and Outdoor Recreation Plan be shown on the maps.

In addition to requiring that proposals show green infrastructure on their maps, it is also important to make it clear that new land development projects will be reviewed in a manner that ensures consistency with the vision presented in the new Open Space, Greenways, and Outdoor Recreation Master Plan.

- Adding language under §6.15 Planned Building Groups, Planned Residential Developments, D, Open Space, (1st paragraph) so that the section reads: ". . . shall be consistent with the comprehensive plan for the County or municipality for future land use and shall be in accordance with the goals and objectives of the Luzerne and Lackawanna Open Space, Greenways, and Outdoor Recreation Plan. . ." is recommended.

Finally, as with each of the other communities, it is suggested that Luzerne County adopt an overlay district and other protective language so that primary conservation and secondary conservation lands are adequately protected.

- A clause should be added to the Design Standards section of the Subdivision Ordinance that says, essentially, “except by special permission, no construction will be permitted on slopes over 20%, within the 100yr floodplains, or on areas of exceptional ecological sensitivity. These areas make up Luzerne County’s *Primary Conservation Areas*.”
- Article 14 – Conservation Overlay District should be added to the Zoning Ordinance. This district will be made up of all of the Proposed Conservation Areas that are included in the new bi-county Open Space, Greenway, and Outdoor Recreation Plan. Within these areas, full net density is only achievable if conservation subdivision practices are used.

Trees

During our review of the subdivision and Zoning Ordinances of Luzerne County, we were not able to find any reference to requirements that protect large trees, tree masses, or forested areas.

- Language should be added to the Subdivision Ordinance that requires trees of a certain thickness or stands of forest to be protected from clearcutting. Example text is available at the end of this section.

Stream, Lake, Wetland Buffers

Nowhere in the existing documents could we find any mention of required buffers along water channels or around designated wetlands. In order to protect the County’s water quality for habitat purposes, human consumption, recreation, and tourism uses, it may be necessary to establish standardized buffers for these types of resources. Model language for consideration is available at the end of this section.

Agricultural Lands

While it is generally the goal of the individual townships to protect farmland within their jurisdictions, the protection of larger agricultural areas that cross municipal boundaries should be a role for the County. In the Plan, the map of Proposed Conservation Areas in Luzerne County includes a large section of Agrarian Lands in the Southwest quadrant of the County.

In order to promote the protection of this resource, Luzerne County could amend its zoning and subdivision ordinances to define a large Agricultural Area around this resource with special requirements for development proposals in the area. One option is to create Section 15 – Agrarian Protection Area, in the subdivision and land development ordinance. This section would be used to state the purpose of this designated area, the procedures for its establishment, and provisions for development within the area. A similar notation could be made in the Zoning Ordinance. This could be Article 14 – Agrarian Protection Area, and would be similar in format to the Flood Plain District, detailed in Article 13.

A listing of additional tools available to Pennsylvania communities and case studies of how agricultural area protection is already being done in Pennsylvania can be found at the end of this section of the Appendix.

LOCAL MODEL ORDINANCES AND EXAMPLE LANGUAGE

Goal statement examples:

- Kingston Township, Subdivision and Land Development Ordinance, §102.10, §102.11
- South Abington Township, Zoning Ordinance, §1.209, §1.210, and introductory portion of §6.718
- Code of Wright Township, Chapter 145 (zoning), Section 103.D

Avoiding excessive road grading and paving (goal statement)

- Luzerne County, Subdivision and Land Development Ordinance, §2.4

Maximum density in a PRD (15 DU/Acre):

- Code of Wright Township, Chapter 145 (zoning), Section 716C

Required Open Space in a PRD (20%):

- Code of Wright Township, Chapter 145 (zoning), Section 716D4

Required open space and recreational lands in a PRD (25%)

- Madison Township, Subdivision Ordinance, §7.65.3

Stream, Wetland, Pond Buffer in a PRD (100')

- Code of Wright Township, Chapter 145 (zoning), Section 716D3 (last sentence)

Streams and Lakes Buffer (in all areas):

- Code of the Township of Wright, Chapter 131 (Subdivision), §614.D

Wetland Buffer:

- South Abington Township, Zoning Ordinance, §6.72

Type/Size requirements for Open Space in CSD:

- Kingston Township, Zoning Ordinance, §512.3 (last few sentences)

Example of a strong conservation zoning district:

- Kingston Township, Zoning Ordinance, § 501

Conservation Subdivision Ordinance (50% Open Space)

- Code of the Township of Wright, Chapter 131 (Subdivision), Article 11

Conservation Subdivision (50/50 option)

- Kingston Township, Zoning Ordinance, § 512

Tree protection: Statement of sizes to be protected:

- Code of the Township of Wright, Chapter 131, §614.A

Tree Protection/Woodland Protection, General

- South Abington, Zoning Ordinance, §6.401.B and §6.402

Conservation of existing vegetation (Design Standards)

- Madison Township, Subdivision Ordinance, §6.10.12.a

Inclusion of natural features on preliminary plan maps (font change to 11)

- Madison Township, Subdivision Ordinance, §5.414.11

Required Natural and Historic Feature Protection (Design Standards)

- Madison Township, Subdivision Ordinance, §6.10.4
- Scott Township, Subdivision Ordinance, §501.H and §525.B.2

Clause for how and when exceptions to the rules will be considered (strong)

- Madison Township, Subdivision Ordinance, §8.4

New Development Design Options (Village Design, "Country Properties", Estate Lots, etc)

- Growing Greener: A Conservation Planning Workbook for Municipal Officials in Pennsylvania, Chapter 4 (available from the Pennsylvania Environmental Council).

Websites and Nation-wide Model Language

- The Delaware Valley Regional Planning Commission in New Jersey and Pennsylvania, maintains a website of “Sample Natural Resource Protection and Open Space Preservation Ordinances”. This is an excellent web resource for communities looking for new ideas and helpful examples of ordinance language.
<http://www.dvrpc.org/planning/Protection%20Tools/ordinances.htm>.
- The Utah League of Cities and Towns also maintains a web catalog of potentially useful ordinances. Some of these cover parks, Planned Unit Developments, Overlay Districts, and Water Resource Protection. http://www.ulct.org/resources/ordinance_codes/moe.
- The US EPA has a useful website for downloading model ordinances on subjects such as wetlands, golf courses, non-point source management, aquatic buffers, and erosion and sediment control. <http://www.epa.gov/owow/nps/ordinance>.
- The Department of Energy (DOE) has a number of web pages that present model ordinances related to regulating land uses to protect natural resources. A great place to start within the DOE site is: <http://www.sustainable.doe.gov/landuse/lucodtoc.shtml>.

Aquatic Resource Protection: The Stormwater Center was created by the Center for Watershed Protection and hosts a number of example ordinances on its website. These ordinances are for stream buffers, open space zoning, ground water protection, and a number of other topics. From the home page, choose “ordinances” from the sidebar. <http://www.stormwatercenter.net>.

Performance Zoning: Bucks County Pennsylvania adopted a new Performance Zoning Ordinance in 1996. The ordinance was designed to enhance protection of natural resources on development sites and to provide additional flexibility for the developers in the design and construction of proposed development. The US Department of Energy’s (DOE) Sustainability and Green Communities website lists the Bucks County Ordinance as a model for other communities across the country. For information about Performance Zoning and how Pennsylvania municipalities and counties use it, visit:
<http://www.sustainable.doe.gov/codes/bucks.shtml>.

Tree Protection Ordinances: A number of communities across the country have versions of their tree protection ordinances available on line. Model language can be extracted from these ordinances and used in local ordinance revisions. Some example communities on the east coast:

- Savannah, GA
- Fayetteville, AK
- Eufaula, AL
- Raleigh, NC

Conservation Subdivisions: While there is a great deal of information available in Pennsylvania about how to create a Conservation Subdivision Ordinance, it may be useful to look for other national examples. The State of Wisconsin has created a Model ordinance for its local governments:

http://www.doa.state.wi.us/dhir/documents/conserv_subdiv_Model_ordinance_Feb2001.pdf

Agricultural Zoning: If your community wishes to establish separate zones for agricultural districts/areas, examine the Ordinance from Lancaster County, PA. Information is available at:
<http://www.sustainable.doe.gov/codes/agzon.shtml>

Another website that may be of use is the Land Preservation Notebook being developed by North Carolina State University: <http://www.cals.ncsu.edu/wq/LandPreservationNotebook/> While much of the information at the site is North Carolina specific, this resource can serve as good background material and has links to more nationally oriented information sources.

Finally, the Cooperative Extension Office in Luzerne County has an excellent list of PA legislation that is pertinent to Farmland Retention. It is a great reference site for local governments that are exploring ways to facilitate the protection of farmland in their jurisdictions:
<http://luzerne.extension.psu.edu/Agriculture/retention.htm>

4.0 Model Management Programs

Examples of other similar regional open space and greenway organizations from throughout the United States are included below. These model programs are offered to guide the future efforts of Luzerne and Lackawanna Counties. Contact information is provided in the event that more detailed questions, issues or concerns need clarification.

East Bay Regional Park District

The vision of the East Bay Regional Park District is to preserve the priceless heritage of natural and cultural resources open space, parks and trails for the future and set aside park areas for enjoyment and healthful recreation for generations to come. An environmental ethic guides every accomplishment. The core mission of the District is to acquire, develop, manage, and maintain a high quality, diverse system of interconnected parklands which balances public usage and education programs with protection and preservation of our natural and cultural resources. To accomplish this mission the District works to achieve the following goals:

- 1) Acquire new parklands and improve existing park facilities
- 2) Work to complete the planning of Eastshore State Park
- 3) Planning and fund-raising with the State of California, Regional Parks Foundation and school district partners to complete the Environmental Education Camp for students at Arroyo Del Valle.
- 4) Open initial public access to new or revitalized facilities at Arroyo Del Valle, Camp Ohlone, Skyline Training Center and Quarry Lakes
- 5) Create business plans to guide the development and operation of the Quarry Lakes Recreation Area, Arroyo Del Valle Environmental Education Camp and the Skyline Training Center.
- 6) Continue to develop programs to increase public awareness of the Regional Parks System

Resources Managed

The District manages resources within Alameda and Contra Costa counties; which encompass 1,745 square miles on the eastern side of San Francisco Bay. Specifically the District manages the following resources:

- 94,500 acres of parks, open space lands and greenways, with 90 percent of the District's lands protected and operated as natural parklands
- 59 regional parks, recreation areas, wilderness, shorelines, preserves, and land bank areas
- 29 regional inter-park trails
- 1,150 miles of trails within parklands
- 11 freshwater swimming areas, boating and/or stocked fishing lakes and lagoons and a disabled accessible swimming pool

- 40 fishing docks; 3 bay fishing piers
- 235 family campsites; 42 youth camping areas
- 2 golf courses
- 2,082 family picnic tables
- 1,707 reservable group picnic tables
- 9 interpretive and education centers
- 18 children's play areas
- Wedding, meeting and banquet facilities

Governance and Operations

The District is governed by a seven-member Board of Directors that determines all questions of policy. Board members are elected for 4-year terms. The district employs more than 543 permanent employees and 265 seasonal employees, and is led by a General Manager. The District also enlists the support of more than 9,000 volunteers, which contributed 98,791 service hours in 2001 alone. Volunteer opportunities for individuals and groups include helping with projects such as:

- Animal, bird, and plant species census
- Habitat enhancement and resource protection
- Vegetation management (native and non-native) plant propagation and removal
- Trail rehabilitation/maintenance
- Restoration of antique farm equipment
- Leading historical tours
- Volunteer Trail Safety Patrol (bicycle patrol, mounted patrol, hiking patrol and companion dog patrol)

Funding and Revenue Sources

Almost 65 per cent of District funding comes from property tax and assessment district levies in the two counties. Funding for land acquisition and capital development is from the Measure AA bond issue approved by voters in 1988. The 2002 budget includes general and special revenue expenditures of \$81.7 million, capital appropriations of \$24.4 million, and debt service costs of \$15.9 million, for a total of \$122.1 million. The District seeks partnerships with both the public and private sectors to enhance and expand its services. Funding goes to support the following activities:

- 53%--Operations/Interpretation
- 6%--Legislative/Executive
- 15%--Public Safety
- 8%--Construction/Planning/Stewardship
- 15%--Public Affairs/Finance/Human Resources/Management Services/Legal-Risk
- 3%--Acquisition/Advanced Planning/Regional Trails

Park user fees and leases fund 8.5 percent of the District's budget. Fees are reviewed and approved by the Board of Directors annually. Typical fees charged include, but are not limited to, parking, swimming, camping, fishing, boat launching, reservable picnic areas and recreational programs.

Park Memberships are available in several categories and are sold through the Regional Park Foundation. Basic benefits include: free parking, free swimming at eight lakes, special members' events, a free guide to the Regional Parks, and a members-only newsletter.

Regional Parks Foundation

A Regional Parks Foundation was established in 1969 to encourage private contributions in support of the East Bay Regional Park District. Besides directly supporting District programs, the Foundation holds and invests funds for future use by the District. Over the past 30 years, the Regional Parks Foundation has received donations, land, and in kind services valued at more than \$30 million. The Regional Parks Foundation's mission is to support the Regional Parks through fundraising that provides broader public access, resource protection and preservation, educational and recreational programs, and acquisitions of parklands. The Foundation is currently governed by 15 volunteer directors. Individual gifts to the District are received through the Regional Parks Foundation,

Mailing address:

East Bay Regional Park District
2950 Peralta Oaks Court
P.O. Box 5381
Oakland, CA 94605-0381
(510) 635-0135
www.ebparks.org

Chicago Openlands Project, Chicago, IL

Since 1963, the Chicago Openlands Project has been working diligently to protect open space in the Chicago metropolitan area. To date the organization has preserved more than 21,000 acres of land that are now enjoyed by local residents as parks, forest preserves, bicycle trails, urban gardens and places to observe nature. Chicago Openlands was created by corporate executives who were concerned with the pace of rapid urbanization in the early 1960's. As a private-sector-led land conservancy organization, the original goals were simple -- take steps necessary to protect and preserve the unique natural resources of Northeastern Illinois to ensure the quality of life for future generations. Chicago Openlands has always been concerned with the important interrelationship between natural resources and community expansion.

The organization is structured as a private, nonprofit advisory group -- the guiding philosophy could be summed up as "no power is all power." As an advisor, the group is free from political influence and is able to carry out its mission and objectives. Currently, the organization crafts policy and programs, which are then implemented through a variety of partnerships both public and private. The 260 municipalities of the Chicago metropolitan area are the primary implementers of the Openlands strategies. Additionally, Openlands contracts work to local governments and private sector organizations to help it achieve results. This has enabled Openlands to remain a modest organization with essential, highly trained and educated staff.

The primary strategy of Openlands since the late 1980's has been to implement a 1,600-mile multi-objective greenway system. The Northeastern Illinois Regional Greenway Plan was created through a partnership between the Northeastern Illinois Planning Commission (NIPC) and Openlands in September 1992 as the guiding document for this ambitious system. The Plan physically defines on-road and off-road corridors throughout the metro area as linkages to the already well-established Forest Preserves. Local and regional parks, parkways, canals and historic trails are also essential elements of the greenway strategy. The heart of the Plan lies in the designation of 900 miles of stream corridors as multipurpose greenway corridors.

One of the functions of Openlands is the acquisition of property that is located within the proposed greenway system. CorLands, a real estate affiliate of Openlands is the agent for this acquisition. Since 1988, CorLands has acquired 4,500 acres. CorLands uses a variety of land acquisition strategies to preserve and protect vital open space within the metro area.

Mailing Address:

Openlands Project
25 East Washington Suite 1650
Chicago, IL 60602
312-427-4256
www.openlands.org

Peninsula Open Space Trust, San Francisco, CA

The Peninsula Open Space Trust (POST) is a nonprofit land trust dedicated to preserving the beauty, character, and diversity of the San Francisco Peninsula. Since its founding, POST has protected more than 40,000 acres of San Francisco Peninsula Open Space. POST partners with many organizations in the Bay Area to protect land. One of its principal partners is the Mid-Peninsula Regional Open Space District. The District was established in 1972 to create a regional greenbelt of open space lands linking District preserves with other parklands. The District also participates in cooperative efforts such as the Bay Trail, Ridge Trail and Skyline-to-the-Sea Trail. The District encompasses 16 cities and three counties.

POST works to buy and preserve land. POST utilizes a combination of public and private funds to support its activities. POST sells land to local, state and federal government agencies for management purposes, as public monies become available for the transaction. One of POST's recent campaigns was to raise \$33.5 million in private sector funds to protect more than 12,500 acres of land in the Bay Area.

POST is governed by a 15-member board of directors. Directors come from some of the most influential private sector and philanthropic organizations in the Bay Area. A 34-member Advisory Council that is comprised of private sector representatives supports the Board in its work. POST employs a four-person staff, consisting of a President, two Vice-Presidents and one Director of Stewardship.

A 7-member board of directors that is determined by seven geographic wards governs the Mid-Peninsula Open Space District. Each member serves a four-year term and is elected to their offices through District elections. 60 employees, the majority of whom are responsible for resource management, staff the District. They patrol and maintain a 250-mile network of trails. The District is funded from an annual property tax of 1.7 cents per \$100 value. This generates an annual fund of \$10 million. Other revenue is derived from federal and state grants, interest and rental income, and donations or gifts.

Mailing Address:

3000 Sand Hill Road
Building 4, Suite 135
Menlo Park, CA 94025
(650) 854-7696
www.openspacetrust.org

Northern Virginia Regional Park Authority

In the late 1950's, the Northern Virginia Planning District Commission and a group of citizens from several local jurisdictions came together to protect Northern Virginia's rich heritage of woods, meadows, lakes and streams from the threat of suburban sprawl. These citizens, working with their local governments--Fairfax County, Arlington County and the City of Falls Church--organized under the Virginia Park Authorities Act in 1959 as the Northern Virginia Regional Park Authority (NVRPA). They came together to plan, acquire develop and operate a system of regional parks for all Northern Virginians to enjoy.

Today's Regional Park Authority represents three counties and three cities--Arlington County, Fairfax County, Loudoun County, the City of Alexandria, the City of Falls Church and the City of Fairfax. Regional Park Authority staff, volunteer board members appointed from each jurisdiction and many friends of the regional parks working together have preserved more than

10,000 acres of the rolling and wooded Virginia countryside and created a priceless legacy for future generations.

Through its regional parks, the Northern Virginia Regional Park Authority provides almost two million citizens with some of the finest recreational facilities in the country. By pooling funds, these local governments find that each dollar contributed to NVRPA is multiplied by contributions from other member jurisdictions and sometimes augmented by state and federal grants and private donations. Being a member of NVRPA is a good economic investment.

Vision and Mission

The Mission Statement of the Northern Virginia Regional Park Authority originates from the Virginia Park Authorities Act and from the Concurrent Resolutions under which the Authority was created:

The Northern Virginia Regional Park Authority shall plan, acquire, develop, construct, operate and maintain a system of regional parks, within the geographical limits of the political subdivisions composing the Authority.

Northern Virginia Regional Park Authority's Goals:

Adopted February 20, 1992

Provide a diverse system of regional park lands and recreational facilities that meets the needs of a dynamic and growing population and enhances leisure time opportunities for Northern Virginians;

- 1) Provide leadership in the planning and coordination of regionally significant park and recreation projects;
- 2) Acquire, preserve and protect regionally significant areas of exceptional natural, environmental, historic, cultural, recreational or aesthetic value;
- 3) Balance the development of recreational amenities and opportunities with the preservation of natural, scenic, historic, cultural and other environmentally sensitive resources;
- 4) Maintain the integrity and quality of park and recreation facilities through continued careful development, operation and maintenance;
- 5) Strive for continued sound fiscal management so as to provide for long-term financial stability and solvency.

Governance

The Northern Virginia Regional Park Authority is governed by a 12-member policy-making Board. The city council or county board of each jurisdiction appoints two members to the NVRPA Board. A full-time, professional staff, led by the Executive Director, manages NVRPA's day-to-day operations. The administrative offices are located at the Walter L. Mess

Headquarters Building, 5400 Ox Road, Fairfax Station, Virginia 22039. Board members do not maintain offices at this headquarters building but may be reached through the Office of the Executive Director.

Mailing Address

Northern Virginia Regional Park Authority Headquarters
5400 Ox Road
Fairfax Station, Virginia 22039
(703) 352-5900
www.NVRPA.org

The Roanoke Valley Greenway Commission, Roanoke, VA

The Roanoke Valley Greenway Commission is a government appointed advisory board that serves to advocate the development of a regional greenway system. Established by an intergovernmental agreement on April 19, 1997, the Commission represents the interests of citizens from the four Valley governmental units.

The purpose of the Commission is to advise the four governments on greenway opportunities and citizen interests in greenways, facilitate cooperation among jurisdictions in greenway planning and development, recommend sources of funding for greenway construction, develop uniform standards for greenway design and construction, pursue public/private partnerships, and coordinate efforts to create a Valley-wide greenway system.

A non-profit corporation known as Pathfinders for Greenways aids the Commission in carrying out its duties. Pathfinders purpose is to promote and encourage development of a greenway network, educate citizens and officials on the benefits of greenways, raise and receive gifts, donations and grants for greenways, organize volunteers to assist with greenway development and sponsor greenway promotional events.

The Commission consists of 13 appointed members. Twelve members come from four local governments. Roanoke City, Roanoke County, the Town of Salem, and the Town of Vinton each gets three appointees. The Metropolitan Planning Organization appoints one member. Ten ex-officio members come from planning, parks and recreation and other local, state and federal agencies, and from two non-profit organizations.

Mailing Address:

Liz Belcher, Greenway Coordinator
Roanoke Valley Greenways
P. O. Box 29800
Roanoke, VA 24018

(540) 776-7159
www.greenways.org

The South Suburban Park Foundation, Denver, CO

The South Suburban Park Foundation, Inc. was formed in 1979 with the mission of enriching the environment and improving open space and recreational opportunities for residents of the south suburban communities of metropolitan Denver. A private sector, nonprofit organization, South Suburban Park Foundation is an advocacy organization that has served as master planner and builder of several significant greenway projects, including the award-winning Arapahoe Greenway and 10,000 Trees, a stream bank revitalization and reforestation project.

The intent of SSPF is to leave a legacy of greenways, trails, and open space in the south Denver metro area. The trustees and supporters are committed to realizing this objective through partnerships of the Foundation and private citizens, government agencies, corporations and philanthropic institutions. The Foundation offers a means for these individuals and groups to contribute funds, goods, or volunteer efforts toward a shared community objective. The Foundation has received numerous awards for its outstanding work.

The South Suburban Park Foundation is a membership organization that accepts and encourages grants, donations and contributions from public and private sources. The Foundation is a tax-exempt, not-for-profit corporation. SSPF is structured with an 11-member Board of Directors, and has employed through contracts an Executive Director and technical consultants during its 17-year history. The organization partners with local government agencies to plan and implement most of its projects. It also partners with other private sector groups, including corporations, to implement activities.

Mailing Address:

South Suburban Foundation
6631 South University Boulevard
Littleton, CO 80121
(303) 798-5131
www.sspf.org

5.0 Model Funding Programs

Examples of model funding programs in other areas of the United States are included below.

Austin, Texas

In the 1990's, Austin grew from a population of 400,000 to 600,000. A million people now live in the Austin metro area. The effects of sprawl were evident in Austin's clogged traffic, declining air quality, threatened drinking water, and loss of rural character. In 1998, the city council launched a smart growth initiative that included regulatory changes that encourage denser development and efforts to protect open space. Throughout the 1990's, Austin voters approved more than \$130 million in local bonds to protect critical watershed lands and create parks and greenways.

Some of these funds will go towards the purchase of open space as a part of a "desired development zone." The 5,000-acre development will set aside the "most sensitive, the most beautiful, the most threatened lands in terms of water quality, so the desired development zone will have a spine of natural beauty down the middle of it, and that will attract folks to live and work there. http://www.tpl.org/tier3_cdl.cfm?content_item_id=1150&folder_id=727.

Broward County, Florida

In 1990, Broward County had 2,900 acres remaining of pristine land. The county passed a \$78 million bond to purchase this land, but it was not enough. Only 1,200 acres could be purchased, and another 1,200 of the targeted acres were lost to development.

In 2000, the county sought to purchase the remaining ecologically sensitive 500 acres for conservation and to add another 525 acres (of moderate ecological health) to the county open space system. Additionally, the county was looking to purchase 400 acres of inappropriately located agricultural fields and industrial sites so that the land could be reclaimed for passive recreation areas. The voters approved (by 74 percent) a bond referendum of \$400 million to add the 1,425 acres to the county's open space resources.

http://www.tpl.org/tier3_cdl.cfm?content_item_id=1355&folder_id=947.

Gwinnett County, Georgia

Gwinnett County uses a variety of sources to collect its open space and recreation funding. In FY2001, the county received \$3,302,522 as a participant in the Georgia Greenspace Program. Due to increasing participation by other Georgia counties, the FY2002 allocation for Gwinnett is \$2,948,970. Additional funding for open space acquisition comes from the recreation tax levee of 0.86 mill. However, the most significant funding comes from Special Purpose Local Option Sales Tax (SPLOST).

The state of Georgia permits local governments, via a referendum, to assess an additional one percent sales tax for special projects. In November of 2000, Gwinnett County voters approved a four-year, one percent SPLOST. The SPLOST is expected to generate between \$450 million and \$750 million for open space preservation, parks, libraries and transportation. The eventual amount collected in SPLOST funds will be dependant upon the actual dollars spent on taxable goods in Gwinnett County. The allocation for parks and open space is anticipated to be a minimum of \$192 million.

Portland, Oregon

For the fiscal year 2001/02, Portland Parks & Recreation will spend nearly \$60 million to operate, maintain, and expand the park system. The greatest single source of revenue will come from Portland's General Fund (50%). Additional funding comes from user fees (27%), interagency agreements (7%), grants and donations (0.5%), Park System Development Charge (1.5%), and other sources (14%).

In the spring of 1995, metro-area voters approved an Open Spaces Parks & Streams Bond Measure of \$135 million to acquire regionally significant natural areas. The money will be spent to acquire approximately 6,000 acres of open space and complete six regional trail and greenway projects. The measure also provides resources for local parks providers, including \$7.4 million for parks within the City of Portland.

In 1998, the Portland City Council approved a residential Park Systems Development Charge (SDC) to partially offset the costs associated with needed services for housing developments. The residential development fee generates about \$1 million a year for park capital improvements based on the current rate of about \$1,500 per unit. SDC funds are restricted to land acquisition and capital improvements in areas of population growth and new development. SDC funds cannot be used to correct existing parkland deficiencies, nor can they be used to offset operations or maintenance costs. Currently, the fee is only assessed for residential development. For more information visit: <http://www.parks.ci.portland.or.us/>.

6.0 Funding Sources

6.1 State of Pennsylvania Funding Sources

The State of Pennsylvania offers multiple funding resources in support of open space and greenway implementation. The following provides a summary of these sources and lists contact names, telephone numbers and web addresses.

PENNDOT

PENNDOT's primary means of funding greenways projects is through the Transportation Enhancements Program that is part of TEA-21. Greenways projects with a tie to transportation, historic preservation, bicycle/pedestrian improvements, or environmental quality are eligible candidates for Transportation Enhancements funding. PENNDOT will received \$40 million in funding for the fall 2001 funding cycle. \$32 million is available for projects selected by MPOs/LDDs and the remaining \$8 million is a set-aside for use at the Secretary's discretion and for projects of statewide significance. For more information contact Dante Accurti, (717) 783-2258. DCNR or <http://www.dot.state.pa.us/>

The Community Conservation Partnership Program

The State of Pennsylvania makes available grant moneys to municipal governments through this program to support greenway and park planning, design and development. Applications for these grants are due in October of each year, and a 50 percent match is required from the local project sponsor. The amount of maximum award varies with the requested activity. Planning grants are typically awarded \$50,000 or less. Land acquisition and construction grants range from \$150,000 to \$200,000. Small community grants are also available through this program for municipalities with populations less than 5,000. These grants can support up to 100 percent of material costs and professional design fees for recreational facilities. Grants for these projects are typically limited to \$20,000. For more information contact regional advisors: Southeast: Don Gephart & Fran Rubert (215) 644-0609, Northeast: Michelle F. Breslin & Dennis De Mara (570) 963-4157, Southcentral & Northcentral: Cindy Dunlap (Southcentral) Lori Kieffer Yeich (Northcentral) (717) 772-3839, Southwest: Kathy Frankel & Tracy Robinson (412) 880-0486, and Northwest: Mark Kulich (814) 871-4190. <http://www.dcnr.state.pa.us/grants.htm>

Heritage Park Grants

DCNR makes grants available to promote public-private partnerships that preserve and enhance natural, cultural, historic and recreation resources to stimulate economic development through heritage tourism. Grants are available to municipalities, nonprofit organizations or federally designated commissions acting on behalf of the municipalities in heritage park areas. Grants are awarded for a variety of purposes including feasibility studies; development of management action plans for heritage park areas; specialized studies; implementation projects; and hiring of state heritage park managers. Grants require a 25-50 percent local match. For

more information contact Tim Keptner at (717) 783-0988.

Land Trust Grants

The State of Pennsylvania DCNR can also award land acquisition grants for areas where rare or threatened species exist. Grants are made available to non-profit land trusts of land conservancies and require a 50 percent match. Award amounts will vary, and usually supported the acquisition of hundreds of acres of land. Applications are due in October of each year. Part of the Growing Greener Initiative, the program generally has a \$4 million allotment. For more information contact Fred Owen at (717) 783-2663.

Rails-to-Trails Grants

The Rails-to-Trails Grants provide 50% funding for the planning, acquisition or development of rail-trail corridors. Eligible applicants include municipalities and nonprofit organizations established to preserve and protect available abandoned railroad corridors for use as trails or future rail service. For more information contact Wilmer Henninger at (717) 772-3704.

Urban and Community Forestry Grants

Can be used to encourage the planting of trees in Pennsylvania communities. Municipal challenge grants provide 50 percent of the cost of the purchase and delivery of trees. Special grants are available for local volunteer groups, civic clubs, and municipalities to train and use volunteers for street tree inventories, and other projects in urban and community forestry. The program's annual allotment varies but is generally around \$500,000. For more information contact Norm Lacasse at (717) 783-0385.

The Recreational Trails Program (DCNR)

National Recreation Trails Fund Act (NRTFA) or Symms Act Grants. This source of funding is a subset of TEA-21, and is administered by DCNR. Funds from this program can be used for the acquisition of land and the construction of trail tread and trail facilities. Applications for this funding are due in March 1999. Land acquisition will require a 50 percent match from the local sponsor. Construction projects will require a 20 percent match from the local sponsor. The typical maximum award has been \$150,000. For more information contact Vanyla Tierney at (717) 783-2654.

Rivers Conservation Program

This program seeks to maintain, restore, and enhance rivers throughout Pennsylvania. Non-profit organizations and municipalities may apply for grants above \$2500. Before being considered for river conservation, implementation, acquisition, or development projects, a grant applicant must have an approved river conservation plan. Part of the Growing Greener initiative, this program is allotted \$1 million annually. For more information contact Marian Hrubovcak at (717) 787-2316.

DCED

DCED's mission includes four elements that each have a relationship to greenways: economic development, travel and tourism, technical assistance and community development.

<http://www.inventpa.com/default.asp?path=Communities%20in%20PA/Community%20Resources/Community%20Resources.xml> - one stop application for all DCED funding. Each of DCED's funding programs is listed and described below.

Community Revitalization Program

This funding source, which ranges from \$5,000 to \$50,000, supports local initiatives aimed at improving a community's quality of life and improving business conditions. For more information contact Oliver Bartlett at (717) 720-7352.

State Planning Assistance Grant

This program provides funding to municipalities for preparation and maintenance of community development plans, policies, and implementation measures. The grant requires a 50% match and priority is given to projects with regional participation. For more information contact Kerry Wilson at (717) 783-1402.

Small Communities Planning Assistance

This grant is awarded to municipalities having a population of 10,000 people or less. The grant offers a no-match funding source that can be used to support neighborhood revitalization, economic development, community conservation and housing plans. Regardless of the project type, the grantee must demonstrate the project benefits low to moderate income residents. For more information contact Kerry Wilson at (717) 783-1402.

Communities of Opportunity Program

This program provides funding to prepare communities to be competitive in attracting, expanding, and maintaining businesses and providing affordable housing. The \$14 million program is open to municipalities, redevelopment and housing authorities, and nonprofit housing corporations. The program does not require a local match. For more information, contact Diana Kerr, (717) 787-5327.

Community Development Block Grants

This program provides financial and technical assistance to communities for infrastructure improvements, housing rehabilitation, public services, and community facilities. The program targets local governments and 70% of each grant must be used for activities or projects that benefit low to moderate income people. For more information, contact Scott Dunwoody at (717) 787-5327.

Main Street Program

The Main Street Program provides grants to municipalities and redevelopment authorities to foster economic growth, promote and preserve community centers, creating public/private partnerships, and improve the quality of life for residents. The program has two components, a Main Street Manager and Commercial Reinvestment. The Main Street Manager component funds a staff position that coordinates the community's downtown revitalization activities. The Community Reinvestment component provides funding for actual improvement projects in the community. The Main Street Manager is partially funded for a 5-year period while the Community Reinvestment activities require a minimum of a 50% match. A business district action plan must be completed for eligibility in this program. For more information contact Diana Kerr, (717) 787-5327.

Keystone Historic Preservation Grants

Local governments and non-profit groups may apply for this grant that ranges in value from \$5,000 to \$100,000. A 50% local match is required and funds may be used for preservation, rehabilitation, and restoration of historic properties, buildings, structures, sites, or objects. For more information contact Bryan Van Sweden at (717) 772-5071.

Certified Local Government Grants

Federal funding program limited to Certified Local Governments for cultural resource surveys, technical and planning assistance, educational and interpretive programs, and national register nominations. The program includes a 40% local match that can be made with in-kind services, cash, or Community Development Block Grants. For information contact Michel Lefevre at (717) 787-0771.

DEP Growing Greener

Growing Greener directs nearly \$650 million over five years to the new Environmental Stewardship Fund. Growing Greener funds can be used for farmland-preservation projects; preserving open space; cleanup of abandoned mines, watershed planning; recreational trails and parks; and help communities address land use concerns. Eligible applicants include non-profit groups, counties, and municipalities. A local match is encouraged, but not required. For more information contact the Growing Greener Helpline at (877) 724-7336.

Stormwater Planning and Management Grants

This program provides grants to counties and municipalities for preparation of stormwater management plans and stormwater ordinances. The program requires a 25% local match that can come in the form of in-kind services or cash. While greenways are not specifically funded by the project, they are excellent elements of a stormwater management system. This program is part of the Growing Greener Initiative. For more information contact Durla Lathia at (717) 772-4048.

Nonpoint Source Management Section 319 Grants

Section 319 grant funding comes from the federal Clean Water Act. The grants are available to local governments and nonprofit groups for watershed assessments, watershed restoration projects, and projects of statewide importance. The grant requires a 60% local match and 25% of the construction costs of practices implemented on private land must come from non-federal sources. For more information contact Russ Wagner at (717) 787-5642.

Environmental Fund for Pennsylvania

This fund is available to environmental, conservation, and recreation organizations for projects that improve the quality of life for Pennsylvania communities. For more information, contact Tim Schlitzer, (215) 545-5880.

Environmental Education Grants

This program uses a 5% set aside of the pollution fines and penalties collected in the Commonwealth each year for environmental education in Pennsylvania. There are eight different grant tracks with grants ranging from \$1,000 to \$20,000, most requiring a 20% match. Public and private schools, non-profit conservation/education organizations and county conservation districts may apply for the grants. For more information, contact DEP at (717) 772-1828 or by e-mail at DEPLearningCenter@state.pa.us.

Land Recycling Grants Program

Provides grants and low interest loans for environmental assessments and remediation. The program is designed to foster the cleanup of environmental contamination at industrial sites and remediate the land to a productive use. For more information, contact DEP at (717) 787-7816.

6.2 Federal Sources of Funding

The United States Government offers a variety of programs that can be used to fund open space and greenway implementation. These are described as follows:

Community Development Block Grant Program <http://www.hud.gov/progdesc/cdbgent.cfm>

The U.S. Department of Housing and Urban Development (HUD) offers financial grants to communities for neighborhood revitalization, economic development, and improvements to community facilities and services, especially in low and moderate-income areas. Several communities have used HUD funds to develop greenways. Grants from this program range from \$50,000 to \$200,000 and are either made to municipalities or non-profits. There is no formal application process.

Conservation and Reinvestment Act (CARA)

Federal conservation funds are available through the Conservation and Reinvestment Act (CARA). CARA will provide \$12 billion over six years beginning in FY 2002. Funding for each CARA category is subject to annual appropriations, however minimum levels have been

guaranteed. A sample of federal funding sources is discussed below. Additional programs are described on the EPA website (<http://www.epa.gov/owow/watershed/wacademy/fund.html>).

Conservation Reserve Program <http://www.fsa.usda.gov/dafp/cepd/crp.htm>

The U.S. Department of Agriculture, through its Agricultural Stabilization and Conservation Service, provides payments to farm owners and operators to place highly erodible or environmentally sensitive landscapes into a 10-15 year conservation contract. The participant, in return for annual payments during this period, agrees to implement a conservation plan approved by the local conservation district for converting these sensitive lands to a less intensive use. Individuals, associations, corporations, estates, trusts, cities, counties and other entities are eligible for this program. This program can be used to fund the maintenance of open space and non-public use greenways along water bodies and ridge lines.

Environmental Quality Incentive Program (EQUIP)

The Environmental Quality Incentive Program (EQUIP) is a federal program authorized in the 1996 Farm Bill that provides assistance to agricultural producers in complying with federal, state, and other environmental laws. Assistance provided through this program may be in the form of technical, cost-sharing, financial incentives, and producer education related to a broad range of soil, water, air, wildlife, and related natural resource concerns.

The EQUIP assistance programs are available to crop, forage and forest products producers as well as wetlands and wildlife landowners who choose to enter into 5- and 10-year contracts based on conservation plans for their operations. These conservation plans may include a combination of structural, vegetative, and land management components. The program prioritization is led, coordinated, and implemented on the local level.

Farmland Protection Program

The Federal Farmland Protection Program (FPP) was created in the 1996 Farm Bill. This program is administered by the Natural Resources Conservation Service (NRCS) and provides federal matching funds for state and local farmland protection efforts. Funds are used to help purchase development rights to keep productive farmland in agricultural uses. Through this program the USDA provides up to 50 percent of the fair market easement value to acquire conservation easements or other interests from farmland owners. To be eligible for funding, a state, county or local jurisdiction must have a complementary program of funding for the purchase of conservation easements, and grants are awarded competitively through the USDA's Natural Resources Conservation Service (NRCS). (For more information visit <http://www.info.usda.gov/nrcs/fpcp/fpp.htm>).

Hazardous Mitigation Grant Program

This program provides financial assistance to state and local governments for projects that reduce or eliminate the long-term risk to human life and property from the effects of natural

hazards. The grant program has 75 percent federal and 25 percent local contribution. The nonfederal share may be met with local cash contributions, in-kind services, or certain other grants such as Community Development Block Grants. The Federal Emergency Management Agency makes the final decisions on project eligibility, but the state agencies administer the program. Eligible projects include acquisition of property, retrofitting of buildings, development of standards with implementation as an essential component, and structural hazard control or protection measures such as dams and sea walls.

Land and Water Conservation Fund (<http://www.ncrc.nps.gov/programs/lwcf/>)

The Land and Water Conservation Fund is the largest source of federal money for park, wildlife, and open space land acquisition. The program's funding comes primarily from offshore oil and gas drilling receipts, with an authorized expenditure of \$900 million each year. However, Congress generally appropriates only a fraction of this amount.

LWCF funds are apportioned by formula to all 50 states, the District of Columbia and territories. Cities, counties, state agencies, and school districts are eligible for LWCF fund monies. These funds can be used for outdoor recreation projects, including acquisition, renovation, and development. Projects require a 50 percent match.

The President's budget request for FY 2003 proposes a \$200 million stateside program, a portion of which will be earmarked for a Cooperative Conservation Initiative (CCI). The CCI will provide additional funding for competitive matching grants for natural resource restoration. These funds are distributed by the National Park Service to the Pennsylvania Department of Conservation and Natural Resources. They require a 50 percent match from the local project sponsor. In PA contact DCNR, Recreation and Conservation, (717) 783-2659. For more information contact:

U.S. Department of the Interior
National Park Service, Recreation Programs, Room MIB-MS 3622
1849 C Street NW
Washington, DC 20240
(202) 565-1200
<http://www.ncrc.nps.gov/lwcf/>

Nonpoint Source Implementation Grants (319 Program)

The 319 Program provides formula grants to states so that they may implement nonpoint source mitigation projects and programs in accordance with section 319 of the Clean Water Act (CWA). Nonpoint source pollution reduction projects can be used to protect source water areas and the general quality of water resources in a watershed. Examples of previously funded projects include installation of best management practices (BMPs) for animal waste; design and implementation of BMP systems for stream, lake, and estuary watersheds; and basin-wide

education programs. These grants allow for 60 percent of the cost of the project to be funded federally with a 40 percent local match. For more information contact:

U.S. Environmental Protection Agency
Office of Wetlands, Oceans and Watersheds
Nonpoint Source Control Branch (4503F)
Ariel Rios Bldg., 1200 Pennsylvania Ave., NW,
Washington, DC 20460
(202) 260-7100
<http://aspe.os.dhhs.gov/cfda/p66460.htm>
<http://www.epa.gov/owow/nps/>

Pittman-Robertson Act

The Federal Aid in Wildlife Restoration Act, popularly known as the Pittman-Robertson Act, provides funding for the selection, restoration, rehabilitation, and improvement of wildlife habitat, and wildlife management research. Funds from an 11-percent excise tax on sporting arms and ammunition are appropriated to the Secretary of the Interior and apportioned to states on a formula basis for covering costs (up to 75 percent) of approved projects. The program is cost-reimbursement in nature, requiring states to apply for reimbursement of up to 75 percent of project expenses. At least 25 percent of the project costs must be provided by the state and originate from non-federal sources.

Rivers, Trails, and Conservation Assistance Program

The National Parks service operates this program aimed at conserving land and water resources for communities. Eligible projects include conservation plans for protecting these resources, trail development, and greenway development.

http://www.nrc.nps.gov/programs/rtca/ContactUs/cu_apply.html

Transportation and Community and System Preservation Pilot Program (TCSP)

The TCSP provides funding for a comprehensive initiative including planning grants, implementation grants, and research to investigate and address the relationships between transportation and community and system preservation and to identify private sector-based initiatives. The TCSP is a Federal Highway Administration program being jointly developed with the Federal Transit Administration, the Federal Rail Administration, the Office of the Secretary, the U.S. Department of Transportation, and the U.S. EPA. This program has been authorized \$20 million for 1999, and \$25 million is authorized for each of the years 2000-2003. States, MPOs, and local governments are eligible to receive planning and implementation grants for projects that: reduce impacts of transportation on the environment, reduce the need for costly future infrastructure investments, and improve the efficiency of the transportation system.

Projects involving partnerships among public and private sectors are given priority.

<http://www.fhwa.dot.gov/tcsp/>

Transportation Equity Act for the 21st Century Funding Programs

While generally a transportation-based program, the Transportation Equity Act for the 21st Century (TEA-21) funds programs to protect the environment. Through increased funding to the Surface Transportation Program (STP) and the National Highway System (NHS), TEA-21 allows for more environmental projects. States may spend up to 20 percent of their STP dollars (used for transportation facility reconstruction, rehabilitation, resurfacing, or restoration projects) for environmental restoration and pollution abatement projects. Additionally, each state sets aside 10 percent of STP funds for transportation enhancement projects, which can include acquisition of conservation and scenic easements, wetland mitigation, and pollution abatement, as well as scenic beautification, pedestrian and bicycle trails, archaeological planning, and historic preservation. Federal Highway Administration and PennDOT utilized funding from many subsets of TEA21: Surface Transportation Program (STP) funds Transportation Enhancements Program Transit Enhancements Program National Recreational Trails Fund Act (NRTFA) Congestion Mitigation and Air Quality Improvement Program (CMAQ). For more information contact: <http://www.istea.org/>

U.S. Department of Transportation
Federal Highway Administration
400 7th Street, SW, Washington, DC 20590
(202) 366-5004
<http://www.fhwa.dot.gov/tea21/>

Watershed Protection and Flood Prevention (Small Watersheds) Grants

The USDA Natural Resources Conservation Service (NRCS) provides funding to state and local agencies or nonprofit organizations authorized to carry out, maintain and operate watershed improvements involving less than 250,000 acres. The NRCS provides financial and technical assistance to eligible projects to improve watershed protection, flood prevention, sedimentation control, public water-based fish and wildlife enhancements, and recreation planning. The NRCS requires a 50 percent local match for public recreation, and fish and wildlife projects. <http://www.epa.gov/owow/watershed/wacademy/fund/prevent.html>

Wetlands Reserve Program

The Wetlands Reserve Program is administered through the Department of Agriculture's Natural Resources Conservation Service. This program provides landowners with financial incentives to restore and protect wetlands in exchange for retiring marginal agricultural land. Landowners may sell a permanent or a 30-year conservation easement, or they may enter into a cost-share restoration agreement for a minimum of 10-years. Participating landowners voluntarily limit future agricultural use of the land. They continue to own and control access to the land, and they may lease the land for recreational activities. The amount of funding available in a given

fiscal year depends on the amount of acres Congress permits to be enrolled in the program, and a per acre value is assigned in each state. For more information contact:

U.S. Department of Agriculture
Natural Resources Conservation Service
Watersheds and Wetlands Division
P.O. Box 2890, Washington, DC 20013
(202) 690-0848
<http://www.wl.fb-net.org>
<http://aspe.os.dhhs.gov/cfda/p10072.htm>
<http://www.nrcs.usda.gov/programs/wrp/>
<http://www.ngpc.state.ne.us/wildlife/wrp.html>

7.0 Document Sources

The following list of websites and reference materials includes books, articles, fact sheets and reports that were used to help inform this plan.

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